



U.S. Department Of Transportation

National Highway Traffic Safety Administration

APPENDIX II

CAFE Analysis Data Book Analysis for Supplemental Environmental Impact Statement

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This appendix presents a broad range of outputs from the CAFE Model “unconstrained” analysis discussed in the SEIS. The unconstrained analysis differs from the “standard setting” analysis that is the focus of Today’s notice and the FRIA, in that manufacturers are allowed to respond to standards by using compliance credits or introducing new alternative fuel vehicle (including BEVs) models during the “decision years” (for today’s notice, 2024, 2025, and 2026).

The model outputs in this appendix are presented in tables that are grouped by theme, each of which are itemized in the table of contents. The themes reviewed detail areas of central interest in fuel economy rulemaking, including: core effects of focal fuel economy stringency levels (e.g., net benefits, required and achieved CAFE levels, changes in fuel consumption, environmental impacts); benefits; costs (e.g., regulatory costs, consumer cost impacts, safety impacts, technology costs, price impacts); changes in fleet characteristics (e.g., penetration rates for powertrain, mass reduction, and electrification technologies); and other outcomes (e.g., labor utilization, vehicle sales impacts). Information within many themes in this appendix is presented from multiple perspectives (e.g., by vehicle type, by manufacturer, by model year) to enable critical comparisons of estimated impacts across alternatives, the vehicle fleet, stakeholders, and time.

1. Summary Tables

**Table B-1-1 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Total Fleet for Alternative 1, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	52.4	38.3	2.06	2.78
Benefits	72.3	49.9	2.83	3.63
Net Benefits	19.8	11.7	0.78	0.85

**Table B-1-2 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Passenger Car Fleet for Alternative 1, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	10.5	9.3	0.41	0.68
Benefits	34.2	23.9	1.34	1.73
Net Benefits	23.7	14.6	0.93	1.06

**Table B-1-3 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Light Truck Fleet for Alternative 1, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	41.9	28.9	1.64	2.10
Benefits	38.0	26.1	1.49	1.89
Net Benefits	-3.9	-2.9	-0.15	-0.21

**Table B-1-4 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Total Fleet for Alternative 2, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	95.9	70.9	3.76	5.15
Benefits	116.6	80.7	4.57	5.86
Net Benefits	20.7	9.8	0.81	0.71

**Table B-1-5 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Passenger Car Fleet for Alternative 2, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	24.2	21.9	0.95	1.59
Benefits	70.3	49.0	2.76	3.56
Net Benefits	46.1	27.1	1.81	1.97

**Table B-1-6 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Light Truck Fleet for Alternative 2, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	71.7	49.0	2.81	3.56
Benefits	46.3	31.7	1.82	2.30
Net Benefits	-25.4	-17.3	-1.00	-1.26

**Table B-1-7 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Total Fleet for Alternative 2.5, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	115.5	86.2	4.53	6.26
Benefits	129.8	89.9	5.09	6.53
Net Benefits	14.3	3.7	0.56	0.27

**Table B-1-8 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Passenger Car Fleet for Alternative 2.5, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	31.6	28.4	1.24	2.06
Benefits	77.8	54.2	3.05	3.94
Net Benefits	46.2	25.8	1.81	1.88

**Table B-1-9 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Light Truck Fleet for Alternative 2.5, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	83.8	57.8	3.29	4.20
Benefits	52.0	35.7	2.04	2.60
Net Benefits	-31.9	-22.1	-1.25	-1.61

**Table B-1-10 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Total Fleet for Alternative 3, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	147.9	110.9	5.80	8.05
Benefits	166.6	115.5	6.53	8.39
Net Benefits	18.7	4.6	0.73	0.33

**Table B-1-11 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Passenger Car Fleet for Alternative 3, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	35.2	32.6	1.38	2.37
Benefits	96.3	67.0	3.78	4.87
Net Benefits	61.1	34.5	2.40	2.50

**Table B-1-12 - Estimated Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars),
Light Truck Fleet for Alternative 3, Average SCC**

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	112.7	78.3	4.42	5.69
Benefits	70.3	48.4	2.76	3.52
Net Benefits	-42.4	-29.9	-1.66	-2.17

Table B-1-13 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 1, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	147.6	86.3	7.53	6.96
Benefits	214.5	130.8	10.95	10.54
Net Benefits	67.0	44.5	3.42	3.58

Table B-1-14 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Passenger Car Fleet for Alternative 1, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	17.1	14.1	0.87	1.14
Benefits	97.7	60.4	4.98	4.86
Net Benefits	80.6	46.3	4.11	3.73

Table B-1-15 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Light Truck Fleet for Alternative 1, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	130.5	72.2	6.66	5.82
Benefits	116.9	70.5	5.96	5.68
Net Benefits	-13.7	-1.8	-0.70	-0.14

Table B-1-16 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 2, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	282.8	166.7	14.43	13.44
Benefits	388.1	236.7	19.80	19.08
Net Benefits	105.2	70.0	5.37	5.64

Table B-1-17 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Passenger Car Fleet for Alternative 2, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	31.7	29.9	1.62	2.41
Benefits	221.9	136.8	11.32	11.03
Net Benefits	190.3	106.9	9.71	8.62

Table B-1-18 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Light Truck Fleet for Alternative 2, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	251.1	136.8	12.81	11.03
Benefits	166.1	99.9	8.48	8.05
Net Benefits	-85.0	-36.9	-4.34	-2.98

Table B-1-19 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 2.5, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	327.6	195.6	16.72	15.77
Benefits	426.0	261.0	21.74	21.04
Net Benefits	98.4	65.4	5.02	5.27

Table B-1-20 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Passenger Car Fleet for Alternative 2.5, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	48.5	41.7	2.47	3.36
Benefits	240.8	148.9	12.28	12.00
Net Benefits	192.3	107.2	9.81	8.64

Table B-1-21 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Light Truck Fleet for Alternative 2.5, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	279.1	153.9	14.24	12.41
Benefits	185.3	112.1	9.45	9.04
Net Benefits	-93.9	-41.8	-4.79	-3.37

Table B-1-22 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Total Fleet for Alternative 3, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	413.5	248.4	21.10	20.02
Benefits	537.1	330.1	27.40	26.60
Net Benefits	123.6	81.7	6.31	6.58

Table B-1-23 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Passenger Car Fleet for Alternative 3, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	42.2	42.6	2.15	3.43
Benefits	308.9	190.5	15.76	15.35
Net Benefits	266.7	147.9	13.61	11.92

Table B-1-24 - Estimated Costs, Benefits, and Net Benefits Across Calendar Years 2021-2050 (billions of dollars), Light Truck Fleet for Alternative 3, Average SCC

	Totals		Annualized	
	3% Discount Rate	7% Discount Rate	3% Discount Rate	7% Discount Rate
Costs	371.3	205.8	18.94	16.58
Benefits	228.2	139.6	11.64	11.25
Net Benefits	-143.1	-66.2	-7.30	-5.33

Table B-1-25 - Estimated Total Fleet Costs, Benefits, and Net Benefits Across MYs 1981-2029 (billions of dollars) Total Fleet, by Alternative, Average SCC

Alternative	3% Discount Rate			7% Discount Rate		
	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits
Alternative 1	52.4	72.3	19.8	38.3	49.9	11.7
Alternative 2	95.9	116.6	20.7	70.9	80.7	9.8
Alternative 2.5	115.5	129.8	14.3	86.2	89.9	3.7
Alternative 3	147.9	166.6	18.7	110.9	115.5	4.6

**Table B-1-26 - Estimated Passenger Car Fleet Costs, Benefits, and Net Benefits Across MYs 1981-2029
(billions of dollars) Passenger Car Fleet, by Alternative, Average SCC**

Alternative	3% Discount Rate			7% Discount Rate		
	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits
Alternative 1	10.5	34.2	23.7	9.3	23.9	14.6
Alternative 2	24.2	70.3	46.1	21.9	49.0	27.1
Alternative 2.5	31.6	77.8	46.2	28.4	54.2	25.8
Alternative 3	35.2	96.3	61.1	32.6	67.0	34.5

**Table B-1-27 - Estimated Light Truck Fleet Costs, Benefits, and Net Benefits Across MYs 1981-2029
(billions of dollars) Light Truck Fleet, by Alternative, Average SCC**

Alternative	3% Discount Rate			7% Discount Rate		
	Costs	Benefits	Net Benefits	Costs	Benefits	Net Benefits
Alternative 1	41.9	38.0	-3.9	28.9	26.1	-2.9
Alternative 2	71.7	46.3	-25.4	49.0	31.7	-17.3
Alternative 2.5	83.8	52.0	-31.9	57.8	35.7	-22.1
Alternative 3	112.7	70.3	-42.4	78.3	48.4	-29.9

Table B-1-28 - Estimates of Benefits and Costs of the Preferred Alternative for Model Years 2023 through 2026 (billions of dollars), 3% Discount Rate, Average SCC

MY	Cost	Benefit	Net Benefits
Present Values			
2023	\$3.9	\$3.4	-\$0.5
2024	\$9.1	\$12.3	\$3.2
2025	\$12.5	\$17.9	\$5.4
2026	\$16.8	\$25.1	\$8.3
Sum	\$42.3	\$58.7	\$16.4

2. Estimated Required CAFE Levels

Table B-2-1 - Average CAFE Requirements for Passenger Cars, Light Trucks, and Combined (mpg), Alternative 0 (Baseline)

Model Year	Passenger Car	Light Truck	Combined
2020	43.3	31.0	35.4
2021	43.9	31.5	36.0
2022	44.6	31.9	36.8
2023	45.2	32.4	37.4
2024	45.9	32.9	38.1
2025	46.6	33.5	38.7
2026	47.3	33.9	39.4
2027	47.3	33.9	39.4
2028	47.3	33.9	39.5
2029	47.3	33.9	39.5

**Table B-2-2 - Average CAFE Requirements for Passenger Cars, Light Trucks, and Combined (mpg),
Alternative 1**

Model Year	Passenger Car	Light Truck	Combined
2020	43.3	31.0	35.4
2021	43.9	31.5	36.0
2022	44.6	31.9	36.8
2023	45.2	32.4	37.4
2024	49.8	36.4	41.8
2025	51.5	37.7	43.2
2026	53.2	39.0	44.8
2027	53.2	39.0	44.8
2028	53.2	39.0	44.9
2029	53.2	39.0	44.9

**Table B-2-3 - Average CAFE Requirements for Passenger Cars, Light Trucks, and Combined (mpg),
Alternative 2**

Model Year	Passenger Car	Light Truck	Combined
2020	43.3	31.0	35.4
2021	43.9	31.5	36.0
2022	44.6	31.9	36.8
2023	45.2	32.4	37.4
2024	49.2	35.1	40.7
2025	53.4	38.2	44.3
2026	58.1	41.5	48.1
2027	58.1	41.5	48.1
2028	58.1	41.5	48.2
2029	58.1	41.5	48.2

**Table B-2-4 - Average CAFE Requirements for Passenger Cars, Light Trucks, and Combined (mpg),
Alternative 3**

Model Year	Passenger Car	Light Truck	Combined
2020	43.3	31.0	35.4
2021	43.9	31.5	36.0
2022	44.6	31.9	36.8
2023	45.2	32.4	37.4
2024	49.2	35.1	40.7
2025	53.4	38.2	44.2
2026	59.4	42.4	49.2
2027	59.4	42.4	49.1
2028	59.3	42.4	49.2
2029	59.3	42.4	49.3

**Table B-2-5 - Average CAFE Requirements for Passenger Cars, Light Trucks, and Combined (mpg),
Alternative 3**

Model Year	Passenger Car	Light Truck	Combined
2020	43.3	31.0	35.4
2021	43.9	31.5	36.0
2022	44.6	31.9	36.8
2023	45.2	32.4	37.4
2024	50.2	35.9	41.5
2025	55.8	39.9	46.2
2026	62.0	44.3	51.3
2027	62.0	44.3	51.3
2028	62.0	44.3	51.4
2029	62.0	44.3	51.4

Table B-2-6 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.4	36.0	36.8	37.4	38.1	38.7	39.4	39.4	39.5	39.5
Alternative 1	35.4	36.0	36.8	37.4	41.8	43.2	44.8	44.8	44.9	44.9
Alternative 2	35.4	36.0	36.8	37.4	40.7	44.3	48.1	48.1	48.2	48.2
Alternative 2.5	35.4	36.0	36.8	37.4	40.7	44.2	49.2	49.1	49.2	49.3
Alternative 3	35.4	36.0	36.8	37.4	41.5	46.2	51.3	51.3	51.4	51.4

Table B-2-7 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.3	43.9	44.6	45.2	45.9	46.6	47.3	47.3	47.3	47.3
Alternative 1	43.3	43.9	44.6	45.2	49.8	51.5	53.2	53.2	53.2	53.2
Alternative 2	43.3	43.9	44.6	45.2	49.2	53.4	58.1	58.1	58.1	58.1
Alternative 2.5	43.3	43.9	44.6	45.2	49.2	53.4	59.4	59.4	59.3	59.3
Alternative 3	43.3	43.9	44.6	45.2	50.2	55.8	62.0	62.0	62.0	62.0

Table B-2-8 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.0	31.5	31.9	32.4	32.9	33.5	33.9	33.9	33.9	33.9
Alternative 1	31.0	31.5	31.9	32.4	36.4	37.7	39.0	39.0	39.0	39.0
Alternative 2	31.0	31.5	31.9	32.4	35.1	38.2	41.5	41.5	41.5	41.5
Alternative 2.5	31.0	31.5	31.9	32.4	35.1	38.2	42.4	42.4	42.4	42.4
Alternative 3	31.0	31.5	31.9	32.4	35.9	39.9	44.3	44.3	44.3	44.3

Table B-2-9 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	37.7	38.4	39.2	39.9	40.6	41.3	42.0	42.1	42.1	42.2
Alternative 1	37.7	38.4	39.2	39.9	44.4	46.0	47.6	47.6	47.6	47.7
Alternative 2	37.7	38.4	39.2	39.9	43.4	47.3	51.4	51.4	51.5	51.6
Alternative 2.5	37.7	38.4	39.2	39.9	43.4	47.3	52.5	52.5	52.6	52.6
Alternative 3	37.7	38.4	39.2	39.9	44.4	49.4	54.8	54.8	54.9	54.9

Table B-2-10 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.6	36.3	37.0	37.6	38.4	39.0	39.6	39.7	39.7	39.8
Alternative 1	35.6	36.3	37.0	37.6	42.1	43.5	45.0	45.1	45.1	45.2
Alternative 2	35.6	36.3	37.0	37.6	41.0	44.6	48.5	48.5	48.6	48.6
Alternative 2.5	35.6	36.3	37.0	37.6	41.0	44.6	49.5	49.5	49.6	49.6
Alternative 3	35.6	36.3	37.0	37.6	41.9	46.6	51.8	51.7	51.8	51.8

Table B-2-11 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.3	31.7	32.3	32.8	33.4	33.9	34.4	34.4	34.4	34.4
Alternative 1	31.3	31.7	32.3	32.8	36.9	38.2	39.5	39.5	39.5	39.5
Alternative 2	31.3	31.7	32.3	32.8	35.7	38.8	42.2	42.2	42.2	42.2
Alternative 2.5	31.3	31.7	32.3	32.8	35.7	38.8	43.1	43.1	43.1	43.1
Alternative 3	31.3	31.7	32.3	32.8	36.4	40.5	45.0	45.0	45.0	45.0

Table B-2-12 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.8	32.4	33.0	33.6	34.1	34.7	35.2	35.3	35.3	35.4
Alternative 1	31.8	32.4	33.0	33.6	37.5	38.9	40.2	40.2	40.3	40.3
Alternative 2	31.8	32.4	33.0	33.6	36.4	39.6	43.0	43.0	43.1	43.1
Alternative 2.5	31.8	32.4	33.0	33.6	36.4	39.6	44.0	44.0	44.0	44.1
Alternative 3	31.8	32.4	33.0	33.6	37.2	41.3	45.9	45.9	46.0	46.0

Table B-2-13 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.7	33.2	33.9	34.4	35.0	35.6	36.1	36.2	36.2	36.3
Alternative 1	32.7	33.2	33.9	34.4	38.3	39.7	41.0	41.1	41.1	41.1
Alternative 2	32.7	33.2	33.9	34.4	37.2	40.5	44.0	44.0	44.0	44.1
Alternative 2.5	32.7	33.2	33.9	34.4	37.2	40.5	44.9	44.9	44.9	45.0
Alternative 3	32.7	33.2	33.9	34.4	38.0	42.2	46.9	46.9	46.9	47.0

Table B-2-14 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.6	39.3	40.1	40.7	41.4	42.2	42.9	42.9	43.0	43.0
Alternative 1	38.6	39.3	40.1	40.7	45.4	47.0	48.6	48.7	48.7	48.8
Alternative 2	38.6	39.3	40.1	40.7	44.4	48.3	52.5	52.5	52.6	52.6
Alternative 2.5	38.6	39.3	40.1	40.7	44.4	48.3	53.7	53.6	53.7	53.8
Alternative 3	38.6	39.3	40.1	40.7	45.4	50.4	56.0	56.0	56.0	56.1

Table B-2-15 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	41.6	42.3	43.1	43.8	44.5	45.2	45.9	45.9	45.9	46.0
Alternative 1	41.6	42.3	43.1	43.8	48.3	50.0	51.7	51.7	51.7	51.7
Alternative 2	41.6	42.3	43.1	43.8	47.6	51.8	56.2	56.2	56.3	56.3
Alternative 2.5	41.6	42.3	43.1	43.8	47.6	51.7	57.5	57.5	57.5	57.5
Alternative 3	41.6	42.3	43.1	43.8	48.6	54.1	60.1	60.1	60.1	60.1

Table B-2-16 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.9	39.7	40.5	41.3	42.0	42.7	43.5	43.5	43.6	43.7
Alternative 1	38.9	39.7	40.5	41.3	46.0	47.6	49.2	49.3	49.4	49.4
Alternative 2	38.9	39.7	40.5	41.3	44.9	48.9	53.1	53.1	53.2	53.2
Alternative 2.5	38.9	39.7	40.5	41.3	44.9	48.9	54.3	54.3	54.4	54.4
Alternative 3	38.9	39.7	40.5	41.3	45.9	51.0	56.7	56.7	56.7	56.8

Table B-2-17 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.6	33.1	33.7	34.2	34.7	35.4	35.9	35.9	35.9	35.9
Alternative 1	32.6	33.1	33.7	34.2	38.5	39.9	41.2	41.2	41.2	41.2
Alternative 2	32.6	33.1	33.7	34.2	37.3	40.5	44.0	43.9	44.0	44.0
Alternative 2.5	32.6	33.1	33.7	34.2	37.3	40.5	45.0	45.0	45.0	45.0
Alternative 3	32.6	33.1	33.7	34.2	38.1	42.2	47.0	47.0	47.0	47.0

Table B-2-18 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.7	39.3	40.0	40.7	41.3	42.0	42.7	42.8	42.8	42.8
Alternative 1	38.7	39.3	40.0	40.7	45.4	47.0	48.7	48.7	48.7	48.7
Alternative 2	38.7	39.3	40.0	40.7	44.3	48.2	52.3	52.3	52.4	52.4
Alternative 2.5	38.7	39.3	40.0	40.7	44.3	48.1	53.5	53.5	53.6	53.6
Alternative 3	38.7	39.3	40.0	40.7	45.2	50.3	55.9	55.8	55.9	55.9

Table B-2-19 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	40.7	41.3	42.1	42.8	43.5	44.2	44.9	44.9	44.9	45.0
Alternative 1	40.7	41.3	42.1	42.8	47.8	49.4	51.2	51.2	51.2	51.2
Alternative 2	40.7	41.3	42.1	42.8	46.5	50.6	55.0	55.0	55.1	55.1
Alternative 2.5	40.7	41.3	42.1	42.8	46.5	50.6	56.2	56.2	56.3	56.3
Alternative 3	40.7	41.3	42.1	42.8	47.5	52.9	58.8	58.8	58.8	58.8

Table B-2-20 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	39.2	39.9	40.6	41.3	42.0	42.7	43.4	43.5	43.5	43.5
Alternative 1	39.2	39.9	40.6	41.3	45.9	47.5	49.1	49.2	49.2	49.2
Alternative 2	39.2	39.9	40.6	41.3	45.0	48.9	53.2	53.2	53.2	53.3
Alternative 2.5	39.2	39.9	40.6	41.3	45.0	48.9	54.4	54.4	54.4	54.5
Alternative 3	39.2	39.9	40.6	41.3	46.0	51.1	56.8	56.7	56.8	56.8

Table B-2-21 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	37.0	37.7	38.3	39.0	39.7	40.3	41.0	41.1	41.1	41.2
Alternative 1	37.0	37.7	38.3	39.0	43.9	45.3	47.0	47.0	47.0	47.1
Alternative 2	37.0	37.7	38.3	39.0	42.5	46.2	50.2	50.2	50.3	50.3
Alternative 2.5	37.0	37.7	38.3	39.0	42.5	46.2	51.4	51.4	51.4	51.5
Alternative 3	37.0	37.7	38.3	39.0	43.4	48.3	53.6	53.6	53.6	53.6

Table B-2-22 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	40.5	40.4	41.1	41.8	42.4	43.1	43.7	43.7	43.7	43.8
Alternative 1	40.5	40.4	41.1	41.8	46.0	47.6	49.2	49.2	49.2	49.2
Alternative 2	40.5	40.4	41.1	41.8	45.4	49.3	53.6	53.6	53.6	53.6
Alternative 2.5	40.5	40.4	41.1	41.8	45.4	49.3	54.8	54.8	54.8	54.8
Alternative 3	40.5	40.4	41.1	41.8	46.3	51.5	57.3	57.3	57.3	57.3

Table B-2-23 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	37.1	37.9	38.6	39.3	40.1	40.8	41.5	41.5	41.6	41.6
Alternative 1	37.1	37.9	38.6	39.3	44.0	45.4	47.0	47.1	47.1	47.2
Alternative 2	37.1	37.9	38.6	39.3	42.9	46.6	50.7	50.7	50.8	50.8
Alternative 2.5	37.1	37.9	38.6	39.3	42.9	46.6	51.8	51.8	51.9	51.9
Alternative 3	37.1	37.9	38.6	39.3	43.8	48.6	54.1	54.1	54.2	54.2

Table B-2-24 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34.3	34.9	35.5	36.0	36.6	37.2	37.8	37.9	37.9	37.9
Alternative 1	34.3	34.9	35.5	36.0	40.4	41.8	43.3	43.3	43.3	43.4
Alternative 2	34.3	34.9	35.5	36.0	39.2	42.7	46.3	46.3	46.3	46.4
Alternative 2.5	34.3	34.9	35.5	36.0	39.2	42.7	47.4	47.3	47.4	47.4
Alternative 3	34.3	34.9	35.5	36.0	40.1	44.6	49.5	49.4	49.5	49.5

Table B-2-25 - Estimated Required Average Fuel Economy (mpg), Total Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	37.1	37.9	38.7	39.4	40.1	40.8	41.5	41.5	41.6	41.7
Alternative 1	37.1	37.9	38.7	39.4	44.1	45.6	47.2	47.3	47.3	47.4
Alternative 2	37.1	37.9	38.7	39.4	42.9	46.7	50.8	50.8	50.9	50.9
Alternative 2.5	37.1	37.9	38.7	39.4	42.9	46.7	51.9	51.9	52.0	52.0
Alternative 3	37.1	37.9	38.7	39.4	43.8	48.7	54.2	54.1	54.2	54.3

Table B-2-26 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	42.5	43.1	43.8	44.4	45.1	45.8	46.5	46.5	46.5	46.5
Alternative 1	42.5	43.1	43.8	44.4	48.9	50.6	52.3	52.3	52.2	52.2
Alternative 2	42.5	43.1	43.8	44.4	48.3	52.5	57.1	57.1	57.1	57.1
Alternative 2.5	42.5	43.1	43.8	44.4	48.3	52.5	58.3	58.3	58.3	58.3
Alternative 3	42.5	43.1	43.8	44.4	49.4	54.9	60.9	60.9	60.9	60.9

Table B-2-27 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	41.4	42.0	42.7	43.3	44.0	44.6	45.3	45.3	45.3	45.3
Alternative 1	41.4	42.0	42.7	43.3	47.7	49.3	50.9	50.9	50.9	50.9
Alternative 2	41.4	42.0	42.7	43.3	47.1	51.2	55.6	55.6	55.6	55.6
Alternative 2.5	41.4	42.0	42.7	43.3	47.1	51.2	56.8	56.8	56.8	56.8
Alternative 3	41.4	42.0	42.7	43.3	48.1	53.5	59.4	59.4	59.4	59.4

Table B-2-28 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	41.6	42.0	42.5	43.0	43.6	44.2	44.9	44.8	44.8	44.7
Alternative 1	41.6	42.0	42.5	43.0	47.3	48.9	50.5	50.5	50.4	50.4
Alternative 2	41.6	42.0	42.5	43.0	46.8	50.8	55.2	55.2	55.1	55.1
Alternative 2.5	41.6	42.0	42.5	43.0	46.8	50.9	56.4	56.4	56.4	56.4
Alternative 3	41.6	42.0	42.5	43.0	47.8	53.1	59.0	59.0	59.0	59.0

Table B-2-29 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	42.2	42.8	43.5	44.1	44.8	45.5	46.1	46.1	46.1	46.1
Alternative 1	42.2	42.8	43.5	44.1	48.5	50.2	51.9	51.9	51.9	51.8
Alternative 2	42.2	42.8	43.5	44.1	47.9	52.2	56.7	56.7	56.7	56.7
Alternative 2.5	42.2	42.8	43.5	44.1	47.9	52.2	57.9	57.9	57.9	57.9
Alternative 3	42.2	42.8	43.5	44.1	49.0	54.5	60.5	60.5	60.5	60.5

Table B-2-30 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.9	44.5	45.2	45.8	46.5	47.2	48.0	48.0	48.0	47.9
Alternative 1	43.9	44.5	45.2	45.8	50.4	52.2	53.9	53.9	53.9	53.9
Alternative 2	43.9	44.5	45.2	45.8	49.8	54.2	58.9	58.9	58.9	58.9
Alternative 2.5	43.9	44.5	45.2	45.8	49.8	54.2	60.2	60.2	60.1	60.1
Alternative 3	43.9	44.5	45.2	45.8	50.9	56.6	62.9	62.9	62.9	62.9

Table B-2-31 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.6	44.3	45.0	45.6	46.3	47.0	47.7	47.7	47.7	47.7
Alternative 1	43.6	44.3	45.0	45.6	50.2	51.9	53.7	53.7	53.7	53.6
Alternative 2	43.6	44.3	45.0	45.6	49.6	53.9	58.6	58.6	58.6	58.6
Alternative 2.5	43.6	44.3	45.0	45.6	49.6	53.9	59.9	59.9	59.9	59.9
Alternative 3	43.6	44.3	45.0	45.6	50.7	56.4	62.6	62.6	62.6	62.6

Table B-2-32 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.3	44.0	44.7	45.5	46.2	46.9	47.6	47.6	47.6	47.6
Alternative 1	43.3	44.0	44.7	45.5	50.0	51.7	53.4	53.4	53.4	53.4
Alternative 2	43.3	44.0	44.7	45.5	49.4	53.7	58.3	58.3	58.3	58.3
Alternative 2.5	43.3	44.0	44.7	45.5	49.4	53.7	59.6	59.6	59.6	59.6
Alternative 3	43.3	44.0	44.7	45.5	50.5	56.1	62.3	62.3	62.3	62.3

Table B-2-33 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	44.0	44.7	45.4	46.1	46.8	47.5	48.3	48.3	48.3	48.3
Alternative 1	44.0	44.7	45.4	46.1	50.8	52.5	54.2	54.3	54.3	54.3
Alternative 2	44.0	44.7	45.4	46.1	50.1	54.5	59.2	59.2	59.2	59.2
Alternative 2.5	44.0	44.7	45.4	46.1	50.1	54.5	60.5	60.5	60.5	60.5
Alternative 3	44.0	44.7	45.4	46.1	51.2	56.9	63.3	63.3	63.3	63.3

Table B-2-34 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	42.1	42.7	43.3	44.0	44.7	45.4	46.1	46.1	46.1	46.1
Alternative 1	42.1	42.7	43.3	44.0	48.4	50.1	51.8	51.8	51.8	51.8
Alternative 2	42.1	42.7	43.3	44.0	47.8	52.0	56.5	56.5	56.5	56.5
Alternative 2.5	42.1	42.7	43.3	44.0	47.8	52.0	57.8	57.8	57.8	57.8
Alternative 3	42.1	42.7	43.3	44.0	48.9	54.3	60.4	60.4	60.4	60.4

Table B-2-35 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.9	44.6	45.2	45.9	46.6	47.3	48.0	48.0	48.0	48.0
Alternative 1	43.9	44.6	45.2	45.9	50.5	52.3	54.1	54.1	54.1	54.1
Alternative 2	43.9	44.6	45.2	45.9	49.9	54.3	59.0	59.0	59.0	59.0
Alternative 2.5	43.9	44.6	45.2	45.9	50.0	54.3	60.3	60.3	60.3	60.3
Alternative 3	43.9	44.6	45.2	45.9	51.1	56.7	63.0	63.0	63.0	63.0

Table B-2-36 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	46.5	47.2	48.0	48.8	49.6	50.4	51.2	51.2	51.2	51.2
Alternative 1	46.5	47.2	48.0	48.8	53.8	55.6	57.5	57.5	57.5	57.5
Alternative 2	46.5	47.2	48.0	48.8	53.1	57.7	62.7	62.7	62.8	62.8
Alternative 2.5	46.5	47.2	48.0	48.8	53.1	57.7	64.1	64.1	64.1	64.2
Alternative 3	46.5	47.2	48.0	48.8	54.2	60.3	67.0	67.0	67.0	67.0

Table B-2-37 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.2	43.9	44.5	45.1	45.8	46.5	47.3	47.3	47.2	47.2
Alternative 1	43.2	43.9	44.5	45.1	49.7	51.4	53.1	53.1	53.1	53.1
Alternative 2	43.2	43.9	44.5	45.1	49.1	53.4	58.0	58.0	58.0	58.0
Alternative 2.5	43.2	43.9	44.5	45.1	49.1	53.4	59.3	59.3	59.3	59.3
Alternative 3	43.2	43.9	44.5	45.1	50.2	55.8	61.9	61.9	61.9	61.9

Table B-2-38 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	44.9	45.5	46.2	46.9	47.7	48.4	49.1	49.1	49.1	49.1
Alternative 1	44.9	45.5	46.2	46.9	51.7	53.4	55.2	55.2	55.2	55.2
Alternative 2	44.9	45.5	46.2	46.9	51.0	55.5	60.3	60.3	60.3	60.3
Alternative 2.5	44.9	45.5	46.2	46.9	51.0	55.5	61.6	61.6	61.6	61.6
Alternative 3	44.9	45.5	46.2	46.9	52.2	57.9	64.4	64.4	64.4	64.4

Table B-2-39 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	40.9	40.8	41.4	42.1	42.7	43.4	44.0	44.0	44.0	44.1
Alternative 1	40.9	40.8	41.4	42.1	46.3	47.9	49.5	49.5	49.5	49.5
Alternative 2	40.9	40.8	41.4	42.1	45.7	49.7	54.0	54.0	54.0	54.0
Alternative 2.5	40.9	40.8	41.4	42.1	45.7	49.7	55.2	55.2	55.2	55.2
Alternative 3	40.9	40.8	41.4	42.1	46.7	51.9	57.7	57.7	57.7	57.7

Table B-2-40 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.6	44.3	45.0	45.6	46.3	47.1	47.8	47.8	47.8	47.8
Alternative 1	43.6	44.3	45.0	45.6	50.3	51.9	53.7	53.7	53.7	53.7
Alternative 2	43.6	44.3	45.0	45.6	49.7	53.9	58.6	58.6	58.6	58.6
Alternative 2.5	43.6	44.3	45.0	45.6	49.7	53.9	59.9	59.9	59.9	59.9
Alternative 3	43.6	44.3	45.0	45.6	50.8	56.4	62.7	62.7	62.7	62.7

Table B-2-41 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	40.9	41.5	42.2	42.8	43.4	44.1	44.7	44.7	44.7	44.7
Alternative 1	40.9	41.5	42.2	42.8	47.1	48.6	50.3	50.3	50.3	50.3
Alternative 2	40.9	41.5	42.2	42.8	46.5	50.5	54.9	54.9	54.9	54.9
Alternative 2.5	40.9	41.5	42.2	42.8	46.5	50.5	56.1	56.1	56.1	56.1
Alternative 3	40.9	41.5	42.2	42.8	47.5	52.8	58.7	58.7	58.7	58.7

Table B-2-42 - Estimated Required Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	43.6	44.3	45.0	45.7	46.4	47.1	47.8	47.8	47.9	47.9
Alternative 1	43.6	44.3	45.0	45.7	50.3	52.0	53.8	53.8	53.8	53.8
Alternative 2	43.6	44.3	45.0	45.7	49.7	54.0	58.7	58.7	58.7	58.7
Alternative 2.5	43.6	44.3	45.0	45.7	49.7	54.0	60.0	60.0	60.0	60.0
Alternative 3	43.6	44.3	45.0	45.7	50.8	56.4	62.7	62.7	62.7	62.7

Table B-2-43 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.7	32.2	32.6	33.1	33.6	34.2	34.7	34.7	34.7	34.7
Alternative 1	31.7	32.2	32.6	33.1	37.4	38.6	39.9	39.9	39.9	39.9
Alternative 2	31.7	32.2	32.6	33.1	36.0	39.2	42.6	42.6	42.6	42.6
Alternative 2.5	31.7	32.2	32.6	33.1	36.0	39.2	43.5	43.5	43.5	43.5
Alternative 3	31.7	32.2	32.6	33.1	36.8	40.9	45.5	45.5	45.5	45.5

Table B-2-44 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.7	32.2	32.6	33.1	33.7	34.2	34.7	34.7	34.7	34.7
Alternative 1	31.7	32.2	32.6	33.1	37.4	38.6	39.9	39.9	39.9	39.9
Alternative 2	31.7	32.2	32.6	33.1	36.0	39.2	42.6	42.6	42.6	42.6
Alternative 2.5	31.7	32.2	32.6	33.1	36.0	39.2	43.5	43.5	43.5	43.5
Alternative 3	31.7	32.2	32.6	33.1	36.8	40.9	45.5	45.5	45.5	45.5

Table B-2-45 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.1	30.5	31.0	31.5	32.0	32.5	32.9	32.9	32.9	32.9
Alternative 1	30.1	30.5	31.0	31.5	35.5	36.7	37.9	37.9	37.9	37.9
Alternative 2	30.1	30.5	31.0	31.5	34.2	37.2	40.4	40.4	40.4	40.4
Alternative 2.5	30.1	30.5	31.0	31.5	34.2	37.2	41.3	41.3	41.3	41.3
Alternative 3	30.1	30.5	31.0	31.5	34.9	38.8	43.1	43.1	43.1	43.1

Table B-2-46 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	29.2	29.7	30.1	30.6	31.0	31.5	32.0	32.0	32.0	32.0
Alternative 1	29.2	29.7	30.1	30.6	34.3	35.5	36.7	36.7	36.7	36.7
Alternative 2	29.2	29.7	30.1	30.6	33.1	36.0	39.1	39.1	39.1	39.1
Alternative 2.5	29.2	29.7	30.1	30.6	33.1	36.0	40.0	40.0	40.0	40.0
Alternative 3	29.2	29.7	30.1	30.6	33.8	37.6	41.8	41.8	41.8	41.8

Table B-2-47 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	29.1	29.5	30.0	30.4	30.9	31.4	31.8	31.8	31.8	31.8
Alternative 1	29.1	29.5	30.0	30.4	33.9	35.1	36.3	36.3	36.3	36.3
Alternative 2	29.1	29.5	30.0	30.4	32.7	35.6	38.7	38.7	38.7	38.7
Alternative 2.5	29.1	29.5	30.0	30.4	32.7	35.6	39.5	39.5	39.5	39.5
Alternative 3	29.1	29.5	30.0	30.4	33.4	37.2	41.3	41.3	41.3	41.3

Table B-2-48 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	33.3	33.8	34.3	34.8	35.3	35.9	36.4	36.4	36.4	36.4
Alternative 1	33.3	33.8	34.3	34.8	39.2	40.6	41.9	41.9	41.9	41.9
Alternative 2	33.3	33.8	34.3	34.8	37.8	41.1	44.7	44.7	44.7	44.7
Alternative 2.5	33.3	33.8	34.3	34.8	37.8	41.1	45.7	45.7	45.7	45.7
Alternative 3	33.3	33.8	34.3	34.8	38.7	43.0	47.7	47.7	47.7	47.7

Table B-2-49 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.3	31.7	32.2	32.7	33.2	33.7	34.2	34.2	34.2	34.2
Alternative 1	31.3	31.7	32.2	32.7	36.9	38.1	39.4	39.4	39.4	39.4
Alternative 2	31.3	31.7	32.2	32.7	35.5	38.6	42.0	42.0	42.0	42.0
Alternative 2.5	31.3	31.7	32.2	32.7	35.5	38.6	42.9	42.9	42.9	42.9
Alternative 3	31.3	31.7	32.2	32.7	36.3	40.4	44.9	44.9	44.9	44.9

Table B-2-50 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.8	33.3	33.9	34.4	34.9	35.4	36.0	36.0	36.0	36.0
Alternative 1	32.8	33.3	33.9	34.4	38.8	40.1	41.4	41.4	41.4	41.4
Alternative 2	32.8	33.3	33.9	34.4	37.4	40.6	44.1	44.1	44.1	44.1
Alternative 2.5	32.8	33.3	33.9	34.4	37.4	40.6	45.1	45.1	45.1	45.1
Alternative 3	32.8	33.3	33.9	34.4	38.2	42.4	47.1	47.1	47.1	47.1

Table B-2-51 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.3	32.8	33.3	33.8	34.3	34.9	35.4	35.4	35.4	35.4
Alternative 1	32.3	32.8	33.3	33.8	38.1	39.4	40.7	40.7	40.7	40.7
Alternative 2	32.3	32.8	33.3	33.8	36.8	40.0	43.4	43.4	43.4	43.4
Alternative 2.5	32.3	32.8	33.3	33.8	36.8	40.0	44.4	44.4	44.4	44.4
Alternative 3	32.3	32.8	33.3	33.8	37.6	41.7	46.4	46.4	46.4	46.4

Table B-2-52 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34.8	35.3	35.8	36.4	36.9	37.5	38.1	38.1	38.1	38.1
Alternative 1	34.8	35.3	35.8	36.4	41.0	42.4	43.9	43.9	43.9	43.9
Alternative 2	34.8	35.3	35.8	36.4	39.6	43.0	46.7	46.7	46.7	46.7
Alternative 2.5	34.8	35.3	35.8	36.4	39.6	43.0	47.8	47.8	47.8	47.8
Alternative 3	34.8	35.3	35.8	36.4	40.4	44.9	49.9	49.9	49.9	49.9

Table B-2-53 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.8	37.3	37.9	38.5	39.0	39.6	40.2	40.2	40.2	40.2
Alternative 1	36.8	37.3	37.9	38.5	43.4	44.8	46.4	46.4	46.4	46.4
Alternative 2	36.8	37.3	37.9	38.5	41.8	45.4	49.4	49.4	49.4	49.4
Alternative 2.5	36.8	37.3	37.9	38.5	41.8	45.4	50.5	50.5	50.5	50.5
Alternative 3	36.8	37.3	37.9	38.5	42.7	47.5	52.8	52.8	52.8	52.8

Table B-2-54 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.5	33.0	33.5	34.0	34.6	35.1	35.6	35.6	35.6	35.6
Alternative 1	32.5	33.0	33.5	34.0	38.4	39.7	41.0	41.0	41.0	41.0
Alternative 2	32.5	33.0	33.5	34.0	37.0	40.2	43.7	43.7	43.7	43.7
Alternative 2.5	32.5	33.0	33.5	34.0	37.0	40.2	44.7	44.7	44.7	44.7
Alternative 3	32.5	33.0	33.5	34.0	37.8	42.0	46.7	46.7	46.7	46.7

Table B-2-55 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.4	35.9	36.4	37.0	37.6	38.1	38.7	38.7	38.7	38.7
Alternative 1	35.4	35.9	36.4	37.0	41.7	43.1	44.6	44.6	44.6	44.6
Alternative 2	35.4	35.9	36.4	37.0	40.2	43.7	47.5	47.5	47.5	47.5
Alternative 2.5	35.4	35.9	36.4	37.0	40.2	43.7	48.6	48.6	48.6	48.6
Alternative 3	35.4	35.9	36.4	37.0	41.1	45.7	50.7	50.7	50.7	50.7

Table B-2-56 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.6	31.1	31.6	32.0	32.5	33.0	33.5	33.5	33.5	33.5
Alternative 1	30.6	31.1	31.6	32.0	36.1	37.3	38.6	38.6	38.6	38.6
Alternative 2	30.6	31.1	31.6	32.0	34.8	37.8	41.1	41.1	41.1	41.1
Alternative 2.5	30.6	31.1	31.6	32.0	34.8	37.9	42.1	42.1	42.1	42.1
Alternative 3	30.6	31.1	31.6	32.0	35.6	39.5	44.0	43.9	43.9	44.0

Table B-2-57 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.8	32.3	32.7	33.2	33.8	34.3	34.8	34.8	34.8	34.8
Alternative 1	31.8	32.3	32.7	33.2	37.5	38.7	40.0	40.0	40.0	40.0
Alternative 2	31.8	32.3	32.7	33.2	36.1	39.3	42.7	42.7	42.7	42.7
Alternative 2.5	31.8	32.3	32.7	33.2	36.1	39.3	43.6	43.6	43.6	43.6
Alternative 3	31.8	32.3	32.7	33.2	36.9	41.0	45.6	45.6	45.6	45.6

Table B-2-58 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.5	33.0	33.5	34.0	34.5	35.0	35.6	35.6	35.6	35.6
Alternative 1	32.5	33.0	33.5	34.0	38.3	39.6	41.0	41.0	41.0	41.0
Alternative 2	32.5	33.0	33.5	34.0	36.9	40.2	43.6	43.6	43.6	43.6
Alternative 2.5	32.5	33.0	33.5	34.0	36.9	40.2	44.6	44.6	44.6	44.6
Alternative 3	32.5	33.0	33.5	34.0	37.8	42.0	46.6	46.6	46.6	46.6

Table B-2-59 - Estimated Required Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	33.5	34.1	34.6	35.1	35.6	36.2	36.7	36.7	36.7	36.7
Alternative 1	33.5	34.1	34.6	35.1	39.6	40.9	42.3	42.3	42.3	42.3
Alternative 2	33.5	34.1	34.6	35.1	38.2	41.5	45.1	45.1	45.1	45.1
Alternative 2.5	33.5	34.1	34.6	35.1	38.2	41.5	46.1	46.1	46.1	46.1
Alternative 3	33.5	34.1	34.6	35.1	39.0	43.3	48.2	48.2	48.2	48.2

3. Estimated Achieved CAFE Levels

Table B-3-1 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34.4	36.0	38.1	39.8	40.9	41.9	42.9	43.2	43.5	43.8
Alternative 1	34.4	36.0	38.1	40.1	42.3	43.6	45.2	45.7	46.2	46.4
Alternative 2	34.4	36.0	38.1	40.3	42.6	44.7	47.2	48.0	48.7	48.9
Alternative 2.5	34.4	36.0	38.1	40.3	42.8	44.9	47.9	48.8	49.5	49.7
Alternative 3	34.4	36.0	38.1	40.5	43.5	46.2	49.5	50.5	51.3	51.6

Table B-3-2 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	41.8	43.6	46.7	48.2	49.8	50.9	52.0	52.3	52.5	52.8
Alternative 1	41.8	43.6	46.7	48.5	51.5	53.3	55.1	55.7	56.2	56.5
Alternative 2	41.8	43.6	46.7	49.1	52.8	55.9	59.4	60.4	61.3	61.4
Alternative 2.5	41.8	43.6	46.7	49.2	53.1	56.4	60.3	61.4	62.2	62.4
Alternative 3	41.8	43.6	46.7	49.4	54.0	58.1	62.4	63.7	65.0	65.1

Table B-3-3 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.2	31.5	32.9	34.5	35.2	35.9	36.8	37.0	37.1	37.4
Alternative 1	30.2	31.5	32.9	34.7	36.3	37.3	38.6	39.0	39.4	39.5
Alternative 2	30.2	31.5	32.9	34.7	36.3	37.7	39.7	40.4	40.8	41.0
Alternative 2.5	30.2	31.5	32.9	34.8	36.4	37.8	40.4	41.1	41.5	41.7
Alternative 3	30.2	31.5	32.9	34.9	37.0	39.0	41.6	42.5	43.0	43.3

Table B-3-4 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34.5	37.2	40.0	42.2	42.8	47.0	48.3	48.7	48.8	48.9
Alternative 1	34.5	37.2	40.0	42.3	43.8	46.7	49.1	49.8	49.9	50.1
Alternative 2	34.5	37.2	40.0	42.2	43.5	46.6	48.4	51.4	51.8	52.0
Alternative 2.5	34.5	37.2	40.0	42.2	43.5	46.5	48.4	52.0	52.8	53.1
Alternative 3	34.5	37.2	40.0	42.2	43.5	47.8	50.3	53.3	55.1	55.3

Table B-3-5 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.7	33.8	34.7	36.5	38.0	39.6	40.5	41.0	41.1	41.3
Alternative 1	31.7	33.8	34.7	36.5	37.7	39.6	40.5	42.4	43.8	44.0
Alternative 2	31.7	33.8	34.7	36.5	37.7	39.6	40.5	42.3	45.3	45.7
Alternative 2.5	31.7	33.8	34.7	36.5	37.7	39.6	40.5	42.3	45.3	46.1
Alternative 3	31.7	33.8	34.7	36.5	37.7	41.9	43.6	45.7	50.6	51.2

Table B-3-6 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	28.3	29.2	31.2	33.5	33.8	33.9	34.9	35.3	35.8	35.9
Alternative 1	28.3	29.2	31.2	33.6	33.9	34.0	35.5	36.4	37.5	37.8
Alternative 2	28.3	29.2	31.2	33.5	33.9	34.0	35.9	36.7	37.8	38.2
Alternative 2.5	28.3	29.2	31.2	33.5	33.9	34.0	35.9	36.8	37.8	38.2
Alternative 3	28.3	29.2	31.2	33.5	33.9	34.0	35.9	36.8	37.9	38.4

Table B-3-7 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.4	33.1	35.2	37.7	38.3	38.5	39.7	39.7	39.9	40.0
Alternative 1	31.4	33.1	35.2	38.0	38.6	39.1	40.2	40.6	40.7	40.7
Alternative 2	31.4	33.1	35.2	38.9	39.8	40.2	41.8	42.4	42.5	42.8
Alternative 2.5	31.4	33.1	35.2	38.9	39.8	40.2	43.3	44.4	44.5	44.5
Alternative 3	31.4	33.1	35.2	39.1	40.9	41.7	45.2	46.2	46.3	46.3

Table B-3-8 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.9	32.4	34.0	34.7	35.5	36.3	36.7	36.8	36.9	37.5
Alternative 1	30.9	32.4	34.0	34.7	38.1	39.7	41.1	41.4	41.6	41.6
Alternative 2	30.9	32.4	34.0	34.7	37.1	40.5	44.1	44.7	45.0	45.0
Alternative 2.5	30.9	32.4	34.0	34.7	37.1	40.5	45.0	45.6	45.9	45.9
Alternative 3	30.9	32.4	34.0	34.7	37.7	42.2	46.8	47.7	47.9	48.0

Table B-3-9 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	40.2	41.2	44.2	45.1	45.9	47.8	49.3	49.3	49.5	49.6
Alternative 1	40.2	41.2	44.2	45.1	46.0	47.8	49.1	49.2	49.3	49.4
Alternative 2	40.2	41.2	44.2	45.4	46.9	49.2	50.7	52.1	52.7	52.7
Alternative 2.5	40.2	41.2	44.2	45.9	48.3	50.6	52.2	53.3	53.8	53.9
Alternative 3	40.2	41.2	44.2	46.5	49.6	52.6	54.3	55.6	56.6	57.0

Table B-3-10 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.0	39.3	42.3	43.9	46.1	46.4	47.1	47.4	47.5	47.8
Alternative 1	38.0	39.3	42.3	43.9	47.8	49.2	51.9	52.3	52.5	52.6
Alternative 2	38.0	39.3	42.3	43.9	47.6	50.7	56.3	56.7	57.0	57.1
Alternative 2.5	38.0	39.3	42.3	43.9	47.6	50.7	57.5	57.9	58.2	58.3
Alternative 3	38.0	39.3	42.3	43.9	48.7	52.6	60.1	60.5	60.8	60.9

Table B-3-11 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.7	40.7	41.5	41.9	44.6	45.2	45.5	46.2	46.2	46.3
Alternative 1	36.7	40.7	41.5	41.9	46.6	47.9	48.6	49.4	49.7	49.7
Alternative 2	36.7	40.7	41.5	41.9	47.8	50.0	52.3	53.2	53.6	53.7
Alternative 2.5	36.7	40.7	41.5	41.9	48.7	50.9	53.5	54.4	54.8	54.9
Alternative 3	36.7	40.7	41.5	41.9	49.7	53.1	55.9	56.7	57.1	57.2

Table B-3-12 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	28.9	30.1	31.5	33.9	35.3	35.7	36.2	36.7	36.7	37.1
Alternative 1	28.9	30.1	31.5	33.9	36.0	36.9	38.5	39.3	39.3	41.0
Alternative 2	28.9	30.1	31.5	33.9	36.1	37.0	38.5	39.3	39.3	43.9
Alternative 2.5	28.9	30.1	31.5	33.9	36.1	37.0	38.5	39.3	39.3	43.9
Alternative 3	28.9	30.1	31.5	33.9	36.2	37.0	38.6	39.4	39.4	46.7

Table B-3-13 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.6	37.8	38.7	43.6	44.2	45.2	45.9	46.0	46.0	46.1
Alternative 1	36.6	37.8	38.7	43.7	44.6	47.7	49.2	49.2	49.3	49.3
Alternative 2	36.6	37.8	38.7	43.7	45.0	50.5	54.0	54.0	54.0	54.0
Alternative 2.5	36.6	37.8	38.7	43.7	45.1	51.2	55.5	55.5	55.6	55.6
Alternative 3	36.6	37.8	38.7	43.7	45.1	52.1	56.4	56.4	56.4	56.5

Table B-3-14 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	39.3	39.9	40.1	40.3	40.4	46.0	46.1	46.2	46.2	46.3
Alternative 1	39.3	39.9	40.1	40.3	40.4	51.9	52.0	52.1	52.1	52.2
Alternative 2	39.3	39.9	40.1	40.3	40.4	55.0	55.0	55.0	55.1	55.1
Alternative 2.5	39.3	39.9	40.1	40.3	40.4	56.5	56.6	56.6	56.6	56.7
Alternative 3	39.3	39.9	40.1	40.3	40.4	58.7	58.8	58.8	58.8	58.8

Table B-3-15 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	37.8	40.2	42.3	43.0	44.6	45.3	45.6	45.7	46.0	46.1
Alternative 1	37.8	40.2	42.3	44.0	47.1	48.5	49.1	49.3	50.2	50.3
Alternative 2	37.8	40.2	42.3	44.7	48.2	51.6	52.7	53.2	54.4	54.7
Alternative 2.5	37.8	40.2	42.3	45.1	49.0	52.5	54.0	54.5	55.8	56.1
Alternative 3	37.8	40.2	42.3	45.2	49.7	53.7	55.2	56.4	57.9	58.4

Table B-3-16 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	39.3	40.1	42.9	46.1	48.3	49.9	50.5	50.7	50.7	50.8
Alternative 1	39.3	40.1	42.9	46.8	49.5	51.1	52.0	52.2	52.2	52.3
Alternative 2	39.3	40.1	42.9	46.8	49.5	51.1	53.1	53.3	53.3	53.4
Alternative 2.5	39.3	40.1	42.9	46.8	49.5	51.1	53.4	53.5	53.6	53.7
Alternative 3	39.3	40.1	42.9	46.8	49.5	51.1	53.8	54.0	54.0	54.1

Table B-3-17 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	720.0	740.6	745.2	751.8	754.5	757.0	757.7	758.1	758.8	759.3
Alternative 1	720.0	740.6	745.2	751.9	754.5	756.5	757.1	757.4	758.1	758.5
Alternative 2	720.0	740.6	745.2	751.9	754.4	756.3	756.5	756.5	757.1	757.5
Alternative 2.5	720.0	740.6	745.2	751.9	754.4	756.2	756.4	756.3	756.8	757.3
Alternative 3	720.0	740.6	745.2	751.9	754.3	755.9	755.9	755.7	756.3	756.6

Table B-3-18 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.6	38.1	40.3	41.6	42.7	43.1	45.3	45.9	46.3	47.1
Alternative 1	36.6	38.1	40.3	42.4	45.4	45.8	48.6	49.0	49.6	50.4
Alternative 2	36.6	38.1	40.3	42.6	47.3	48.1	51.5	51.9	52.5	52.6
Alternative 2.5	36.6	38.1	40.3	42.6	47.5	48.2	51.5	52.0	52.6	52.7
Alternative 3	36.6	38.1	40.3	43.1	49.0	50.0	53.6	54.2	55.0	55.0

Table B-3-19 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	33.1	33.4	33.6	40.6	40.9	42.3	43.5	45.4	45.4	45.5
Alternative 1	33.1	33.4	33.6	40.8	41.0	42.4	43.6	46.3	46.4	46.4
Alternative 2	33.1	33.4	33.6	41.2	41.4	42.9	44.0	47.5	47.6	47.6
Alternative 2.5	33.1	33.4	33.6	40.8	41.1	42.5	43.6	47.5	47.6	47.6
Alternative 3	33.1	33.4	33.6	41.1	41.4	42.8	43.9	49.4	49.5	49.5

Table B-3-20 - Estimated Achieved Average Fuel Economy (mpg), Total Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	33.4	34.9	36.8	38.7	40.3	45.8	47.4	47.9	48.0	48.1
Alternative 1	33.4	34.9	36.8	38.7	41.3	46.1	47.7	47.9	48.5	48.6
Alternative 2	33.4	34.9	36.8	38.7	41.1	46.1	48.7	49.8	50.9	51.0
Alternative 2.5	33.4	34.9	36.8	38.7	41.1	46.0	49.0	50.2	51.3	51.4
Alternative 3	33.4	34.9	36.8	38.7	41.4	47.5	50.5	52.7	54.1	54.3

Table B-3-21 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.7	40.1	43.8	45.7	46.6	52.9	55.1	55.5	55.5	55.7
Alternative 1	36.7	40.1	43.8	45.8	47.9	51.9	56.0	56.2	56.3	56.5
Alternative 2	36.7	40.1	43.8	45.8	47.9	52.6	55.5	57.2	57.6	57.9
Alternative 2.5	36.7	40.1	43.8	45.8	47.9	52.5	55.6	58.4	58.8	59.2
Alternative 3	36.7	40.1	43.8	45.8	47.9	54.9	59.6	61.0	61.4	61.8

Table B-3-22 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	33.9	37.3	38.9	39.7	43.0	44.5	44.8	45.3	45.3	45.5
Alternative 1	33.9	37.3	38.9	39.7	42.4	43.7	43.9	47.6	50.9	50.9
Alternative 2	33.9	37.3	38.9	39.7	42.4	43.7	44.0	47.6	55.1	55.6
Alternative 2.5	33.9	37.3	38.9	39.7	42.4	43.7	44.0	47.6	55.1	56.8
Alternative 3	33.9	37.3	38.9	39.7	42.4	43.7	44.0	47.6	59.0	59.4

Table B-3-23 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.7	36.9	37.6	39.5	40.4	40.5	43.3	43.7	45.0	45.0
Alternative 1	30.7	36.9	37.6	39.5	40.4	40.5	47.9	49.2	50.5	50.6
Alternative 2	30.7	36.9	37.6	39.5	40.4	40.5	50.8	53.2	55.3	55.5
Alternative 2.5	30.7	36.9	37.6	39.5	40.4	40.5	53.2	56.0	56.9	56.9
Alternative 3	30.7	36.9	37.6	39.5	40.4	40.4	53.4	56.2	58.9	59.3

Table B-3-24 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.9	37.4	43.9	48.7	48.8	48.8	51.1	51.3	51.4	51.5
Alternative 1	36.9	37.4	43.9	50.6	50.6	52.1	53.7	53.8	53.7	53.8
Alternative 2	36.9	37.4	43.9	56.9	56.8	58.7	60.8	61.0	60.9	61.1
Alternative 2.5	36.9	37.4	43.9	56.9	56.8	58.7	60.0	60.2	60.0	59.9
Alternative 3	36.9	37.4	43.9	56.9	56.9	58.8	61.6	61.9	61.7	61.7

Table B-3-25 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	40.3	40.8	44.0	45.8	46.8	48.7	48.9	49.0	49.0	49.0
Alternative 1	40.3	40.8	44.0	45.8	49.8	52.3	54.3	54.5	54.5	54.6
Alternative 2	40.3	40.8	44.0	45.8	49.3	53.7	58.8	60.1	60.1	60.1
Alternative 2.5	40.3	40.8	44.0	45.8	49.3	54.1	59.8	61.4	61.5	61.5
Alternative 3	40.3	40.8	44.0	45.8	50.1	55.8	61.7	64.1	64.1	64.2

Table B-3-26 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	45.0	46.0	48.9	49.6	50.1	51.7	54.4	54.4	54.6	54.6
Alternative 1	45.0	46.0	48.9	49.6	50.4	52.3	54.7	54.7	54.8	54.9
Alternative 2	45.0	46.0	48.9	50.1	51.7	54.1	57.1	58.3	58.9	58.9
Alternative 2.5	45.0	46.0	48.9	51.2	52.9	55.4	58.5	59.2	59.9	59.9
Alternative 3	45.0	46.0	48.9	52.4	54.5	57.6	60.9	61.8	63.0	63.0

Table B-3-27 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	39.4	40.9	44.5	45.7	48.3	48.5	48.7	49.1	49.2	49.5
Alternative 1	39.4	40.9	44.5	45.7	50.3	51.9	53.6	54.1	54.3	54.4
Alternative 2	39.4	40.9	44.5	45.7	50.1	53.9	58.4	58.9	59.2	59.3
Alternative 2.5	39.4	40.9	44.5	45.7	50.1	53.9	59.6	60.1	60.4	60.5
Alternative 3	39.4	40.9	44.5	45.7	51.4	56.3	62.3	62.8	63.1	63.2

Table B-3-28 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	41.9	45.7	46.8	47.0	49.3	50.3	50.5	50.8	50.8	50.8
Alternative 1	41.9	45.7	46.8	47.0	50.8	53.0	54.1	54.4	54.8	54.8
Alternative 2	41.9	45.7	46.8	47.0	50.8	54.5	58.6	59.2	59.7	59.8
Alternative 2.5	41.9	45.7	46.8	47.0	51.6	55.4	59.9	60.5	61.1	61.1
Alternative 3	41.9	45.7	46.8	47.0	52.0	57.9	62.8	63.4	64.0	64.0

Table B-3-29 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.7	36.9	37.0	38.7	44.7	44.7	44.7	46.4	47.0	47.0
Alternative 1	35.7	36.9	37.0	38.7	49.4	49.4	49.4	52.0	52.0	52.0
Alternative 2	35.7	36.9	37.0	38.7	51.2	51.2	51.2	54.3	54.7	56.5
Alternative 2.5	35.7	36.9	37.0	38.7	51.2	51.2	51.2	54.3	54.7	57.8
Alternative 3	35.7	36.9	37.0	38.7	54.0	54.0	54.0	57.5	57.8	60.4

Table B-3-30 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.8	41.3	43.1	48.1	48.8	50.6	50.8	50.8	50.8	50.8
Alternative 1	38.8	41.3	43.1	48.2	49.7	53.9	55.4	55.4	55.5	55.5
Alternative 2	38.8	41.3	43.1	48.2	50.8	57.2	59.7	59.7	59.7	59.7
Alternative 2.5	38.8	41.3	43.1	48.3	50.9	57.8	60.5	60.5	60.5	60.5
Alternative 3	38.8	41.3	43.1	48.3	50.9	60.2	63.0	63.0	63.0	63.0

Table B-3-31 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	42.8	44.3	44.7	45.0	45.3	52.0	52.2	52.3	52.4	52.6
Alternative 1	42.8	44.3	44.7	45.0	45.3	57.7	57.9	58.0	58.1	58.2
Alternative 2	42.8	44.3	44.7	45.0	45.2	62.6	62.7	62.7	62.8	62.9
Alternative 2.5	42.8	44.3	44.7	45.0	45.2	64.9	65.1	65.0	65.1	65.2
Alternative 3	42.8	44.3	44.7	45.0	45.2	66.9	67.0	67.0	67.1	67.1

Table B-3-32 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	42.0	43.4	45.5	46.1	48.3	48.8	49.0	49.0	49.1	49.2
Alternative 1	42.0	43.4	45.5	47.2	51.3	52.8	53.1	53.2	54.2	54.2
Alternative 2	42.0	43.4	45.5	48.1	52.9	57.9	58.1	58.5	60.0	60.1
Alternative 2.5	42.0	43.4	45.5	48.2	53.6	58.8	59.1	59.4	61.1	61.2
Alternative 3	42.0	43.4	45.5	48.3	54.7	60.8	61.1	62.2	63.8	64.2

Table B-3-33 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.1	40.1	46.1	47.9	50.0	50.4	52.1	52.1	52.1	52.1
Alternative 1	38.1	40.1	46.1	47.9	52.0	52.3	55.2	55.2	55.2	55.2
Alternative 2	38.1	40.1	46.1	47.9	52.0	52.3	60.3	60.3	60.3	60.3
Alternative 2.5	38.1	40.1	46.1	47.9	52.0	52.3	61.6	61.6	61.6	61.6
Alternative 3	38.1	40.1	46.1	47.9	52.0	52.3	64.4	64.4	64.4	64.4

Table B-3-34 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	731.7	752.4	754.6	755.8	756.8	757.7	758.4	758.8	759.5	760.0
Alternative 1	731.7	752.4	754.6	755.9	756.8	757.2	757.8	758.1	758.8	759.2
Alternative 2	731.7	752.4	754.6	755.9	756.7	757.0	757.2	757.2	757.8	758.2
Alternative 2.5	731.7	752.4	754.6	755.9	756.7	756.9	757.1	757.0	757.5	758.0
Alternative 3	731.7	752.4	754.6	755.9	756.6	756.6	756.6	756.4	757.0	757.3

Table B-3-35 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	45.9	47.1	49.1	49.8	50.7	51.1	51.8	52.8	53.0	54.5
Alternative 1	45.9	47.1	49.1	49.8	52.5	53.0	53.8	54.6	54.9	56.5
Alternative 2	45.9	47.1	49.1	49.8	56.0	57.3	58.8	59.8	60.0	60.0
Alternative 2.5	45.9	47.1	49.1	49.8	56.4	57.8	59.3	60.4	60.6	60.7
Alternative 3	45.9	47.1	49.1	49.9	57.9	59.7	61.3	62.8	63.0	63.1

Table B-3-36 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.7	36.4	36.5	40.7	41.0	43.3	47.3	49.1	49.2	49.3
Alternative 1	35.7	36.4	36.5	40.7	41.0	43.3	47.2	51.8	52.0	52.0
Alternative 2	35.7	36.4	36.5	40.7	41.0	43.3	47.1	55.1	55.2	55.3
Alternative 2.5	35.7	36.4	36.5	40.7	41.0	43.3	47.1	56.3	56.4	56.5
Alternative 3	35.7	36.4	36.5	40.7	41.0	43.3	47.1	58.7	58.8	58.9

Table B-3-37 - Estimated Achieved Average Fuel Economy (mpg), Passenger Car Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	38.0	38.7	40.7	43.6	46.2	47.5	49.4	49.8	50.1	50.1
Alternative 1	38.0	38.7	40.7	43.6	49.1	50.6	52.7	52.8	54.0	54.1
Alternative 2	38.0	38.7	40.7	43.6	48.7	52.1	56.3	56.3	59.0	59.1
Alternative 2.5	38.0	38.7	40.7	43.6	48.7	52.1	57.2	57.3	60.2	60.4
Alternative 3	38.0	38.7	40.7	43.6	49.5	54.0	59.2	59.3	62.9	63.2

Table B-3-38 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.3	32.9	34.4	36.5	36.7	37.9	38.1	38.2	38.2	38.2
Alternative 1	31.3	32.9	34.4	36.6	37.2	38.6	38.9	39.9	39.9	39.9
Alternative 2	31.3	32.9	34.4	36.4	36.6	37.7	38.1	42.4	42.6	42.6
Alternative 2.5	31.3	32.9	34.4	36.4	36.6	37.7	38.1	42.4	43.5	43.5
Alternative 3	31.3	32.9	34.4	36.5	36.7	37.8	38.1	42.4	45.4	45.4

Table B-3-39 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	29.9	31.0	31.3	33.7	33.7	35.3	36.6	37.0	37.1	37.2
Alternative 1	29.9	31.0	31.3	33.7	33.7	35.9	37.3	37.7	37.8	37.9
Alternative 2	29.9	31.0	31.3	33.7	33.7	35.9	37.3	37.7	37.8	38.0
Alternative 2.5	29.9	31.0	31.3	33.7	33.7	35.9	37.3	37.7	37.8	38.0
Alternative 3	29.9	31.0	31.3	33.7	33.7	40.1	43.1	43.8	43.9	44.4

Table B-3-40 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	28.0	28.2	30.3	32.6	32.8	32.9	33.6	34.0	34.4	34.5
Alternative 1	28.0	28.2	30.3	32.7	32.9	33.0	33.9	34.7	35.7	36.0
Alternative 2	28.0	28.2	30.3	32.6	32.9	33.0	34.0	34.7	35.7	36.1
Alternative 2.5	28.0	28.2	30.3	32.6	32.9	33.0	33.9	34.6	35.6	36.0
Alternative 3	28.0	28.2	30.3	32.6	32.9	33.0	33.9	34.6	35.6	36.0

Table B-3-41 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	29.8	31.7	32.7	34.5	35.2	35.3	36.2	36.2	36.3	36.3
Alternative 1	29.8	31.7	32.7	34.5	35.2	35.4	36.3	36.7	36.8	36.8
Alternative 2	29.8	31.7	32.7	34.5	35.4	35.6	37.0	37.6	37.7	37.9
Alternative 2.5	29.8	31.7	32.7	34.5	35.4	35.6	38.8	40.0	40.1	40.1
Alternative 3	29.8	31.7	32.7	34.7	36.6	37.2	40.7	41.8	41.9	41.9

Table B-3-42 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	27.8	29.4	30.4	30.8	31.4	31.8	32.2	32.3	32.3	33.1
Alternative 1	27.8	29.4	30.4	30.8	33.8	35.1	36.3	36.6	36.7	36.7
Alternative 2	27.8	29.4	30.4	30.8	32.7	35.7	38.8	39.3	39.5	39.5
Alternative 2.5	27.8	29.4	30.4	30.8	32.7	35.7	39.7	40.1	40.3	40.3
Alternative 3	27.8	29.4	30.4	30.8	33.3	37.3	41.5	42.0	42.2	42.2

Table B-3-43 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35.1	35.7	38.5	39.4	40.2	42.3	42.3	42.3	42.3	42.3
Alternative 1	35.1	35.7	38.5	39.4	40.2	41.8	41.8	41.9	41.9	41.9
Alternative 2	35.1	35.7	38.5	39.4	40.7	42.7	42.7	44.2	44.6	44.6
Alternative 2.5	35.1	35.7	38.5	39.4	42.2	44.3	44.3	45.7	45.9	45.9
Alternative 3	35.1	35.7	38.5	39.4	43.2	46.1	46.1	47.7	48.4	49.2

Table B-3-44 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	29.5	29.5	29.5	32.3	32.4	32.5	35.4	35.4	35.4	35.4
Alternative 1	29.5	29.5	29.5	32.3	32.4	32.5	39.4	39.5	39.5	39.5
Alternative 2	29.5	29.5	29.5	32.3	32.4	32.5	42.0	42.1	42.1	42.1
Alternative 2.5	29.5	29.5	29.5	32.3	32.4	32.5	42.9	43.0	43.0	43.0
Alternative 3	29.5	29.5	29.5	32.3	32.4	32.5	45.1	45.1	45.1	45.1

Table B-3-45 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.6	34.3	34.4	34.7	37.5	37.5	37.7	38.7	38.7	38.7
Alternative 1	30.6	34.3	34.4	34.7	40.0	40.1	40.2	41.5	41.5	41.5
Alternative 2	30.6	34.3	34.4	34.7	42.8	42.9	43.1	44.3	44.3	44.3
Alternative 2.5	30.6	34.3	34.4	34.7	43.9	43.9	44.1	45.4	45.4	45.4
Alternative 3	30.6	34.3	34.4	34.7	45.8	45.8	46.1	47.1	47.1	47.1

Table B-3-46 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	28.7	29.8	31.3	33.7	34.9	35.3	35.8	36.2	36.2	36.6
Alternative 1	28.7	29.8	31.3	33.7	35.5	36.4	38.0	38.7	38.7	40.5
Alternative 2	28.7	29.8	31.3	33.7	35.5	36.4	38.0	38.7	38.7	43.3
Alternative 2.5	28.7	29.8	31.3	33.7	35.5	36.4	38.0	38.7	38.7	43.3
Alternative 3	28.7	29.8	31.3	33.7	35.5	36.4	38.0	38.7	38.7	46.1

Table B-3-47 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34.7	35.0	35.1	39.8	40.2	40.6	41.6	41.6	41.6	41.6
Alternative 1	34.7	35.0	35.1	39.8	40.2	42.5	43.9	43.9	43.9	43.9
Alternative 2	34.7	35.0	35.1	39.8	40.2	44.9	48.9	48.9	48.9	48.9
Alternative 2.5	34.7	35.0	35.1	39.8	40.2	45.6	51.1	51.1	51.1	51.1
Alternative 3	34.7	35.0	35.1	39.8	40.2	45.6	50.7	50.8	50.8	50.8

Table B-3-48 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	36.8	36.8	36.8	36.8	36.8	41.5	41.5	41.5	41.5	41.5
Alternative 1	36.8	36.8	36.8	36.8	36.8	47.5	47.5	47.5	47.5	47.5
Alternative 2	36.8	36.8	36.8	36.8	36.8	49.4	49.4	49.4	49.4	49.4
Alternative 2.5	36.8	36.8	36.8	36.8	36.8	50.5	50.5	50.5	50.5	50.5
Alternative 3	36.8	36.8	36.8	36.8	36.8	52.8	52.8	52.8	52.8	52.8

Table B-3-49 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	31.0	34.3	36.1	36.7	37.2	38.1	38.5	38.5	39.1	39.1
Alternative 1	31.0	34.3	36.1	37.6	38.9	40.0	41.0	41.0	41.6	41.8
Alternative 2	31.0	34.3	36.1	38.0	39.2	40.3	42.4	43.0	43.7	44.1
Alternative 2.5	31.0	34.3	36.1	38.8	40.0	41.1	44.1	44.7	45.4	45.9
Alternative 3	31.0	34.3	36.1	38.8	40.2	41.3	44.3	45.6	46.7	47.2

Table B-3-50 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	39.6	40.1	42.0	45.6	47.8	49.7	50.0	50.2	50.2	50.3
Alternative 1	39.6	40.1	42.0	46.4	48.7	50.7	51.0	51.2	51.2	51.3
Alternative 2	39.6	40.1	42.0	46.4	48.7	50.7	51.0	51.2	51.2	51.3
Alternative 2.5	39.6	40.1	42.0	46.4	48.7	50.7	51.0	51.2	51.2	51.3
Alternative 3	39.6	40.1	42.0	46.4	48.7	50.7	51.0	51.2	51.2	51.3

Table B-3-51 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	477.8	483.0	510.7	625.8	673.3	728.5	728.5	728.5	728.5	728.5
Alternative 1	477.8	483.0	510.7	625.8	673.3	728.4	728.5	728.5	728.5	728.5
Alternative 2	477.8	483.0	510.7	625.8	673.2	728.4	728.4	728.4	728.4	728.3
Alternative 2.5	477.8	483.0	510.7	625.8	673.3	728.5	728.5	728.5	728.5	728.4
Alternative 3	477.8	483.0	510.7	625.8	673.2	728.4	728.4	728.4	728.4	728.4

Table B-3-52 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	29.8	31.0	32.7	34.2	35.0	35.2	38.4	38.4	38.8	38.9
Alternative 1	29.8	31.0	32.7	35.4	38.3	38.5	42.7	42.7	43.4	43.4
Alternative 2	29.8	31.0	32.7	35.7	39.0	39.3	43.9	43.9	44.6	44.6
Alternative 2.5	29.8	31.0	32.7	35.7	39.0	39.3	43.6	43.6	44.3	44.3
Alternative 3	29.8	31.0	32.7	36.5	40.6	40.9	45.7	45.7	46.7	46.7

Table B-3-53 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	32.3	32.4	32.6	40.6	40.8	41.9	42.1	44.0	44.0	44.1
Alternative 1	32.3	32.4	32.6	40.8	41.0	42.1	42.3	44.4	44.4	44.4
Alternative 2	32.3	32.4	32.6	41.4	41.6	42.7	42.9	45.1	45.1	45.1
Alternative 2.5	32.3	32.4	32.6	40.9	41.1	42.2	42.4	44.7	44.8	44.8
Alternative 3	32.3	32.4	32.6	41.3	41.5	42.6	42.8	46.6	46.6	46.6

Table B-3-54 - Estimated Achieved Average Fuel Economy (mpg), Light Truck Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	30.7	32.5	34.1	35.2	36.0	44.3	45.6	46.1	46.1	46.1
Alternative 1	30.7	32.5	34.1	35.2	36.0	42.6	43.7	44.0	44.1	44.1
Alternative 2	30.7	32.5	34.1	35.2	36.0	41.6	43.2	45.0	45.0	45.0
Alternative 2.5	30.7	32.5	34.1	35.2	36.0	41.6	43.2	45.0	45.0	45.0
Alternative 3	30.7	32.5	34.1	35.2	36.0	42.8	44.5	47.9	47.9	47.9

4. CAFE Cost per Vehicle

Table B-4-1 - MY 2029 Required and Achieved CAFE Levels (mpg), and Per-Vehicle Regulatory Costs (billions of dollars) for Total Fleet by Alternative

	Avg Required (mpg)	Avg Achieved (mpg)	Avg Reg. Cost (\$)
Alternative 0 (Baseline)	39.5	43.8	1024
Alternative 1	44.9	46.4	1401
Alternative 2	48.2	48.9	1831
Alternative 2.5	49.3	49.7	2024
Alternative 3	51.4	51.6	2298

Table B-4-2 - MY 2029 Required and Achieved CAFE Levels (mpg), and Per-Vehicle Costs (billions of dollars) for Passenger Car Fleet by Alternative

	Avg Required (mpg)	Avg Achieved (mpg)	Avg Reg. Cost (\$)
Alternative 0 (Baseline)	47.3	52.8	870
Alternative 1	53.2	56.5	1208
Alternative 2	58.1	61.4	1708
Alternative 2.5	59.3	62.4	1900
Alternative 3	62.0	65.1	2122

Table B-4-3 - MY 2029 Required and Achieved CAFE Levels (mpg), and Per-Vehicle Costs (billions of dollars) for Light Truck Fleet by Alternative

	Avg Required (mpg)	Avg Achieved (mpg)	Avg Reg. Cost (\$)
Alternative 0 (Baseline)	33.9	37.4	1180
Alternative 1	39.0	39.5	1591
Alternative 2	41.5	41.0	1948
Alternative 2.5	42.4	41.7	2141
Alternative 3	44.3	43.3	2461

5. Various Impacts of Alternatives

Table B-5-1 - Impacts for Alternative 1, Average SCC

Category	Passenger Car	Light Truck	Combined Fleet
Fuel Economy			
Required Fuel Economy for MY 2029(mpg)	53.2	39.0	44.9
Achieved Fuel Economy for MY 2029 (mpg)	56.5	39.5	46.4
Achieved Fuel Economy for MY 2020 - for reference (mpg)	41.8	30.2	34.4
Average MY 2029 Vehicle - Incremental to Alternative 0 (Baseline)			
Per Vehicle Price Increase (dollars)	338	411	377
Lifetime Fuel Cost (per vehicle), 3% Discount Rate (dollars)	-593	-822	-666
Lifetime Fuel Cost (per vehicle), 7% Discount Rate (dollars)	-463	-632	-516
Payback Period Relative to MY 2020, 3% Discount Rate (years)	1.0	1.0	1.0
Payback Period Relative to MY 2020, 7% Discount Rate (years)	1.0	0.0	0.5
Lifetime of Vehicles Through 2029 - Incremental to Alternative 0 (Baseline)			
Total Lifetime Fuel Volume (billion gallons)	-14	-14	-28
Total Lifetime CO2 Volume (million metric tons)	-153	-155	-308
Fatalities (Including Rebound Miles)	-100	715	615
Fatalities (Excluding Rebound Miles)	-216	509	293
Total Technology Costs, 3% Discount Rate (\$b)	11.7	15.6	27.3
Total Technology Costs, 7% Discount Rate (\$b)	9.5	12.7	22.2
Total Net Societal Benefits, 3% Discount Rate (\$b)	23.7	-3.9	19.8
Total Net Societal Benefits, 7% Discount Rate (\$b)	14.6	-2.9	11.7

Table B-5-2 - Impacts for Alternative 2, Average SCC

Category	Passenger Car	Light Truck	Combined Fleet
Fuel Economy			
Required Fuel Economy for MY 2029(mpg)	58.1	41.5	48.2
Achieved Fuel Economy for MY 2029 (mpg)	61.4	41.0	48.9
Achieved Fuel Economy for MY 2020 - for reference (mpg)	41.8	30.2	34.4
Average MY 2029 Vehicle - Incremental to Alternative 0 (Baseline)			
Per Vehicle Price Increase (dollars)	838	768	807
Lifetime Fuel Cost (per vehicle), 3% Discount Rate (dollars)	-1,264	-1,278	-1,173
Lifetime Fuel Cost (per vehicle), 7% Discount Rate (dollars)	-986	-984	-912
Payback Period Relative to MY 2020, 3% Discount Rate (years)	2.0	1.0	1.5
Payback Period Relative to MY 2020, 7% Discount Rate (years)	2.0	1.0	1.5
Lifetime of Vehicles Through 2029 - Incremental to Alternative 0 (Baseline)			
Total Lifetime Fuel Volume (billion gallons)	-29	-17	-46
Total Lifetime CO2 Volume (million metric tons)	-321	-192	-513
Fatalities (Including Rebound Miles)	-321	1,320	999
Fatalities (Excluding Rebound Miles)	-538	1,064	526
Total Technology Costs, 3% Discount Rate (\$b)	29.1	25.6	54.7
Total Technology Costs, 7% Discount Rate (\$b)	23.6	20.6	44.2
Total Net Societal Benefits, 3% Discount Rate (\$b)	46.1	-25.4	20.7
Total Net Societal Benefits, 7% Discount Rate (\$b)	27.1	-17.3	9.8

Table B-5-3 - Impacts for Alternative 2.5, Average SCC

Category	Passenger Car	Light Truck	Combined Fleet
Fuel Economy			
Required Fuel Economy for MY 2029(mpg)	59.3	42.4	49.3
Achieved Fuel Economy for MY 2029 (mpg)	62.4	41.7	49.7
Achieved Fuel Economy for MY 2020 - for reference (mpg)	41.8	30.2	34.4
Average MY 2029 Vehicle - Incremental to Alternative 0 (Baseline)			
Per Vehicle Price Increase (dollars)	1,030	961	999
Lifetime Fuel Cost (per vehicle), 3% Discount Rate (dollars)	-1,384	-1,467	-1,320
Lifetime Fuel Cost (per vehicle), 7% Discount Rate (dollars)	-1,080	-1,129	-1,025
Payback Period Relative to MY 2020, 3% Discount Rate (years)	2.0	1.0	1.5
Payback Period Relative to MY 2020, 7% Discount Rate (years)	3.0	2.0	2.5
Lifetime of Vehicles Through 2029 - Incremental to Alternative 0 (Baseline)			
Total Lifetime Fuel Volume (billion gallons)	-32	-21	-53
Total Lifetime CO2 Volume (million metric tons)	-353	-227	-580
Fatalities (Including Rebound Miles)	-336	1,479	1,143
Fatalities (Excluding Rebound Miles)	-580	1,218	637
Total Technology Costs, 3% Discount Rate (\$b)	37.0	32.2	69.2
Total Technology Costs, 7% Discount Rate (\$b)	30.1	25.9	56.0
Total Net Societal Benefits, 3% Discount Rate (\$b)	46.2	-31.9	14.3
Total Net Societal Benefits, 7% Discount Rate (\$b)	25.8	-22.1	3.7

Table B-5-4 - Impacts for Alternative 3, Average SCC

Category	Passenger Car	Light Truck	Combined Fleet
Fuel Economy			
Required Fuel Economy for MY 2029(mpg)	62.0	44.3	51.4
Achieved Fuel Economy for MY 2029 (mpg)	65.1	43.3	51.6
Achieved Fuel Economy for MY 2020 - for reference (mpg)	41.8	30.2	34.4
Average MY 2029 Vehicle - Incremental to Alternative 0 (Baseline)			
Per Vehicle Price Increase (dollars)	1,252	1,281	1,274
Lifetime Fuel Cost (per vehicle), 3% Discount Rate (dollars)	-1,709	-1,912	-1,671
Lifetime Fuel Cost (per vehicle), 7% Discount Rate (dollars)	-1,334	-1,469	-1,298
Payback Period Relative to MY 2020, 3% Discount Rate (years)	3.0	2.0	2.5
Payback Period Relative to MY 2020, 7% Discount Rate (years)	4.0	2.0	3.0
Lifetime of Vehicles Through 2029 - Incremental to Alternative 0 (Baseline)			
Total Lifetime Fuel Volume (billion gallons)	-39	-28	-67
Total Lifetime CO2 Volume (million metric tons)	-435	-308	-743
Fatalities (Including Rebound Miles)	-499	1,900	1,401
Fatalities (Excluding Rebound Miles)	-795	1,556	761
Total Technology Costs, 3% Discount Rate (\$b)	44.7	45.1	89.8
Total Technology Costs, 7% Discount Rate (\$b)	36.4	36.4	72.8
Total Net Societal Benefits, 3% Discount Rate (\$b)	61.1	-42.4	18.7
Total Net Societal Benefits, 7% Discount Rate (\$b)	34.5	-29.9	4.6

6. Required and Achieved CAFE Levels, Baseline vs. Alternative 2.5

Table B-6-1 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Total Fleet (mpg), Part 1 of 6

Model Year	BMW				Daimler				FCA			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	37.7	34.5	37.7	34.5	35.6	31.7	35.6	31.7	31.3	28.3	31.3	28.3
2021	38.4	37.2	38.4	37.2	36.3	33.8	36.3	33.8	31.7	29.2	31.7	29.2
2022	39.2	40.0	39.2	40.0	37.0	34.7	37.0	34.7	32.3	31.2	32.3	31.2
2023	39.9	42.2	39.9	42.2	37.6	36.5	37.6	36.5	32.8	33.5	32.8	33.5
2024	40.6	42.8	43.4	43.5	38.4	38.0	41.0	37.7	33.4	33.8	35.7	33.9
2025	41.3	47.0	47.3	46.5	39.0	39.6	44.6	39.6	33.9	33.9	38.8	34.0
2026	42.0	48.3	52.5	48.4	39.6	40.5	49.5	40.5	34.4	34.9	43.1	35.9
2027	42.1	48.7	52.5	52.0	39.7	41.0	49.5	42.3	34.4	35.3	43.1	36.8
2028	42.1	48.8	52.6	52.8	39.7	41.1	49.6	45.3	34.4	35.8	43.1	37.8
2029	42.2	48.9	52.6	53.1	39.8	41.3	49.6	46.1	34.4	35.9	43.1	38.2

Table B-6-2 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Total Fleet (mpg), Part 2 of 6

Model Year	Ford				GM				Honda			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	31.8	31.4	31.8	31.4	32.7	30.9	32.7	30.9	38.6	40.2	38.6	40.2
2021	32.4	33.1	32.4	33.1	33.2	32.4	33.2	32.4	39.3	41.2	39.3	41.2
2022	33.0	35.2	33.0	35.2	33.9	34.0	33.9	34.0	40.1	44.2	40.1	44.2
2023	33.6	37.7	33.6	38.9	34.4	34.7	34.4	34.7	40.7	45.1	40.7	45.9
2024	34.1	38.3	36.4	39.8	35.0	35.5	37.2	37.1	41.4	45.9	44.4	48.3
2025	34.7	38.5	39.6	40.2	35.6	36.3	40.5	40.5	42.2	47.8	48.3	50.6
2026	35.2	39.7	44.0	43.3	36.1	36.7	44.9	45.0	42.9	49.3	53.7	52.2
2027	35.3	39.7	44.0	44.4	36.2	36.8	44.9	45.6	42.9	49.3	53.6	53.3
2028	35.3	39.9	44.0	44.5	36.2	36.9	44.9	45.9	43.0	49.5	53.7	53.8
2029	35.4	40.0	44.1	44.5	36.3	37.5	45.0	45.9	43.0	49.6	53.8	53.9

Table B-6-3 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Total Fleet (mpg), Part 3 of 6

Model Year	Hyundai Kia-H				Hyundai Kia-K				JLR			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	41.6	38.0	41.6	38.0	38.9	36.7	38.9	36.7	32.6	28.9	32.6	28.9
2021	42.3	39.3	42.3	39.3	39.7	40.7	39.7	40.7	33.1	30.1	33.1	30.1
2022	43.1	42.3	43.1	42.3	40.5	41.5	40.5	41.5	33.7	31.5	33.7	31.5
2023	43.8	43.9	43.8	43.9	41.3	41.9	41.3	41.9	34.2	33.9	34.2	33.9
2024	44.5	46.1	47.6	47.6	42.0	44.6	44.9	48.7	34.7	35.3	37.3	36.1
2025	45.2	46.4	51.7	50.7	42.7	45.2	48.9	50.9	35.4	35.7	40.5	37.0
2026	45.9	47.1	57.5	57.5	43.5	45.5	54.3	53.5	35.9	36.2	45.0	38.5
2027	45.9	47.4	57.5	57.9	43.5	46.2	54.3	54.4	35.9	36.7	45.0	39.3
2028	45.9	47.5	57.5	58.2	43.6	46.2	54.4	54.8	35.9	36.7	45.0	39.3
2029	46.0	47.8	57.5	58.3	43.7	46.3	54.4	54.9	35.9	37.1	45.0	43.9

Table B-6-4 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Total Fleet (mpg), Part 4 of 6

Model Year	Mazda				Mitsubishi				Nissan			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	38.7	36.6	38.7	36.6	40.7	39.3	40.7	39.3	39.2	37.8	39.2	37.8
2021	39.3	37.8	39.3	37.8	41.3	39.9	41.3	39.9	39.9	40.2	39.9	40.2
2022	40.0	38.7	40.0	38.7	42.1	40.1	42.1	40.1	40.6	42.3	40.6	42.3
2023	40.7	43.6	40.7	43.7	42.8	40.3	42.8	40.3	41.3	43.0	41.3	45.1
2024	41.3	44.2	44.3	45.1	43.5	40.4	46.5	40.4	42.0	44.6	45.0	49.0
2025	42.0	45.2	48.1	51.2	44.2	46.0	50.6	56.5	42.7	45.3	48.9	52.5
2026	42.7	45.9	53.5	55.5	44.9	46.1	56.2	56.6	43.4	45.6	54.4	54.0
2027	42.8	46.0	53.5	55.5	44.9	46.2	56.2	56.6	43.5	45.7	54.4	54.5
2028	42.8	46.0	53.6	55.6	44.9	46.2	56.3	56.6	43.5	46.0	54.4	55.8
2029	42.8	46.1	53.6	55.6	45.0	46.3	56.3	56.7	43.5	46.1	54.5	56.1

Table B-6-5 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Total Fleet (mpg), Part 5 of 6

Model Year	Subaru				Tesla				Toyota			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	37.0	39.3	37.0	39.3	40.5	720.0	40.5	720.0	37.1	36.6	37.1	36.6
2021	37.7	40.1	37.7	40.1	40.4	740.6	40.4	740.6	37.9	38.1	37.9	38.1
2022	38.3	42.9	38.3	42.9	41.1	745.2	41.1	745.2	38.6	40.3	38.6	40.3
2023	39.0	46.1	39.0	46.8	41.8	751.8	41.8	751.9	39.3	41.6	39.3	42.6
2024	39.7	48.3	42.5	49.5	42.4	754.5	45.4	754.4	40.1	42.7	42.9	47.5
2025	40.3	49.9	46.2	51.1	43.1	757.0	49.3	756.2	40.8	43.1	46.6	48.2
2026	41.0	50.5	51.4	53.4	43.7	757.7	54.8	756.4	41.5	45.3	51.8	51.5
2027	41.1	50.7	51.4	53.5	43.7	758.1	54.8	756.3	41.5	45.9	51.8	52.0
2028	41.1	50.7	51.4	53.6	43.7	758.8	54.8	756.8	41.6	46.3	51.9	52.6
2029	41.2	50.8	51.5	53.7	43.8	759.3	54.8	757.3	41.6	47.1	51.9	52.7

Table B-6-6 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Total Fleet (mpg), Part 6 of 6

Model Year	Volvo				VWA				Total			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	34.3	33.1	34.3	33.1	37.1	33.4	37.1	33.4	35.4	34.4	35.4	34.4
2021	34.9	33.4	34.9	33.4	37.9	34.9	37.9	34.9	36.0	36.0	36.0	36.0
2022	35.5	33.6	35.5	33.6	38.7	36.8	38.7	36.8	36.8	38.1	36.8	38.1
2023	36.0	40.6	36.0	40.8	39.4	38.7	39.4	38.7	37.4	39.8	37.4	40.3
2024	36.6	40.9	39.2	41.1	40.1	40.3	42.9	41.1	38.1	40.9	40.7	42.8
2025	37.2	42.3	42.7	42.5	40.8	45.8	46.7	46.0	38.7	41.9	44.2	44.9
2026	37.8	43.5	47.4	43.6	41.5	47.4	51.9	49.0	39.4	42.9	49.2	47.9
2027	37.9	45.4	47.3	47.5	41.5	47.9	51.9	50.2	39.4	43.2	49.1	48.8
2028	37.9	45.4	47.4	47.6	41.6	48.0	52.0	51.3	39.5	43.5	49.2	49.5
2029	37.9	45.5	47.4	47.6	41.7	48.1	52.0	51.4	39.5	43.8	49.3	49.7

Table B-6-7 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Passenger Car Fleet (mpg), Part 1 of 6

Model Year	BMW				Daimler				FCA			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	42.5	36.7	42.5	36.7	41.4	33.9	41.4	33.9	41.6	30.7	41.6	30.7
2021	43.1	40.1	43.1	40.1	42.0	37.3	42.0	37.3	42.0	36.9	42.0	36.9
2022	43.8	43.8	43.8	43.8	42.7	38.9	42.7	38.9	42.5	37.6	42.5	37.6
2023	44.4	45.7	44.4	45.8	43.3	39.7	43.3	39.7	43.0	39.5	43.0	39.5
2024	45.1	46.6	48.3	47.9	44.0	43.0	47.1	42.4	43.6	40.4	46.8	40.4
2025	45.8	52.9	52.5	52.5	44.6	44.5	51.2	43.7	44.2	40.5	50.9	40.5
2026	46.5	55.1	58.3	55.6	45.3	44.8	56.8	44.0	44.9	43.3	56.4	53.2
2027	46.5	55.5	58.3	58.4	45.3	45.3	56.8	47.6	44.8	43.7	56.4	56.0
2028	46.5	55.5	58.3	58.8	45.3	45.3	56.8	55.1	44.8	45.0	56.4	56.9
2029	46.5	55.7	58.3	59.2	45.3	45.5	56.8	56.8	44.7	45.0	56.4	56.9

Table B-6-8 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Passenger Car Fleet (mpg), Part 2 of 6

Model Year	Ford				GM				Honda			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	42.2	36.9	42.2	36.9	43.9	40.3	43.9	40.3	43.6	45.0	43.6	45.0
2021	42.8	37.4	42.8	37.4	44.5	40.8	44.5	40.8	44.3	46.0	44.3	46.0
2022	43.5	43.9	43.5	43.9	45.2	44.0	45.2	44.0	45.0	48.9	45.0	48.9
2023	44.1	48.7	44.1	56.9	45.8	45.8	45.8	45.8	45.6	49.6	45.6	51.2
2024	44.8	48.8	47.9	56.8	46.5	46.8	49.8	49.3	46.3	50.1	49.6	52.9
2025	45.5	48.8	52.2	58.7	47.2	48.7	54.2	54.1	47.0	51.7	53.9	55.4
2026	46.1	51.1	57.9	60.0	48.0	48.9	60.2	59.8	47.7	54.4	59.9	58.5
2027	46.1	51.3	57.9	60.2	48.0	49.0	60.2	61.4	47.7	54.4	59.9	59.2
2028	46.1	51.4	57.9	60.0	48.0	49.0	60.1	61.5	47.7	54.6	59.9	59.9
2029	46.1	51.5	57.9	59.9	47.9	49.0	60.1	61.5	47.7	54.6	59.9	59.9

Table B-6-9 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Passenger Car Fleet (mpg), Part 3 of 6

Model Year	Hyundai Kia-H				Hyundai Kia-K				JLR			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	43.3	39.4	43.3	39.4	44.0	41.9	44.0	41.9	42.1	35.7	42.1	35.7
2021	44.0	40.9	44.0	40.9	44.7	45.7	44.7	45.7	42.7	36.9	42.7	36.9
2022	44.7	44.5	44.7	44.5	45.4	46.8	45.4	46.8	43.3	37.0	43.3	37.0
2023	45.5	45.7	45.5	45.7	46.1	47.0	46.1	47.0	44.0	38.7	44.0	38.7
2024	46.2	48.3	49.4	50.1	46.8	49.3	50.1	51.6	44.7	44.7	47.8	51.2
2025	46.9	48.5	53.7	53.9	47.5	50.3	54.5	55.4	45.4	44.7	52.0	51.2
2026	47.6	48.7	59.6	59.6	48.3	50.5	60.5	59.9	46.1	44.7	57.8	51.2
2027	47.6	49.1	59.6	60.1	48.3	50.8	60.5	60.5	46.1	46.4	57.8	54.3
2028	47.6	49.2	59.6	60.4	48.3	50.8	60.5	61.1	46.1	47.0	57.8	54.7
2029	47.6	49.5	59.6	60.5	48.3	50.8	60.5	61.1	46.1	47.0	57.8	57.8

Table B-6-10 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Passenger Car Fleet (mpg), Part 4 of 6

Model Year	Mazda				Mitsubishi				Nissan			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	43.9	38.8	43.9	38.8	46.5	42.8	46.5	42.8	43.2	42.0	43.2	42.0
2021	44.6	41.3	44.6	41.3	47.2	44.3	47.2	44.3	43.9	43.4	43.9	43.4
2022	45.2	43.1	45.2	43.1	48.0	44.7	48.0	44.7	44.5	45.5	44.5	45.5
2023	45.9	48.1	45.9	48.3	48.8	45.0	48.8	45.0	45.1	46.1	45.1	48.2
2024	46.6	48.8	50.0	50.9	49.6	45.3	53.1	45.2	45.8	48.3	49.1	53.6
2025	47.3	50.6	54.3	57.8	50.4	52.0	57.7	64.9	46.5	48.8	53.4	58.8
2026	48.0	50.8	60.3	60.5	51.2	52.2	64.1	65.1	47.3	49.0	59.3	59.1
2027	48.0	50.8	60.3	60.5	51.2	52.3	64.1	65.0	47.3	49.0	59.3	59.4
2028	48.0	50.8	60.3	60.5	51.2	52.4	64.1	65.1	47.2	49.1	59.3	61.1
2029	48.0	50.8	60.3	60.5	51.2	52.6	64.2	65.2	47.2	49.2	59.3	61.2

Table B-6-11 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Passenger Car Fleet (mpg), Part 5 of 6

Model Year	Subaru				Tesla				Toyota			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	44.9	38.1	44.9	38.1	40.9	731.7	40.9	731.7	43.6	45.9	43.6	45.9
2021	45.5	40.1	45.5	40.1	40.8	752.4	40.8	752.4	44.3	47.1	44.3	47.1
2022	46.2	46.1	46.2	46.1	41.4	754.6	41.4	754.6	45.0	49.1	45.0	49.1
2023	46.9	47.9	46.9	47.9	42.1	755.8	42.1	755.9	45.6	49.8	45.6	49.8
2024	47.7	50.0	51.0	52.0	42.7	756.8	45.7	756.7	46.3	50.7	49.7	56.4
2025	48.4	50.4	55.5	52.3	43.4	757.7	49.7	756.9	47.1	51.1	53.9	57.8
2026	49.1	52.1	61.6	61.6	44.0	758.4	55.2	757.1	47.8	51.8	59.9	59.3
2027	49.1	52.1	61.6	61.6	44.0	758.8	55.2	757.0	47.8	52.8	59.9	60.4
2028	49.1	52.1	61.6	61.6	44.0	759.5	55.2	757.5	47.8	53.0	59.9	60.6
2029	49.1	52.1	61.6	61.6	44.1	760.0	55.2	758.0	47.8	54.5	59.9	60.7

Table B-6-12 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Passenger Car Fleet (mpg), Part 6 of 6

Model Year	Volvo				VWA				Total			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	40.9	35.7	40.9	35.7	43.6	38.0	43.6	38.0	43.3	41.8	43.3	41.8
2021	41.5	36.4	41.5	36.4	44.3	38.7	44.3	38.7	43.9	43.6	43.9	43.6
2022	42.2	36.5	42.2	36.5	45.0	40.7	45.0	40.7	44.6	46.7	44.6	46.7
2023	42.8	40.7	42.8	40.7	45.7	43.6	45.7	43.6	45.2	48.2	45.2	49.2
2024	43.4	41.0	46.5	41.0	46.4	46.2	49.7	48.7	45.9	49.8	49.2	53.1
2025	44.1	43.3	50.5	43.3	47.1	47.5	54.0	52.1	46.6	50.9	53.4	56.4
2026	44.7	47.3	56.1	47.1	47.8	49.4	60.0	57.2	47.3	52.0	59.4	60.3
2027	44.7	49.1	56.1	56.3	47.8	49.8	60.0	57.3	47.3	52.3	59.4	61.4
2028	44.7	49.2	56.1	56.4	47.9	50.1	60.0	60.2	47.3	52.5	59.3	62.2
2029	44.7	49.3	56.1	56.5	47.9	50.1	60.0	60.4	47.3	52.8	59.3	62.4

Table B-6-13 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Light Truck Fleet (mpg), Part 1 of 6

Model Year	BMW				Daimler				FCA			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	31.7	31.3	31.7	31.3	31.7	29.9	31.7	29.9	30.1	28.0	30.1	28.0
2021	32.2	32.9	32.2	32.9	32.2	31.0	32.2	31.0	30.5	28.2	30.5	28.2
2022	32.6	34.4	32.6	34.4	32.6	31.3	32.6	31.3	31.0	30.3	31.0	30.3
2023	33.1	36.5	33.1	36.4	33.1	33.7	33.1	33.7	31.5	32.6	31.5	32.6
2024	33.6	36.7	36.0	36.6	33.7	33.7	36.0	33.7	32.0	32.8	34.2	32.9
2025	34.2	37.9	39.2	37.7	34.2	35.3	39.2	35.9	32.5	32.9	37.2	33.0
2026	34.7	38.1	43.5	38.1	34.7	36.6	43.5	37.3	32.9	33.6	41.3	33.9
2027	34.7	38.2	43.5	42.4	34.7	37.0	43.5	37.7	32.9	34.0	41.3	34.6
2028	34.7	38.2	43.5	43.5	34.7	37.1	43.5	37.8	32.9	34.4	41.3	35.6
2029	34.7	38.2	43.5	43.5	34.7	37.2	43.5	38.0	32.9	34.5	41.3	36.0

Table B-6-14 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Light Truck Fleet (mpg), Part 2 of 6

Model Year	Ford				GM				Honda			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	29.2	29.8	29.2	29.8	29.1	27.8	29.1	27.8	33.3	35.1	33.3	35.1
2021	29.7	31.7	29.7	31.7	29.5	29.4	29.5	29.4	33.8	35.7	33.8	35.7
2022	30.1	32.7	30.1	32.7	30.0	30.4	30.0	30.4	34.3	38.5	34.3	38.5
2023	30.6	34.5	30.6	34.5	30.4	30.8	30.4	30.8	34.8	39.4	34.8	39.4
2024	31.0	35.2	33.1	35.4	30.9	31.4	32.7	32.7	35.3	40.2	37.8	42.2
2025	31.5	35.3	36.0	35.6	31.4	31.8	35.6	35.7	35.9	42.3	41.1	44.3
2026	32.0	36.2	40.0	38.8	31.8	32.2	39.5	39.7	36.4	42.3	45.7	44.3
2027	32.0	36.2	40.0	40.0	31.8	32.3	39.5	40.1	36.4	42.3	45.7	45.7
2028	32.0	36.3	40.0	40.1	31.8	32.3	39.5	40.3	36.4	42.3	45.7	45.9
2029	32.0	36.3	40.0	40.1	31.8	33.1	39.5	40.3	36.4	42.3	45.7	45.9

Table B-6-15 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Light Truck Fleet (mpg), Part 3 of 6

Model Year	Hyundai Kia-H				Hyundai Kia-K				JLR			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	31.3	29.5	31.3	29.5	32.8	30.6	32.8	30.6	32.3	28.7	32.3	28.7
2021	31.7	29.5	31.7	29.5	33.3	34.3	33.3	34.3	32.8	29.8	32.8	29.8
2022	32.2	29.5	32.2	29.5	33.9	34.4	33.9	34.4	33.3	31.3	33.3	31.3
2023	32.7	32.3	32.7	32.3	34.4	34.7	34.4	34.7	33.8	33.7	33.8	33.7
2024	33.2	32.4	35.5	32.4	34.9	37.5	37.4	43.9	34.3	34.9	36.8	35.5
2025	33.7	32.5	38.6	32.5	35.4	37.5	40.6	43.9	34.9	35.3	40.0	36.4
2026	34.2	35.4	42.9	42.9	36.0	37.7	45.1	44.1	35.4	35.8	44.4	38.0
2027	34.2	35.4	42.9	43.0	36.0	38.7	45.1	45.4	35.4	36.2	44.4	38.7
2028	34.2	35.4	42.9	43.0	36.0	38.7	45.1	45.4	35.4	36.2	44.4	38.7
2029	34.2	35.4	42.9	43.0	36.0	38.7	45.1	45.4	35.4	36.6	44.4	43.3

Table B-6-16 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Light Truck Fleet (mpg), Part 4 of 6

	Mazda				Mitsubishi				Nissan			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
Model Year	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	34.8	34.7	34.8	34.7	36.8	36.8	36.8	36.8	32.5	31.0	32.5	31.0
2021	35.3	35.0	35.3	35.0	37.3	36.8	37.3	36.8	33.0	34.3	33.0	34.3
2022	35.8	35.1	35.8	35.1	37.9	36.8	37.9	36.8	33.5	36.1	33.5	36.1
2023	36.4	39.8	36.4	39.8	38.5	36.8	38.5	36.8	34.0	36.7	34.0	38.8
2024	36.9	40.2	39.6	40.2	39.0	36.8	41.8	36.8	34.6	37.2	37.0	40.0
2025	37.5	40.6	43.0	45.6	39.6	41.5	45.4	50.5	35.1	38.1	40.2	41.1
2026	38.1	41.6	47.8	51.1	40.2	41.5	50.5	50.5	35.6	38.5	44.7	44.1
2027	38.1	41.6	47.8	51.1	40.2	41.5	50.5	50.5	35.6	38.5	44.7	44.7
2028	38.1	41.6	47.8	51.1	40.2	41.5	50.5	50.5	35.6	39.1	44.7	45.4
2029	38.1	41.6	47.8	51.1	40.2	41.5	50.5	50.5	35.6	39.1	44.7	45.9

Table B-6-17 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Light Truck Fleet (mpg), Part 5 of 6

Model Year	Subaru				Tesla				Toyota			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	35.4	39.6	35.4	39.6	30.6	477.8	30.6	477.8	31.8	29.8	31.8	29.8
2021	35.9	40.1	35.9	40.1	31.1	483.0	31.1	483.0	32.3	31.0	32.3	31.0
2022	36.4	42.0	36.4	42.0	31.6	510.7	31.6	510.7	32.7	32.7	32.7	32.7
2023	37.0	45.6	37.0	46.4	32.0	625.8	32.0	625.8	33.2	34.2	33.2	35.7
2024	37.6	47.8	40.2	48.7	32.5	673.3	34.8	673.3	33.8	35.0	36.1	39.0
2025	38.1	49.7	43.7	50.7	33.0	728.5	37.9	728.5	34.3	35.2	39.3	39.3
2026	38.7	50.0	48.6	51.0	33.5	728.5	42.1	728.5	34.8	38.4	43.6	43.6
2027	38.7	50.2	48.6	51.2	33.5	728.5	42.1	728.5	34.8	38.4	43.6	43.6
2028	38.7	50.2	48.6	51.2	33.5	728.5	42.1	728.5	34.8	38.8	43.6	44.3
2029	38.7	50.3	48.6	51.3	33.5	728.5	42.1	728.4	34.8	38.9	43.6	44.3

Table B-6-18 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Light Truck Fleet (mpg), Part 6 of 6

Model Year	Volvo				VWA				Total			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	32.5	32.3	32.5	32.3	33.5	30.7	33.5	30.7	31.0	30.2	31.0	30.2
2021	33.0	32.4	33.0	32.4	34.1	32.5	34.1	32.5	31.5	31.5	31.5	31.5
2022	33.5	32.6	33.5	32.6	34.6	34.1	34.6	34.1	31.9	32.9	31.9	32.9
2023	34.0	40.6	34.0	40.9	35.1	35.2	35.1	35.2	32.4	34.5	32.4	34.8
2024	34.5	40.8	36.9	41.1	35.6	36.0	38.2	36.0	32.9	35.2	35.1	36.4
2025	35.0	41.9	40.2	42.2	36.2	44.3	41.5	41.6	33.5	35.9	38.2	37.8
2026	35.6	42.1	44.6	42.4	36.7	45.6	46.1	43.2	33.9	36.8	42.4	40.4
2027	35.6	44.0	44.6	44.7	36.7	46.1	46.1	45.0	33.9	37.0	42.4	41.1
2028	35.6	44.0	44.6	44.8	36.7	46.1	46.1	45.0	33.9	37.1	42.4	41.5
2029	35.6	44.1	44.6	44.8	36.7	46.1	46.1	45.0	33.9	37.4	42.4	41.7

Table B-6-19 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Domestic Car Fleet (mpg), Part 1 of 6

Model Year	BMW				Daimler				FCA			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.9	29.9	40.9	29.9
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.3	36.9	41.3	36.9
2022	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.8	37.1	41.8	37.1
2023	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.3	39.2	42.3	39.2
2024	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.9	39.7	46.0	39.7
2025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.5	39.8	50.0	39.8
2026	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.1	42.7	55.5	55.0
2027	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.1	42.7	55.5	55.0
2028	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.1	44.2	55.4	55.9
2029	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.0	44.2	55.4	55.8

Table B-6-20 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Domestic Car Fleet (mpg), Part 2 of 6

Model Year	Ford				GM				Honda			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	41.9	36.8	41.9	36.8	42.9	40.1	42.9	40.1	43.2	44.7	43.2	44.7
2021	42.5	37.3	42.5	37.3	43.5	40.3	43.5	40.3	43.9	45.8	43.9	45.8
2022	43.2	44.2	43.2	44.2	44.2	42.8	44.2	42.8	44.6	48.2	44.6	48.2
2023	43.8	47.6	43.8	56.0	44.8	44.8	44.8	44.8	45.2	49.0	45.2	51.0
2024	44.5	47.7	47.6	55.9	45.5	45.5	48.7	48.7	45.9	49.6	49.2	53.0
2025	45.2	47.8	51.8	57.8	46.2	47.9	53.0	55.1	46.6	50.6	53.5	54.9
2026	45.8	50.1	57.5	59.2	46.9	48.1	58.9	60.3	47.3	53.9	59.4	58.7
2027	45.8	50.3	57.5	59.4	46.9	48.1	58.9	60.4	47.3	53.9	59.4	59.4
2028	45.8	50.4	57.5	59.2	46.9	48.1	58.8	60.5	47.3	54.0	59.4	59.4
2029	45.8	50.6	57.5	59.1	46.9	48.0	58.8	60.5	47.3	54.1	59.4	59.4

Table B-6-22 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Domestic Car Fleet (mpg), Part 4 of 6

Model Year	Mazda				Mitsubishi				Nissan			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	45.0	38.7	45.0	38.7	0.0	0.0	0.0	0.0	43.0	43.5	43.0	43.5
2021	45.7	38.9	45.7	38.9	0.0	0.0	0.0	0.0	43.7	43.8	43.7	43.8
2022	46.4	39.2	46.4	39.2	0.0	0.0	0.0	0.0	44.3	45.7	44.3	45.7
2023	47.1	44.4	47.1	44.4	0.0	0.0	0.0	0.0	45.0	45.9	45.0	46.7
2024	47.8	44.7	51.2	44.7	0.0	0.0	0.0	0.0	45.7	48.6	48.9	52.3
2025	48.5	59.3	55.6	63.3	0.0	0.0	0.0	0.0	46.4	49.2	53.2	58.8
2026	49.3	59.5	61.8	63.6	0.0	0.0	0.0	0.0	47.1	49.4	59.1	59.1
2027	49.3	59.5	61.8	63.6	0.0	0.0	0.0	0.0	47.1	49.4	59.1	59.3
2028	49.3	59.5	61.8	63.6	0.0	0.0	0.0	0.0	47.1	49.5	59.1	61.4
2029	49.3	59.5	61.8	63.6	0.0	0.0	0.0	0.0	47.1	49.6	59.1	61.5

Table B-6-23 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Domestic Car Fleet (mpg), Part 5 of 6

Model Year	Subaru				Tesla				Toyota			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	0.0	0.0	0.0	0.0	40.9	731.7	40.9	731.7	42.1	43.7	42.1	43.7
2021	0.0	0.0	0.0	0.0	40.8	752.4	40.8	752.4	42.8	45.7	42.8	45.7
2022	0.0	0.0	0.0	0.0	41.4	754.6	41.4	754.6	43.4	46.0	43.4	46.0
2023	0.0	0.0	0.0	0.0	42.1	755.8	42.1	755.9	44.1	46.9	44.1	47.2
2024	0.0	0.0	0.0	0.0	42.7	756.8	45.7	756.7	44.7	47.3	47.9	52.5
2025	0.0	0.0	0.0	0.0	43.4	757.7	49.7	756.9	45.4	47.5	52.1	55.4
2026	0.0	0.0	0.0	0.0	44.0	758.4	55.2	757.1	46.1	47.7	57.9	55.7
2027	0.0	0.0	0.0	0.0	44.0	758.8	55.2	757.0	46.1	48.8	57.9	57.9
2028	0.0	0.0	0.0	0.0	44.0	759.5	55.2	757.5	46.1	49.2	57.9	57.9
2029	0.0	0.0	0.0	0.0	44.1	760.0	55.2	758.0	46.1	49.2	57.9	57.9

Table B-6-24 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Domestic Car Fleet (mpg), Part 6 of 6

	Volvo				VWA				Total			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
Model Year	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	41.0	36.4	41.0	36.4	41.2	34.3	41.2	34.3	42.5	43.3	42.5	43.3
2021	41.6	36.4	41.6	36.4	41.9	34.5	41.9	34.5	43.1	44.8	43.1	44.8
2022	42.3	36.4	42.3	36.4	42.7	34.8	42.7	34.8	43.7	47.7	43.7	47.7
2023	42.9	40.6	42.9	40.6	43.4	36.1	43.4	36.1	44.4	49.5	44.4	51.3
2024	43.6	40.9	46.7	40.9	44.1	41.9	47.2	41.9	45.0	50.6	48.2	54.7
2025	44.2	44.1	50.7	44.1	44.8	42.1	51.3	42.0	45.7	51.7	52.5	58.6
2026	44.9	44.2	56.3	44.2	45.5	45.5	57.0	44.3	46.4	53.2	58.3	62.5
2027	44.9	46.2	56.3	56.3	45.5	45.5	57.0	44.3	46.4	53.4	58.3	63.1
2028	44.9	46.2	56.3	56.3	45.6	46.9	57.0	57.0	46.4	53.7	58.3	63.9
2029	44.9	46.2	56.3	56.3	45.6	47.0	57.1	57.1	46.4	53.8	58.3	63.9

Table B-6-25 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Imported Car Fleet (mpg), Part 1 of 6

	BMW				Daimler				FCA			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
Model Year	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	42.5	36.7	42.5	36.7	41.4	33.9	41.4	33.9	44.8	34.4	44.8	34.4
2021	43.1	40.1	43.1	40.1	42.0	37.3	42.0	37.3	45.5	36.9	45.5	36.9
2022	43.8	43.8	43.8	43.8	42.7	38.9	42.7	38.9	46.1	40.1	46.1	40.1
2023	44.4	45.7	44.4	45.8	43.3	39.7	43.3	39.7	46.7	41.0	46.7	41.0
2024	45.1	46.6	48.3	47.9	44.0	43.0	47.1	42.4	47.4	43.7	50.8	43.7
2025	45.8	52.9	52.5	52.5	44.6	44.5	51.2	43.7	48.1	43.9	55.2	43.8
2026	46.5	55.1	58.3	55.6	45.3	44.8	56.8	44.0	48.8	46.5	61.3	46.3
2027	46.5	55.5	58.3	58.4	45.3	45.3	56.8	47.6	48.8	48.9	61.3	61.3
2028	46.5	55.5	58.3	58.8	45.3	45.3	56.8	55.1	48.8	49.1	61.3	62.1
2029	46.5	55.7	58.3	59.2	45.3	45.5	56.8	56.8	48.7	49.2	61.3	62.5

Table B-6-26 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Imported Car Fleet (mpg), Part 2 of 6

	Ford				GM				Honda			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
Model Year	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	48.0	38.8	48.0	38.8	46.8	40.8	46.8	40.8	45.4	46.5	45.4	46.5
2021	48.7	38.9	48.7	38.9	47.5	42.1	47.5	42.1	46.1	47.0	46.1	47.0
2022	49.5	39.1	49.5	39.1	48.3	47.9	48.3	47.9	46.8	51.9	46.8	51.9
2023	50.2	79.1	50.2	79.1	49.1	48.7	49.1	48.7	47.4	52.2	47.4	52.2
2024	51.0	79.1	54.6	79.1	49.8	51.2	53.3	51.2	48.2	52.6	51.6	52.6
2025	51.8	79.1	59.3	79.1	50.6	51.4	58.0	51.5	48.9	57.0	56.0	57.7
2026	52.5	79.1	65.9	79.1	51.4	51.5	64.4	58.3	49.6	57.0	62.3	57.8
2027	52.5	79.1	65.9	79.1	51.4	52.0	64.4	64.4	49.6	57.0	62.3	58.6
2028	52.5	79.1	65.9	79.1	51.4	52.1	64.4	64.4	49.6	57.2	62.3	62.3
2029	52.5	79.1	65.9	79.1	51.4	52.2	64.4	64.5	49.6	57.2	62.2	62.3

Table B-6-27 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Imported Car Fleet (mpg), Part 3 of 6

Model Year	Hyundai Kia-H				Hyundai Kia-K				JLR			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	43.2	39.0	43.2	39.0	44.0	41.9	44.0	41.9	42.1	35.7	42.1	35.7
2021	43.9	40.5	43.9	40.5	44.7	45.7	44.7	45.7	42.7	36.9	42.7	36.9
2022	44.6	44.2	44.6	44.2	45.4	46.8	45.4	46.8	43.3	37.0	43.3	37.0
2023	45.3	45.1	45.3	45.1	46.1	47.0	46.1	47.0	44.0	38.7	44.0	38.7
2024	46.0	47.8	49.2	49.6	46.8	49.3	50.1	51.6	44.7	44.7	47.8	51.2
2025	46.7	48.0	53.5	53.5	47.5	50.3	54.5	55.4	45.4	44.7	52.0	51.2
2026	47.4	48.2	59.4	59.4	48.3	50.5	60.5	59.9	46.1	44.7	57.8	51.2
2027	47.4	48.5	59.4	59.9	48.3	50.8	60.5	60.5	46.1	46.4	57.8	54.3
2028	47.4	48.6	59.4	60.2	48.3	50.8	60.5	61.1	46.1	47.0	57.8	54.7
2029	47.4	48.9	59.4	60.3	48.3	50.8	60.5	61.1	46.1	47.0	57.8	57.8

Table B-6-28 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Imported Car Fleet (mpg), Part 4 of 6

Model Year	Mazda				Mitsubishi				Nissan			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	43.8	38.8	43.8	38.8	46.5	42.8	46.5	42.8	43.6	38.4	43.6	38.4
2021	44.4	41.6	44.4	41.6	47.2	44.3	47.2	44.3	44.3	42.3	44.3	42.3
2022	45.1	43.7	45.1	43.7	48.0	44.7	48.0	44.7	45.0	45.1	45.0	45.1
2023	45.8	48.6	45.8	48.8	48.8	45.0	48.8	45.0	45.6	46.6	45.6	53.1
2024	46.5	49.4	49.8	51.8	49.6	45.3	53.1	45.2	46.3	47.4	49.6	58.2
2025	47.2	49.7	54.1	57.2	50.4	52.0	57.7	64.9	47.0	47.6	53.9	58.6
2026	47.9	49.9	60.1	60.1	51.2	52.2	64.1	65.1	47.8	47.8	59.9	59.0
2027	47.9	49.9	60.1	60.1	51.2	52.3	64.1	65.0	47.8	47.8	59.9	59.9
2028	47.9	50.0	60.1	60.1	51.2	52.4	64.1	65.1	47.7	47.7	59.9	60.1
2029	47.9	50.0	60.1	60.1	51.2	52.6	64.2	65.2	47.7	47.7	59.9	60.2

Table B-6-29 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Imported Car Fleet (mpg), Part 5 of 6

	Subaru				Tesla				Toyota			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
Model Year	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	44.9	38.1	44.9	38.1	0.0	0.0	0.0	0.0	44.2	46.8	44.2	46.8
2021	45.5	40.1	45.5	40.1	0.0	0.0	0.0	0.0	44.9	47.6	44.9	47.6
2022	46.2	46.1	46.2	46.1	0.0	0.0	0.0	0.0	45.6	50.5	45.6	50.5
2023	46.9	47.9	46.9	47.9	0.0	0.0	0.0	0.0	46.3	51.0	46.3	51.0
2024	47.7	50.0	51.0	52.0	0.0	0.0	0.0	0.0	47.0	52.3	50.4	58.2
2025	48.4	50.4	55.5	52.3	0.0	0.0	0.0	0.0	47.8	52.8	54.7	58.8
2026	49.1	52.1	61.6	61.6	0.0	0.0	0.0	0.0	48.5	53.7	60.8	60.9
2027	49.1	52.1	61.6	61.6	0.0	0.0	0.0	0.0	48.5	54.7	60.8	61.5
2028	49.1	52.1	61.6	61.6	0.0	0.0	0.0	0.0	48.5	54.8	60.8	61.8
2029	49.1	52.1	61.6	61.6	0.0	0.0	0.0	0.0	48.5	57.1	60.8	61.9

Table B-6-30 - Comparison of Alternative 0 (Baseline) and Alternative 2.5 Required and Achieved CAFE Levels in MYs 2020-2029 for the Imported Car Fleet (mpg), Part 6 of 6

	Volvo				VWA				Total			
	Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5		Alternative 0 (Baseline)		Alternative 2.5	
Model Year	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved	Required	Achieved
2020	40.8	35.1	40.8	35.1	44.1	38.9	44.1	38.9	44.0	40.6	44.0	40.6
2021	41.4	36.4	41.4	36.4	44.8	39.6	44.8	39.6	44.6	42.7	44.6	42.7
2022	42.0	36.6	42.0	36.6	45.5	42.1	45.5	42.1	45.3	45.8	45.3	45.8
2023	42.6	40.8	42.6	40.8	46.2	45.4	46.2	45.4	46.0	47.2	46.0	47.5
2024	43.2	41.2	46.3	41.1	46.9	47.1	50.2	50.2	46.7	49.1	50.0	51.8
2025	43.9	42.5	50.3	42.4	47.6	48.7	54.5	54.6	47.4	50.2	54.4	54.6
2026	44.5	51.4	55.9	50.9	48.3	50.2	60.6	60.6	48.2	50.9	60.4	58.4
2027	44.5	53.1	55.9	56.2	48.3	50.7	60.6	60.7	48.1	51.4	60.4	59.8
2028	44.5	53.4	55.9	56.5	48.3	50.7	60.6	60.9	48.1	51.4	60.4	60.9
2029	44.5	53.6	55.9	56.7	48.3	50.7	60.6	61.1	48.1	52.0	60.4	61.1

7. Incremental Benefits and Costs

Table B-7-1 - Incremental Benefits and Costs Over the Lifetimes of Total Fleet Produced Through 2029 (2018\$ Billions), 3% Percent Discount Rate, by Alternative, Average SCC

Alternative	1	2	2.5	3
Private Costs				
Technology Costs to Increase Fuel Economy	27.3	54.7	69.2	89.8
Increased Maintenance and Repair Costs	0.0	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.0	0.1	0.2	0.4
Safety Costs Internalized by Drivers	4.4	6.6	7.1	9.0
Subtotal - Incremental Private Costs	31.8	61.5	76.5	99.2
External Costs				
Congestion and Noise Costs from Rebound-Effect Driving	5.3	7.9	8.2	10.0
Safety Costs Not Internalized by Drivers	4.2	7.3	8.7	10.4
Loss in Fuel Tax Revenue	11.1	19.3	22.1	28.4
Subtotal - Incremental External Costs	20.7	34.5	38.9	48.7
Total Incremental Social Costs	52.4	95.9	115.5	147.9
Private Benefits				
Reduced Fuel Costs	50.2	82.2	92.3	118.0
Benefits from Additional Driving	8.9	12.5	13.3	16.8
Less Frequent Refueling	-2.7	-3.9	-4.8	-5.4
Subtotal - Incremental Private Benefits	56.4	90.7	100.8	129.4
External Benefits				
Reduction in Petroleum Market Externality	0.9	1.5	1.7	2.2
Reduced Climate Damages, Average SCC	13.9	23.2	26.3	33.7
Reduced Health Damages	1.1	1.1	1.0	1.3
Subtotal - Incremental External Benefits	15.9	25.9	29.0	37.2
Total Incremental Social Benefits, Average SCC	72.3	116.6	129.8	166.6
Net Incremental Social Benefits, Average SCC	19.8	20.7	14.3	18.7

Table B-7-2 - Incremental Benefits and Costs Over the Lifetimes of Passenger Car Fleet Produced Through 2029 (2018\$ Billions), 3% Percent Discount Rate, by Alternative, Average SCC

Alternative	1	2	2.5	3
Private Costs				
Technology Costs to Increase Fuel Economy	11.7	29.1	37.0	44.7
Increased Maintenance and Repair Costs	0.0	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.0	0.1	0.1	0.2
Safety Costs Internalized by Drivers	1.7	3.1	3.5	4.3
Subtotal - Incremental Private Costs	13.4	32.3	40.7	49.2
External Costs				
Congestion and Noise Costs from Rebound-Effect Driving	-5.1	-11.8	-13.1	-17.6
Safety Costs Not Internalized by Drivers	-3.5	-8.5	-9.3	-12.7
Loss in Fuel Tax Revenue	5.7	12.2	13.3	16.4
Subtotal - Incremental External Costs	-2.9	-8.1	-9.0	-14.0
Total Incremental Social Costs	10.5	24.2	31.6	35.2
Private Benefits				
Reduced Fuel Costs	24.8	51.4	56.8	70.1
Benefits from Additional Driving	3.0	5.3	5.9	7.2
Less Frequent Refueling	-1.4	-2.7	-2.9	-3.2
Subtotal - Incremental Private Benefits	26.3	53.9	59.8	74.0
External Benefits				
Reduction in Petroleum Market Externality	0.5	1.0	1.1	1.3
Reduced Climate Damages, Average SCC	7.0	14.6	16.0	19.8
Reduced Health Damages	0.5	0.9	1.0	1.2
Subtotal - Incremental External Benefits	7.9	16.4	18.1	22.3
Total Incremental Social Benefits, Average SCC	34.2	70.3	77.8	96.3
Net Incremental Social Benefits, Average SCC				
	23.7	46.1	46.2	61.1

Table B-7-3 - Incremental Benefits and Costs Over the Lifetimes of Light Truck Fleet Produced Through 2029 (2018\$ Billions), 3% Percent Discount Rate, by Alternative, Average SCC

Alternative	1	2	2.5	3
Private Costs				
Technology Costs to Increase Fuel Economy	15.6	25.6	32.2	45.1
Increased Maintenance and Repair Costs	0.0	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.0	0.1	0.1	0.2
Safety Costs Internalized by Drivers	2.8	3.5	3.6	4.7
Subtotal - Incremental Private Costs	18.4	29.1	35.9	50.0
External Costs				
Congestion and Noise Costs from Rebound-Effect Driving	10.5	19.6	21.3	27.6
Safety Costs Not Internalized by Drivers	7.6	15.8	18.0	23.1
Loss in Fuel Tax Revenue	5.4	7.1	8.8	12.0
Subtotal - Incremental External Costs	23.5	42.6	48.0	62.7
Total Incremental Social Costs	41.9	71.7	83.8	112.7
Private Benefits				
Reduced Fuel Costs	25.4	30.8	35.6	47.9
Benefits from Additional Driving	5.9	7.2	7.3	9.6
Less Frequent Refueling	-1.3	-1.2	-1.9	-2.2
Subtotal - Incremental Private Benefits	30.1	36.8	41.0	55.3
External Benefits				
Reduction in Petroleum Market Externality	0.4	0.6	0.7	1.0
Reduced Climate Damages, Average SCC	7.0	8.7	10.2	13.9
Reduced Health Damages	0.6	0.3	0.1	0.1
Subtotal - Incremental External Benefits	8.0	9.5	11.0	14.9
Total Incremental Social Benefits, Average SCC	38.0	46.3	52.0	70.3
Net Incremental Social Benefits, Average SCC				
	-3.9	-25.4	-31.9	-42.4

Table B-7-4 - Incremental Benefits and Costs Over the Lifetimes of Total Fleet Produced Through 2029 (2018\$ Billions), 7% Percent Discount Rate, by Alternative, Average SCC

Alternative	1	2	2.5	3
Private Costs				
Technology Costs to Increase Fuel Economy	22.2	44.2	56.0	72.8
Increased Maintenance and Repair Costs	0.0	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.0	0.1	0.2	0.3
Safety Costs Internalized by Drivers	2.7	4.0	4.3	5.4
Subtotal - Incremental Private Costs	24.9	48.3	60.5	78.5
External Costs				
Congestion and Noise Costs from Rebound-Effect Driving	3.4	5.1	5.4	6.7
Safety Costs Not Internalized by Drivers	2.9	5.3	6.4	7.8
Loss in Fuel Tax Revenue	7.1	12.2	13.9	17.9
Subtotal - Incremental External Costs	13.4	22.6	25.7	32.4
Total Incremental Social Costs	38.3	70.9	86.2	110.9
Private Benefits				
Reduced Fuel Costs	31.2	50.9	57.1	73.0
Benefits from Additional Driving	5.4	7.6	8.1	10.2
Less Frequent Refueling	-1.8	-2.5	-3.1	-3.4
Subtotal - Incremental Private Benefits	34.9	55.9	62.1	79.8
External Benefits				
Reduction in Petroleum Market Externality	0.5	0.9	1.1	1.4
Reduced Climate Damages, Average SCC	13.9	23.2	26.3	33.7
Reduced Health Damages	0.6	0.6	0.5	0.6
Subtotal - Incremental External Benefits	15.1	24.8	27.8	35.7
Total Incremental Social Benefits, Average SCC	49.9	80.7	89.9	115.5
Net Incremental Social Benefits, Average SCC				
	11.7	9.8	3.7	4.6

Table B-7-5 - Incremental Benefits and Costs Over the Lifetimes of Passenger Car Fleet Produced Through 2029 (2018\$ Billions), 7% Percent Discount Rate, by Alternative, Average SCC

Alternative	1	2	2.5	3
Private Costs				
Technology Costs to Increase Fuel Economy	9.5	23.6	30.1	36.4
Increased Maintenance and Repair Costs	0.0	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.0	0.1	0.1	0.1
Safety Costs Internalized by Drivers	1.0	1.9	2.2	2.6
Subtotal - Incremental Private Costs	10.5	25.6	32.4	39.1
External Costs				
Congestion and Noise Costs from Rebound-Effect Driving	-3.1	-7.0	-7.8	-10.5
Safety Costs Not Internalized by Drivers	-1.8	-4.4	-4.6	-6.4
Loss in Fuel Tax Revenue	3.6	7.7	8.4	10.3
Subtotal - Incremental External Costs	-1.2	-3.7	-4.0	-6.6
Total Incremental Social Costs	9.3	21.9	28.4	32.6
Private Benefits				
Reduced Fuel Costs	15.5	31.9	35.2	43.5
Benefits from Additional Driving	1.8	3.3	3.7	4.4
Less Frequent Refueling	-0.9	-1.7	-1.9	-2.1
Subtotal - Incremental Private Benefits	16.4	33.4	37.0	45.8
External Benefits				
Reduction in Petroleum Market Externality	0.3	0.6	0.6	0.8
Reduced Climate Damages, Average SCC	7.0	14.6	16.0	19.8
Reduced Health Damages	0.3	0.4	0.5	0.6
Subtotal - Incremental External Benefits	7.5	15.6	17.2	21.2
Total Incremental Social Benefits, Average SCC	23.9	49.0	54.2	67.0
Net Incremental Social Benefits, Average SCC				
Net Incremental Social Benefits, Average SCC	14.6	27.1	25.8	34.5

Table B-7-6 - Incremental Benefits and Costs Over the Lifetimes of Light Truck Fleet Produced Through 2029 (2018\$ Billions), 7% Percent Discount Rate, by Alternative, Average SCC

Alternative	1	2	2.5	3
Private Costs				
Technology Costs to Increase Fuel Economy	12.7	20.6	25.9	36.4
Increased Maintenance and Repair Costs	0.0	0.0	0.0	0.0
Sacrifice in Other Vehicle Attributes	0.0	0.0	0.0	0.0
Consumer Surplus Loss from Reduced New Vehicle Sales	0.0	0.1	0.1	0.2
Safety Costs Internalized by Drivers	1.6	2.1	2.1	2.8
Subtotal - Incremental Private Costs	14.4	22.7	28.1	39.4
External Costs				
Congestion and Noise Costs from Rebound-Effect Driving	6.5	12.2	13.2	17.2
Safety Costs Not Internalized by Drivers	4.7	9.6	11.0	14.2
Loss in Fuel Tax Revenue	3.4	4.5	5.5	7.6
Subtotal - Incremental External Costs	14.6	26.3	29.7	38.9
Total Incremental Social Costs	28.9	49.0	57.8	78.3
Private Benefits				
Reduced Fuel Costs	15.8	19.0	21.9	29.5
Benefits from Additional Driving	3.6	4.3	4.4	5.8
Less Frequent Refueling	-0.8	-0.8	-1.2	-1.4
Subtotal - Incremental Private Benefits	18.5	22.6	25.1	33.9
External Benefits				
Reduction in Petroleum Market Externality	0.3	0.3	0.4	0.6
Reduced Climate Damages, Average SCC	7.0	8.7	10.2	13.9
Reduced Health Damages	0.3	0.1	0.0	0.0
Subtotal - Incremental External Benefits	7.6	9.2	10.7	14.5
Total Incremental Social Benefits, Average SCC	26.1	31.7	35.7	48.4
Net Incremental Social Benefits, Average SCC				
	-2.9	-17.3	-22.1	-29.9

8. Technology Costs and Civil Penalties per Vehicle, by Model Year

Table B-8-1 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	194	279	465	556	614	700	748	731	713	700
Alternative 1	194	279	465	609	930	1,062	1,166	1,141	1,113	1,076
Alternative 2	194	279	465	685	979	1,337	1,631	1,612	1,570	1,505
Alternative 2.5	194	279	465	740	1,099	1,457	1,860	1,832	1,779	1,697
Alternative 3	194	279	465	774	1,284	1,763	2,169	2,127	2,063	1,971

Table B-8-2 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	290	298	459	518	571	652	687	656	628	608
Alternative 1	290	298	459	562	820	965	1,051	1,008	970	930
Alternative 2	290	298	459	706	994	1,358	1,616	1,557	1,496	1,412
Alternative 2.5	290	298	459	813	1,158	1,522	1,835	1,757	1,691	1,595
Alternative 3	290	298	459	841	1,298	1,778	2,094	2,008	1,924	1,823

Table B-8-3 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	119	263	471	590	654	746	808	804	798	793
Alternative 1	119	263	471	651	1,031	1,152	1,274	1,268	1,252	1,220
Alternative 2	119	263	471	667	966	1,317	1,646	1,662	1,639	1,594
Alternative 2.5	119	263	471	675	1,046	1,396	1,884	1,900	1,861	1,794
Alternative 3	119	263	471	714	1,271	1,750	2,237	2,235	2,191	2,109

Table B-8-4 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	75	740	768	872	870	1,418	1,587	1,524	1,457	1,389
Alternative 1	75	740	768	886	1,036	1,335	1,751	1,725	1,643	1,559
Alternative 2	75	740	768	874	1,000	1,326	1,626	1,873	1,806	1,716
Alternative 2.5	75	740	768	874	999	1,325	1,773	2,011	1,929	1,827
Alternative 3	75	740	768	878	1,003	1,548	2,285	2,299	2,212	2,082

Table B-8-5 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	422	506	770	762	749	934	1,013	983	946	911
Alternative 1	422	506	770	762	1,234	1,532	1,711	1,638	1,537	1,439
Alternative 2	422	506	770	762	1,094	1,709	2,243	2,160	2,086	1,944
Alternative 2.5	422	506	770	763	1,094	1,709	2,395	2,308	2,238	2,043
Alternative 3	422	506	770	762	1,222	2,319	3,003	2,849	2,635	2,427

Table B-8-6 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	392	266	680	937	993	1,018	1,073	1,092	1,109	1,091
Alternative 1	392	266	680	959	1,320	1,495	1,751	1,717	1,700	1,662
Alternative 2	392	266	680	941	1,135	1,591	2,135	2,098	2,077	2,015
Alternative 2.5	392	266	680	941	1,135	1,592	2,283	2,241	2,235	2,163
Alternative 3	392	266	680	941	1,241	1,828	2,556	2,506	2,486	2,413

Table B-8-7 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	137	565	890	1,042	1,039	1,012	1,119	1,083	1,057	1,021
Alternative 1	137	565	890	1,147	1,142	1,189	1,272	1,266	1,230	1,183
Alternative 2	137	565	890	1,554	1,545	1,571	1,696	1,700	1,639	1,576
Alternative 2.5	137	565	890	1,554	1,544	1,543	2,010	2,061	1,963	1,850
Alternative 3	137	565	890	1,585	1,770	1,869	2,341	2,354	2,238	2,106

Table B-8-8 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	276	373	457	477	508	624	629	615	596	620
Alternative 1	276	373	457	477	1,115	1,370	1,466	1,437	1,393	1,337
Alternative 2	276	373	457	477	824	1,682	2,226	2,141	2,057	1,955
Alternative 2.5	276	373	457	477	825	1,709	2,423	2,308	2,211	2,094
Alternative 3	276	373	457	477	1,034	2,149	2,821	2,676	2,558	2,421

Table B-8-9 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	18	185	210	244	490	615	576	545	508
Alternative 1	0	18	185	210	264	495	603	570	540	505
Alternative 2	0	18	185	263	434	799	940	1,052	1,043	985
Alternative 2.5	0	18	185	387	730	1,077	1,200	1,245	1,218	1,144
Alternative 3	0	18	185	507	1,015	1,356	1,516	1,571	1,575	1,496

Table B-8-10 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	521	307	364	432	534	519	553	534	515	507
Alternative 1	521	307	364	432	761	890	1,108	1,075	1,038	994
Alternative 2	521	307	364	432	720	1,203	1,866	1,810	1,757	1,696
Alternative 2.5	521	307	364	432	721	1,208	2,047	1,982	1,924	1,858
Alternative 3	521	307	364	438	891	1,512	2,329	2,239	2,161	2,072

Table B-8-11 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	211	298	301	294	545	554	530	532	512	491
Alternative 1	211	298	301	293	754	840	877	883	879	852
Alternative 2	211	298	301	293	971	1,196	1,620	1,592	1,565	1,496
Alternative 2.5	211	298	301	293	1,125	1,343	1,793	1,756	1,721	1,643
Alternative 3	211	298	301	293	1,278	1,713	2,146	2,090	2,045	1,958

Table B-8-12 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	96	78	401	660	773	778	793	842	824	837
Alternative 1	96	78	401	660	1,267	1,393	1,514	1,461	1,429	1,445
Alternative 2	96	78	401	660	1,103	1,471	1,915	1,850	1,830	1,941
Alternative 2.5	96	78	401	660	1,103	1,471	2,061	1,993	1,978	2,083
Alternative 3	96	78	401	660	1,223	1,699	2,343	2,264	2,257	2,399

Table B-8-13 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	329	960	1,028	1,179	1,162	1,225	1,207	1,164	1,132	1,093
Alternative 1	329	960	1,028	1,183	1,244	1,471	1,515	1,466	1,428	1,384
Alternative 2	329	960	1,028	1,184	1,309	1,865	2,098	2,029	1,977	1,920
Alternative 2.5	329	960	1,028	1,191	1,315	1,974	2,288	2,211	2,153	2,090
Alternative 3	329	960	1,028	1,191	1,322	2,168	2,448	2,365	2,299	2,229

Table B-8-14 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	141	43	104	414	503	390	376	362	352	340
Alternative 1	141	43	104	414	1,115	956	938	922	908	894
Alternative 2	141	43	104	414	956	1,367	1,325	1,288	1,254	1,219
Alternative 2.5	141	43	104	414	956	1,546	1,500	1,458	1,419	1,379
Alternative 3	141	43	104	414	1,097	1,886	1,827	1,775	1,726	1,677

Table B-8-15 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	87	222	264	270	396	403	396	389	394	388
Alternative 1	87	222	264	435	730	765	763	739	776	758
Alternative 2	87	222	264	655	1,013	1,357	1,398	1,364	1,389	1,346
Alternative 2.5	87	222	264	1,207	2,040	2,346	2,407	2,345	2,334	2,257
Alternative 3	87	222	264	1,221	2,167	2,510	2,558	2,589	2,572	2,507

Table B-8-16 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	28	46	336	602	636	662	656	634	615	598
Alternative 1	28	46	336	786	946	964	976	948	926	905
Alternative 2	28	46	336	786	946	997	1,042	1,003	974	944
Alternative 2.5	28	46	336	786	946	996	1,062	1,021	992	962
Alternative 3	28	46	336	786	945	1,114	1,089	1,044	1,011	977

Table B-8-18 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	49	45	235	254	341	344	418	398	393	410
Alternative 1	49	45	235	363	758	751	826	809	804	807
Alternative 2	49	45	235	405	993	1,028	1,148	1,123	1,106	1,063
Alternative 2.5	49	45	235	409	1,023	1,056	1,163	1,145	1,128	1,084
Alternative 3	49	45	235	531	1,364	1,415	1,524	1,504	1,491	1,431

Table B-8-19 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	171	297	343	1,443	1,364	1,430	1,526	1,685	1,601	1,510
Alternative 1	171	297	343	1,477	1,542	1,642	1,676	1,812	1,726	1,633
Alternative 2	171	297	343	1,609	1,639	1,824	1,937	2,013	1,911	1,799
Alternative 2.5	171	297	343	1,498	1,541	1,734	1,904	1,996	1,899	1,794
Alternative 3	171	297	343	1,586	1,661	1,896	2,070	2,195	2,083	1,960

Table B-8-20 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Total Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	363	262	669	729	860	1,611	1,626	1,580	1,524	1,457
Alternative 1	363	262	669	729	1,381	1,706	1,728	1,678	1,600	1,543
Alternative 2	363	262	669	729	1,233	1,717	2,045	1,957	1,813	1,729
Alternative 2.5	363	262	669	729	1,232	1,717	2,178	2,084	1,929	1,833
Alternative 3	363	262	669	729	1,367	2,011	2,489	2,376	2,185	2,068

Table B-8-21 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	119	987	948	983	983	1,714	1,941	1,849	1,752	1,660
Alternative 1	119	987	948	993	1,184	1,517	2,102	1,990	1,876	1,766
Alternative 2	119	987	948	993	1,183	1,597	2,022	2,036	1,949	1,846
Alternative 2.5	119	987	948	993	1,183	1,597	2,226	2,173	2,075	1,957
Alternative 3	119	987	948	993	1,183	1,927	2,688	2,467	2,345	2,203

Table B-8-22 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	620	805	1,279	1,267	1,233	1,199	1,206	1,159	1,110	1,068
Alternative 1	620	805	1,279	1,267	1,749	1,808	1,996	1,936	1,771	1,635
Alternative 2	620	805	1,279	1,267	1,664	2,073	2,664	2,599	2,469	2,253
Alternative 2.5	620	805	1,279	1,267	1,664	2,074	2,838	2,769	2,643	2,327
Alternative 3	620	805	1,279	1,267	1,807	2,396	3,216	3,135	2,850	2,594

Table B-8-23 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	1,219	1,294	1,348	1,513	1,869	1,968	1,895	1,818	1,748	1,687
Alternative 1	1,219	1,294	1,348	1,512	2,314	2,613	2,786	2,643	2,500	2,382
Alternative 2	1,219	1,294	1,348	1,512	2,238	2,869	3,346	3,155	2,914	2,761
Alternative 2.5	1,219	1,294	1,348	1,512	2,237	2,878	3,611	3,401	3,229	3,040
Alternative 3	1,219	1,294	1,348	1,512	2,380	3,197	3,970	3,746	3,428	3,249

Table B-8-24 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	516	694	1,131	1,452	1,357	1,281	1,357	1,295	1,237	1,173
Alternative 1	516	694	1,131	1,796	1,687	1,864	1,804	1,698	1,603	1,504
Alternative 2	516	694	1,131	3,212	2,953	3,014	2,865	2,676	2,487	2,298
Alternative 2.5	516	694	1,131	3,212	2,953	2,923	2,769	2,588	2,408	2,219
Alternative 3	516	694	1,131	3,212	2,957	2,935	2,867	2,688	2,507	2,310

Table B-8-25 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	479	133	323	423	456	788	753	721	688	654
Alternative 1	479	133	323	423	887	1,310	1,386	1,315	1,242	1,161
Alternative 2	479	133	323	423	807	1,596	2,096	1,921	1,813	1,695
Alternative 2.5	479	133	323	423	807	1,672	2,262	2,038	1,919	1,788
Alternative 3	479	133	323	423	958	1,944	2,536	2,266	2,132	1,988

Table B-8-26 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	19	171	194	207	313	538	500	473	437
Alternative 1	0	19	171	194	238	391	583	541	510	471
Alternative 2	0	19	171	281	432	714	968	1,040	1,027	957
Alternative 2.5	0	19	171	482	625	899	1,146	1,152	1,139	1,066
Alternative 3	0	19	171	677	893	1,172	1,491	1,497	1,496	1,411

Table B-8-27 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	554	328	363	432	540	517	499	482	466	463
Alternative 1	554	328	363	432	735	863	1,027	997	963	921
Alternative 2	554	328	363	432	710	1,202	1,792	1,739	1,690	1,632
Alternative 2.5	554	328	363	432	712	1,207	1,973	1,911	1,857	1,794
Alternative 3	554	328	363	439	888	1,517	2,235	2,146	2,072	1,985

Table B-8-28 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	154	217	232	226	390	424	404	385	369	352
Alternative 1	154	217	232	223	508	659	733	707	718	693
Alternative 2	154	217	232	223	509	881	1,544	1,472	1,453	1,372
Alternative 2.5	154	217	232	223	617	984	1,692	1,611	1,585	1,495
Alternative 3	154	217	232	223	673	1,370	2,062	1,959	1,924	1,824

Table B-8-29 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	56	54	459	979	988	1,039	970	997	950
Alternative 1	0	56	54	459	1,480	1,468	1,623	1,345	1,270	1,185
Alternative 2	0	56	54	459	1,675	1,546	2,204	1,857	1,766	1,571
Alternative 2.5	0	56	54	458	1,676	1,548	2,394	2,040	1,956	1,703
Alternative 3	0	56	54	458	1,914	1,753	2,542	2,107	2,009	1,752

Table B-8-30 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	682	1,951	2,046	2,076	2,027	2,134	2,053	1,966	1,894	1,813
Alternative 1	682	1,951	2,046	2,084	2,188	2,440	2,455	2,359	2,279	2,189
Alternative 2	682	1,951	2,046	2,086	2,315	2,852	2,931	2,817	2,725	2,625
Alternative 2.5	682	1,951	2,046	2,100	2,327	2,935	3,009	2,892	2,798	2,696
Alternative 3	682	1,951	2,046	2,100	2,342	3,314	3,366	3,236	3,124	3,008

Table B-8-31 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	309	92	211	615	708	521	496	472	452	431
Alternative 1	309	92	211	615	1,306	927	901	876	857	835
Alternative 2	309	92	211	615	1,221	1,420	1,358	1,300	1,247	1,192
Alternative 2.5	309	92	211	615	1,220	1,635	1,560	1,491	1,427	1,360
Alternative 3	309	92	211	615	1,377	1,866	1,782	1,706	1,634	1,561

Table B-8-32 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	121	169	188	196	316	314	311	307	306	302
Alternative 1	121	169	188	346	641	679	660	643	695	675
Alternative 2	121	169	188	581	949	1,421	1,356	1,312	1,354	1,297
Alternative 2.5	121	169	188	1,258	1,996	2,431	2,335	2,272	2,287	2,201
Alternative 3	121	169	188	1,277	2,170	2,658	2,541	2,544	2,537	2,469

Table B-8-33 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	134	144	1,050	1,067	977	934	958	924	894	863
Alternative 1	134	144	1,050	1,067	1,500	1,443	1,550	1,505	1,463	1,423
Alternative 2	134	144	1,050	1,067	1,500	1,580	1,822	1,741	1,670	1,596
Alternative 2.5	134	144	1,050	1,067	1,500	1,579	1,904	1,820	1,746	1,668
Alternative 3	134	144	1,050	1,067	1,500	2,053	2,030	1,928	1,840	1,747

Table B-8-35 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	21	131	134	176	204	205	190	177	219
Alternative 1	0	21	131	134	313	346	352	367	366	413
Alternative 2	0	21	131	138	547	659	719	722	703	677
Alternative 2.5	0	21	131	146	599	707	766	779	758	731
Alternative 3	0	21	131	148	765	926	981	1,012	993	959

Table B-8-36 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	592	1,135	1,255	1,031	1,057	1,251	1,807	1,777	1,692	1,596
Alternative 1	592	1,135	1,255	1,031	1,577	1,882	2,231	2,058	1,969	1,870
Alternative 2	592	1,135	1,255	1,030	1,498	2,143	2,807	2,453	2,332	2,196
Alternative 2.5	592	1,135	1,255	1,031	1,504	2,149	2,984	2,617	2,491	2,350
Alternative 3	592	1,135	1,255	1,031	1,647	2,467	3,350	2,794	2,638	2,464

Table B-8-37 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Passenger Car Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	569	131	711	798	861	981	1,023	983	947	894
Alternative 1	569	131	711	797	1,393	1,524	1,564	1,497	1,392	1,339
Alternative 2	569	131	711	798	1,300	1,747	2,031	1,927	1,701	1,602
Alternative 2.5	569	131	711	798	1,300	1,746	2,151	2,036	1,786	1,678
Alternative 3	569	131	711	798	1,456	2,053	2,422	2,292	2,000	1,879

Table B-8-38 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	296	423	652	638	788	814	802	784	760
Alternative 1	0	296	423	671	732	953	1,002	1,152	1,128	1,094
Alternative 2	0	296	423	635	622	763	796	1,533	1,501	1,436
Alternative 2.5	0	296	423	635	622	763	832	1,675	1,622	1,546
Alternative 3	0	296	423	649	635	774	1,459	1,957	1,936	1,830

Table B-8-39 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	246	224	259	236	227	639	793	779	752	722
Alternative 1	246	224	259	236	681	1,231	1,394	1,301	1,266	1,209
Alternative 2	246	224	259	236	481	1,314	1,784	1,682	1,660	1,595
Alternative 2.5	246	224	259	236	481	1,314	1,914	1,809	1,791	1,724
Alternative 3	246	224	259	236	595	2,237	2,776	2,545	2,402	2,245

Table B-8-40 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	260	94	563	834	831	839	915	951	983	971
Alternative 1	260	94	563	859	1,136	1,287	1,555	1,541	1,545	1,520
Alternative 2	260	94	563	839	933	1,354	1,909	1,902	1,918	1,873
Alternative 2.5	260	94	563	839	933	1,354	2,036	2,026	2,048	1,997
Alternative 3	260	94	563	839	1,032	1,577	2,296	2,280	2,312	2,257

Table B-8-41 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	517	795	876	908	898	1,017	990	977	952
Alternative 1	0	517	795	885	916	907	1,046	1,081	1,068	1,041
Alternative 2	0	517	795	884	963	970	1,207	1,292	1,280	1,266
Alternative 2.5	0	517	795	884	963	971	1,693	1,841	1,775	1,693
Alternative 3	0	517	795	927	1,282	1,431	2,125	2,217	2,126	2,021

Table B-8-42 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	178	493	527	506	535	534	560	556	544	601
Alternative 1	178	493	527	506	1,238	1,403	1,510	1,505	1,477	1,437
Alternative 2	178	493	527	506	834	1,728	2,296	2,259	2,191	2,099
Alternative 2.5	178	493	527	506	834	1,728	2,509	2,454	2,370	2,262
Alternative 3	178	493	527	506	1,075	2,259	2,974	2,894	2,789	2,656

Table B-8-43 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	17	208	235	305	790	749	710	676	640
Alternative 1	0	17	208	235	305	670	637	620	593	565
Alternative 2	0	17	208	235	435	941	894	1,071	1,071	1,033
Alternative 2.5	0	17	208	235	903	1,372	1,291	1,400	1,352	1,278
Alternative 3	0	17	208	235	1,215	1,657	1,558	1,691	1,704	1,638

Table B-8-44 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	246	125	378	435	484	530	1,086	1,041	1,001	960
Alternative 1	246	125	378	435	1,011	1,142	1,887	1,829	1,776	1,723
Alternative 2	246	125	378	435	811	1,212	2,568	2,483	2,402	2,323
Alternative 2.5	246	125	378	435	811	1,212	2,745	2,652	2,567	2,482
Alternative 3	246	125	378	435	925	1,462	3,217	3,106	3,003	2,900

Table B-8-45 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	301	437	428	425	850	819	792	842	821	798
Alternative 1	301	437	428	425	1,238	1,200	1,168	1,245	1,219	1,192
Alternative 2	301	437	428	425	1,877	1,820	1,770	1,831	1,791	1,750
Alternative 2.5	301	437	428	425	2,119	2,051	1,992	2,044	1,995	1,946
Alternative 3	301	437	428	425	2,460	2,379	2,310	2,342	2,284	2,225

Table B-8-46 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	100	79	418	671	762	766	778	835	813	830
Alternative 1	100	79	418	671	1,256	1,389	1,508	1,468	1,439	1,462
Alternative 2	100	79	418	671	1,071	1,466	1,898	1,850	1,834	1,963
Alternative 2.5	100	79	418	671	1,071	1,466	2,042	1,991	1,980	2,105
Alternative 3	100	79	418	671	1,184	1,696	2,332	2,273	2,272	2,436

Table B-8-47 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	0	0	249	245	242	277	274	272	269
Alternative 1	0	0	0	249	245	436	496	490	484	479
Alternative 2	0	0	0	249	245	814	1,208	1,187	1,167	1,149
Alternative 2.5	0	0	0	249	245	956	1,520	1,487	1,457	1,429
Alternative 3	0	0	0	249	245	961	1,480	1,449	1,421	1,395

Table B-8-48 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	0	8	232	313	267	262	258	254	251
Alternative 1	0	0	8	232	940	983	973	965	957	950
Alternative 2	0	0	8	232	712	1,318	1,295	1,277	1,260	1,244
Alternative 2.5	0	0	8	232	712	1,464	1,445	1,428	1,412	1,398
Alternative 3	0	0	8	232	840	1,905	1,869	1,839	1,811	1,784

Table B-8-49 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	12	347	451	460	602	638	626	613	642	630
Alternative 1	12	347	451	660	960	989	1,039	996	1,000	988
Alternative 2	12	347	451	842	1,178	1,191	1,509	1,501	1,483	1,479
Alternative 2.5	12	347	451	1,078	2,156	2,125	2,594	2,534	2,460	2,406
Alternative 3	12	347	451	1,078	2,161	2,130	2,600	2,703	2,665	2,608

Table B-8-50 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	18	113	450	520	566	545	526	509	495
Alternative 1	0	18	113	694	758	798	772	748	727	709
Alternative 2	0	18	113	694	758	798	772	748	727	709
Alternative 2.5	0	18	113	694	758	798	772	748	727	709
Alternative 3	0	18	113	694	758	798	772	748	727	709

Table B-8-52 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	105	74	368	414	567	541	728	705	717	705
Alternative 1	105	74	368	667	1,369	1,314	1,499	1,443	1,449	1,396
Alternative 2	105	74	368	760	1,603	1,537	1,744	1,680	1,678	1,619
Alternative 2.5	105	74	368	760	1,603	1,537	1,713	1,650	1,648	1,589
Alternative 3	105	74	368	1,040	2,181	2,081	2,264	2,170	2,178	2,091

Table B-8-53 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	27	0	3	1,601	1,485	1,502	1,411	1,647	1,563	1,474
Alternative 1	27	0	3	1,648	1,528	1,547	1,453	1,712	1,626	1,534
Alternative 2	27	0	3	1,831	1,694	1,698	1,593	1,839	1,741	1,638
Alternative 2.5	27	0	3	1,677	1,555	1,571	1,477	1,751	1,662	1,569
Alternative 3	27	0	3	1,799	1,666	1,673	1,570	1,963	1,864	1,759

Table B-8-54 - Estimated Average Per Vehicle Technology and Civil Penalties Costs (\$), Light Truck Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	213	365	633	668	858	2,211	2,216	2,175	2,116	2,048
Alternative 1	213	365	633	668	1,370	1,875	1,885	1,853	1,807	1,751
Alternative 2	213	365	633	668	1,171	1,690	2,059	1,986	1,920	1,853
Alternative 2.5	213	365	633	668	1,171	1,690	2,204	2,127	2,063	1,982
Alternative 3	213	365	633	668	1,285	1,974	2,550	2,453	2,355	2,245

9. Regulatory Costs per Vehicle, by Model Year

Table B-9-1 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	194	303	516	747	859	996	1,073	1,065	1,042	1,024
Alternative 1	194	303	516	800	1,175	1,358	1,492	1,475	1,442	1,401
Alternative 2	194	303	516	876	1,224	1,633	1,957	1,947	1,900	1,831
Alternative 2.5	194	303	516	931	1,344	1,753	2,187	2,167	2,109	2,024
Alternative 3	194	303	516	965	1,529	2,060	2,495	2,463	2,394	2,298

Table B-9-2 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	250	309	533	638	731	872	939	922	894	870
Alternative 1	250	309	533	681	988	1,181	1,317	1,291	1,254	1,208
Alternative 2	250	309	533	825	1,152	1,565	1,880	1,849	1,799	1,708
Alternative 2.5	250	309	533	932	1,316	1,729	2,103	2,061	2,000	1,900
Alternative 3	250	309	533	961	1,458	1,966	2,351	2,299	2,231	2,122

Table B-9-3 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Total)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	150	297	501	845	975	1,112	1,202	1,203	1,189	1,180
Alternative 1	150	297	501	906	1,345	1,523	1,656	1,650	1,625	1,591
Alternative 2	150	297	501	922	1,289	1,695	2,029	2,037	1,995	1,948
Alternative 2.5	150	297	501	930	1,369	1,775	2,263	2,264	2,211	2,141
Alternative 3	150	297	501	969	1,593	2,145	2,627	2,612	2,544	2,461

Table B-9-4 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	75	742	808	1,042	1,102	1,670	1,834	1,767	1,695	1,623
Alternative 1	75	742	808	1,055	1,268	1,588	2,000	1,969	1,883	1,795
Alternative 2	75	742	808	1,043	1,231	1,580	1,875	2,119	2,047	1,953
Alternative 2.5	75	742	808	1,043	1,231	1,579	2,023	2,257	2,171	2,064
Alternative 3	75	742	808	1,048	1,235	1,803	2,535	2,546	2,455	2,321

Table B-9-5 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	422	494	804	848	886	1,177	1,340	1,426	1,398	1,389
Alternative 1	422	494	804	848	1,371	1,775	2,039	2,081	1,990	1,918
Alternative 2	422	494	804	848	1,231	1,952	2,571	2,605	2,541	2,425
Alternative 2.5	422	494	804	848	1,230	1,952	2,723	2,753	2,693	2,524
Alternative 3	422	494	804	848	1,359	2,563	3,332	3,294	3,090	2,910

Table B-9-6 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	392	265	687	1,288	1,344	1,370	1,419	1,433	1,444	1,420
Alternative 1	392	265	687	1,310	1,671	1,847	2,097	2,058	2,035	1,992
Alternative 2	392	265	687	1,293	1,487	1,943	2,482	2,440	2,413	2,346
Alternative 2.5	392	265	687	1,293	1,487	1,944	2,630	2,583	2,571	2,495
Alternative 3	392	265	687	1,292	1,593	2,181	2,903	2,849	2,823	2,745

Table B-9-7 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	137	574	925	1,327	1,376	1,343	1,445	1,403	1,372	1,330
Alternative 1	137	574	925	1,433	1,479	1,521	1,598	1,587	1,546	1,493
Alternative 2	137	574	925	1,840	1,881	1,903	2,023	2,022	1,956	1,887
Alternative 2.5	137	574	925	1,840	1,881	1,875	2,337	2,383	2,280	2,162
Alternative 3	137	574	925	1,870	2,107	2,202	2,668	2,677	2,555	2,419

Table B-9-8 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	276	397	502	695	787	963	962	943	919	937
Alternative 1	276	397	502	695	1,395	1,709	1,800	1,766	1,715	1,655
Alternative 2	276	397	502	695	1,104	2,021	2,560	2,469	2,381	2,274
Alternative 2.5	276	397	502	695	1,104	2,048	2,757	2,637	2,535	2,412
Alternative 3	276	397	502	695	1,313	2,489	3,156	3,005	2,882	2,740

Table B-9-9 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	66	252	424	509	896	1,016	970	934	891
Alternative 1	0	66	252	424	529	902	1,004	964	929	888
Alternative 2	0	66	252	478	699	1,206	1,341	1,446	1,432	1,368
Alternative 2.5	0	66	252	602	996	1,484	1,601	1,640	1,606	1,527
Alternative 3	0	66	252	721	1,281	1,763	1,917	1,965	1,963	1,878

Table B-9-10 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	521	317	403	492	600	634	710	758	737	728
Alternative 1	521	317	403	492	827	1,005	1,266	1,299	1,260	1,215
Alternative 2	521	317	403	492	786	1,319	2,023	2,034	1,980	1,917
Alternative 2.5	521	317	403	492	787	1,323	2,204	2,207	2,147	2,079
Alternative 3	521	317	403	498	957	1,627	2,487	2,464	2,383	2,293

Table B-9-11 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	211	305	331	361	588	571	596	648	626	603
Alternative 1	211	305	331	359	797	857	944	999	994	964
Alternative 2	211	305	331	359	1,015	1,213	1,687	1,709	1,679	1,608
Alternative 2.5	211	305	331	359	1,168	1,360	1,860	1,873	1,835	1,756
Alternative 3	211	305	331	359	1,322	1,730	2,214	2,206	2,160	2,071

Table B-9-12 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	96	78	401	811	1,001	1,076	1,158	1,210	1,186	1,193
Alternative 1	96	78	401	811	1,495	1,691	1,879	1,829	1,791	1,802
Alternative 2	96	78	401	811	1,331	1,768	2,280	2,218	2,193	2,298
Alternative 2.5	96	78	401	811	1,330	1,768	2,427	2,361	2,341	2,440
Alternative 3	96	78	401	811	1,451	1,997	2,709	2,632	2,620	2,756

Table B-9-13 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	329	981	1,114	1,344	1,402	1,537	1,577	1,548	1,514	1,474
Alternative 1	329	981	1,114	1,348	1,485	1,783	1,886	1,850	1,811	1,765
Alternative 2	329	981	1,114	1,349	1,550	2,177	2,469	2,413	2,360	2,302
Alternative 2.5	329	981	1,114	1,356	1,555	2,286	2,659	2,595	2,536	2,471
Alternative 3	329	981	1,114	1,356	1,562	2,480	2,819	2,749	2,682	2,611

Table B-9-14 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	141	43	104	417	520	421	414	400	389	376
Alternative 1	141	43	104	417	1,132	987	977	959	945	930
Alternative 2	141	43	104	417	973	1,398	1,364	1,325	1,291	1,255
Alternative 2.5	141	43	104	417	972	1,577	1,539	1,496	1,456	1,415
Alternative 3	141	43	104	417	1,114	1,918	1,865	1,812	1,763	1,713

Table B-9-15 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	87	265	349	409	586	682	724	717	716	704
Alternative 1	87	265	349	574	920	1,044	1,092	1,067	1,099	1,075
Alternative 2	87	265	349	794	1,203	1,637	1,727	1,693	1,713	1,664
Alternative 2.5	87	265	349	1,345	2,231	2,626	2,736	2,674	2,658	2,575
Alternative 3	87	265	349	1,359	2,358	2,790	2,887	2,919	2,897	2,826

Table B-9-16 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	28	61	360	674	785	903	969	997	973	950
Alternative 1	28	61	360	857	1,095	1,204	1,289	1,312	1,284	1,257
Alternative 2	28	61	360	857	1,095	1,238	1,355	1,367	1,332	1,297
Alternative 2.5	28	61	360	857	1,094	1,237	1,374	1,385	1,350	1,315
Alternative 3	28	61	360	857	1,094	1,354	1,402	1,408	1,369	1,329

Table B-9-17 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	8	26	28	29	33	33	32	31	31
Alternative 1	0	8	26	28	29	33	33	32	31	31
Alternative 2	0	8	26	28	29	34	33	32	32	31
Alternative 2.5	0	8	26	28	29	34	33	32	32	31
Alternative 3	0	8	26	28	29	34	33	33	32	31

Table B-9-18 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	49	116	356	433	656	714	895	871	858	867
Alternative 1	49	116	356	541	1,074	1,122	1,303	1,283	1,270	1,265
Alternative 2	49	116	356	584	1,308	1,399	1,626	1,599	1,574	1,523
Alternative 2.5	49	116	356	588	1,339	1,427	1,641	1,620	1,595	1,544
Alternative 3	49	116	356	709	1,680	1,786	2,003	1,980	1,959	1,892

Table B-9-19 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	171	336	397	1,549	1,546	1,676	1,833	1,987	1,898	1,802
Alternative 1	171	336	397	1,583	1,724	1,888	1,984	2,115	2,024	1,926
Alternative 2	171	336	397	1,715	1,821	2,071	2,246	2,317	2,209	2,093
Alternative 2.5	171	336	397	1,604	1,723	1,981	2,212	2,300	2,198	2,088
Alternative 3	171	336	397	1,692	1,843	2,143	2,378	2,500	2,382	2,254

Table B-9-20 - Estimated Average Per Vehicle Regulatory Costs (\$), Total Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	363	253	673	906	1,072	1,857	1,905	1,854	1,792	1,720
Alternative 1	363	253	673	906	1,593	1,953	2,008	1,953	1,870	1,808
Alternative 2	363	253	673	906	1,445	1,965	2,327	2,235	2,085	1,996
Alternative 2.5	363	253	673	906	1,445	1,965	2,460	2,361	2,201	2,100
Alternative 3	363	253	673	906	1,579	2,260	2,772	2,655	2,458	2,337

Table B-9-21 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	99	945	1,008	1,097	1,174	1,902	2,127	2,031	1,932	1,837
Alternative 1	99	945	1,008	1,107	1,375	1,705	2,288	2,172	2,056	1,943
Alternative 2	99	945	1,008	1,107	1,374	1,785	2,197	2,219	2,129	2,023
Alternative 2.5	99	945	1,008	1,107	1,374	1,785	2,360	2,409	2,255	2,135
Alternative 3	99	945	1,008	1,107	1,374	2,115	3,047	2,806	2,525	2,380

Table B-9-22 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	644	868	1,280	1,250	1,341	1,429	1,510	1,553	1,498	1,450
Alternative 1	644	868	1,280	1,250	1,897	2,014	2,245	2,373	2,336	2,180
Alternative 2	644	868	1,280	1,250	1,754	2,271	2,924	3,036	3,203	2,982
Alternative 2.5	644	868	1,280	1,250	1,754	2,272	3,102	3,209	3,374	3,116
Alternative 3	644	868	1,280	1,250	1,920	2,254	3,082	3,154	3,348	3,065

Table B-9-23 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	970	1,352	1,486	1,516	1,711	1,745	1,867	1,832	1,882	1,819
Alternative 1	970	1,352	1,486	1,516	2,201	2,447	3,286	3,176	3,021	2,852
Alternative 2	970	1,352	1,486	1,516	1,966	2,681	4,030	3,980	3,828	3,609
Alternative 2.5	970	1,352	1,486	1,516	1,964	2,686	4,508	4,464	4,243	3,993
Alternative 3	970	1,352	1,486	1,516	2,155	3,030	4,815	4,755	4,629	4,392

Table B-9-24 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	284	503	1,246	1,649	1,552	1,473	1,545	1,481	1,420	1,353
Alternative 1	284	503	1,246	1,993	1,881	2,056	1,992	1,884	1,787	1,685
Alternative 2	284	503	1,246	3,409	3,147	3,206	3,054	2,862	2,671	2,479
Alternative 2.5	284	503	1,246	3,409	3,148	3,115	2,957	2,774	2,591	2,400
Alternative 3	284	503	1,246	3,409	3,152	3,127	3,056	2,874	2,690	2,490

Table B-9-25 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	392	152	437	583	658	1,026	987	951	914	877
Alternative 1	392	152	437	583	1,042	1,478	1,620	1,545	1,468	1,384
Alternative 2	392	152	437	583	974	1,715	2,247	2,151	2,040	1,918
Alternative 2.5	392	152	437	583	974	1,788	2,386	2,268	2,145	2,011
Alternative 3	392	152	437	583	1,105	2,013	2,603	2,496	2,358	2,211

Table B-9-26 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	97	276	339	391	728	946	902	869	827
Alternative 1	0	97	276	339	423	805	991	943	906	861
Alternative 2	0	97	276	426	617	1,128	1,376	1,442	1,423	1,347
Alternative 2.5	0	97	276	628	809	1,314	1,554	1,554	1,535	1,456
Alternative 3	0	97	276	822	1,078	1,586	1,899	1,895	1,892	1,801

Table B-9-27 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	549	335	437	497	616	644	648	704	685	678
Alternative 1	549	335	437	497	858	1,045	1,177	1,219	1,181	1,137
Alternative 2	549	335	437	497	817	1,392	1,942	1,961	1,909	1,847
Alternative 2.5	549	335	437	497	818	1,397	2,123	2,134	2,076	2,009
Alternative 3	549	335	437	504	1,004	1,731	2,384	2,368	2,290	2,201

Table B-9-28 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	228	219	254	266	432	426	444	500	482	463
Alternative 1	228	219	254	263	550	662	774	822	831	805
Alternative 2	228	219	254	263	550	883	1,585	1,587	1,566	1,483
Alternative 2.5	228	219	254	263	658	986	1,733	1,726	1,698	1,606
Alternative 3	228	219	254	263	714	1,373	2,103	2,074	2,037	1,936

Table B-9-29 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	141	56	62	467	1,065	1,009	966	1,203	1,227	1,176
Alternative 1	141	56	62	467	1,933	1,937	1,859	1,891	1,823	1,445
Alternative 2	141	56	62	467	1,950	2,216	2,536	2,552	2,515	1,815
Alternative 2.5	141	56	62	466	1,951	2,217	2,720	2,724	2,691	2,122
Alternative 3	141	56	62	466	2,286	2,634	3,142	3,107	3,058	2,029

Table B-9-30 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	551	1,962	2,146	2,260	2,269	2,440	2,401	2,325	2,247	2,160
Alternative 1	551	1,962	2,146	2,268	2,404	2,745	2,803	2,719	2,632	2,536
Alternative 2	551	1,962	2,146	2,269	2,542	3,158	3,279	3,176	3,078	2,973
Alternative 2.5	551	1,962	2,146	2,283	2,554	3,240	3,358	3,251	3,151	3,043
Alternative 3	551	1,962	2,146	2,283	2,560	3,619	3,714	3,595	3,477	3,356

Table B-9-31 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	236	92	182	612	730	562	552	527	506	484
Alternative 1	236	92	182	612	1,296	968	957	931	911	888
Alternative 2	236	92	182	612	1,201	1,461	1,414	1,354	1,301	1,245
Alternative 2.5	236	92	182	612	1,202	1,676	1,616	1,546	1,481	1,413
Alternative 3	236	92	182	612	1,338	1,907	1,838	1,760	1,689	1,614

Table B-9-32 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	89	178	238	297	468	555	587	579	573	565
Alternative 1	89	178	238	448	793	921	935	915	962	938
Alternative 2	89	178	238	683	1,101	1,663	1,631	1,583	1,621	1,560
Alternative 2.5	89	178	238	1,359	2,148	2,672	2,611	2,543	2,554	2,464
Alternative 3	89	178	238	1,379	2,322	2,899	2,817	2,815	2,804	2,731

Table B-9-33 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	88	210	1,148	1,224	1,176	1,230	1,296	1,256	1,221	1,185
Alternative 1	88	210	1,148	1,225	1,699	1,740	1,888	1,837	1,790	1,744
Alternative 2	88	210	1,148	1,225	1,699	1,813	2,160	2,073	1,997	1,918
Alternative 2.5	88	210	1,148	1,225	1,699	1,813	2,241	2,152	2,073	1,990
Alternative 3	88	210	1,148	1,225	1,699	2,059	2,367	2,260	2,167	2,069

Table B-9-34 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	8	23	23	23	25	25	24	24	24
Alternative 1	0	8	23	23	23	25	25	24	24	24
Alternative 2	0	8	23	23	23	25	25	24	24	24
Alternative 2.5	0	8	23	23	23	25	25	24	24	24
Alternative 3	0	8	23	23	23	25	25	24	24	24

Table B-9-35 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	34	72	232	330	487	549	621	600	581	616
Alternative 1	34	72	232	330	624	691	768	777	769	810
Alternative 2	34	72	232	334	858	1,004	1,135	1,132	1,106	1,074
Alternative 2.5	34	72	232	342	910	1,052	1,182	1,189	1,162	1,128
Alternative 3	34	72	232	344	1,076	1,271	1,398	1,422	1,396	1,356

Table B-9-36 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	327	780	833	997	1,084	1,362	1,960	1,945	1,857	1,759
Alternative 1	327	780	833	998	1,270	1,627	2,119	2,226	2,135	2,033
Alternative 2	327	780	833	997	1,304	1,768	2,362	2,622	2,498	2,359
Alternative 2.5	327	780	833	997	1,305	1,767	2,420	2,786	2,657	2,513
Alternative 3	327	780	833	997	1,351	1,892	2,548	2,962	2,804	2,627

Table B-9-37 - Estimated Average Per Vehicle Regulatory Costs (\$), Passenger Car Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	448	118	604	836	962	1,099	1,197	1,154	1,116	1,061
Alternative 1	448	118	604	836	1,719	1,593	1,686	1,619	1,561	1,506
Alternative 2	448	118	604	836	1,544	1,797	2,251	2,001	1,870	1,769
Alternative 2.5	448	118	604	836	1,544	1,797	2,444	2,187	2,043	1,922
Alternative 3	448	118	604	836	1,749	2,120	2,778	2,351	2,185	2,054

Table B-9-38 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (BMW)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	35	379	425	932	954	1,177	1,197	1,180	1,156	1,126
Alternative 1	35	379	425	951	1,049	1,342	1,385	1,530	1,500	1,461
Alternative 2	35	379	425	916	938	1,152	1,202	1,911	1,873	1,802
Alternative 2.5	35	379	425	916	938	1,152	1,322	1,941	1,994	1,913
Alternative 3	35	379	425	929	951	1,163	1,486	2,016	2,308	2,197

Table B-9-39 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Daimler)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	226	141	325	429	395	896	1,147	1,279	1,280	1,315
Alternative 1	226	141	325	429	805	1,515	1,810	1,752	1,591	1,611
Alternative 2	226	141	325	429	668	1,607	2,186	2,135	1,804	1,797
Alternative 2.5	226	141	325	429	668	1,607	2,311	2,258	1,941	1,861
Alternative 3	226	141	325	429	757	2,893	3,598	3,444	2,811	2,741

Table B-9-40 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (FCA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	300	83	547	1,247	1,277	1,300	1,333	1,355	1,357	1,340
Alternative 1	300	83	547	1,273	1,573	1,736	1,873	1,845	1,844	1,823
Alternative 2	300	83	547	1,252	1,399	1,807	2,194	2,154	2,146	2,105
Alternative 2.5	300	83	547	1,252	1,399	1,807	2,282	2,235	2,257	2,210
Alternative 3	300	83	547	1,252	1,490	2,025	2,553	2,501	2,489	2,438

Table B-9-41 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Ford)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	83	600	799	1,197	1,303	1,288	1,401	1,369	1,350	1,319
Alternative 1	83	600	799	1,206	1,312	1,297	1,431	1,460	1,441	1,409
Alternative 2	83	600	799	1,205	1,359	1,361	1,592	1,671	1,653	1,633
Alternative 2.5	83	600	799	1,205	1,359	1,361	2,078	2,220	2,148	2,060
Alternative 3	83	600	799	1,248	1,677	1,821	2,509	2,596	2,499	2,389

Table B-9-42 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (GM)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	219	518	536	754	856	928	948	938	921	972
Alternative 1	219	518	536	754	1,584	1,835	1,899	1,887	1,854	1,808
Alternative 2	219	518	536	754	1,173	2,186	2,730	2,641	2,567	2,470
Alternative 2.5	219	518	536	754	1,173	2,188	2,957	2,836	2,747	2,633
Alternative 3	219	518	536	754	1,425	2,743	3,451	3,276	3,165	3,027

Table B-9-43 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Honda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	21	215	560	705	1,184	1,137	1,092	1,052	1,011
Alternative 1	0	21	215	560	705	1,064	1,025	1,002	969	936
Alternative 2	0	21	215	560	835	1,335	1,282	1,453	1,447	1,404
Alternative 2.5	0	21	215	560	1,303	1,766	1,679	1,782	1,728	1,649
Alternative 3	0	21	215	560	1,614	2,052	1,947	2,079	2,081	2,009

Table B-9-44 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Hyundai Kia-H)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	289	161	96	444	452	537	1,318	1,288	1,263	1,235
Alternative 1	289	161	96	444	530	630	2,119	2,076	2,038	1,998
Alternative 2	289	161	96	444	495	627	2,800	2,730	2,664	2,598
Alternative 2.5	289	161	96	444	495	627	2,977	2,900	2,829	2,757
Alternative 3	289	161	96	444	515	659	3,449	3,354	3,264	3,175

Table B-9-45 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Hyundai Kia-K)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	183	450	470	541	896	865	913	962	939	914
Alternative 1	183	450	470	541	1,284	1,247	1,290	1,365	1,337	1,308
Alternative 2	183	450	470	541	1,924	1,866	1,892	1,951	1,908	1,866
Alternative 2.5	183	450	470	541	2,165	2,097	2,113	2,164	2,113	2,062
Alternative 3	183	450	470	541	2,506	2,425	2,431	2,462	2,401	2,341

Table B-9-46 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (JLR)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	94	79	418	830	997	1,080	1,169	1,211	1,183	1,194
Alternative 1	94	79	418	830	1,470	1,677	1,881	1,825	1,789	1,824
Alternative 2	94	79	418	830	1,296	1,743	2,266	2,199	2,174	2,327
Alternative 2.5	94	79	418	830	1,296	1,743	2,410	2,341	2,320	2,459
Alternative 3	94	79	418	830	1,404	1,961	2,684	2,606	2,595	2,797

Table B-9-47 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Mazda)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	122	31	72	394	484	561	673	685	687	689
Alternative 1	122	31	72	394	512	755	891	900	899	898
Alternative 2	122	31	72	394	501	1,133	1,604	1,598	1,583	1,568
Alternative 2.5	122	31	72	394	501	1,274	1,915	1,898	1,872	1,848
Alternative 3	122	31	72	394	510	1,280	1,875	1,860	1,836	1,814

Table B-9-48 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Mitsubishi)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	62	0	35	240	326	289	284	280	275	272
Alternative 1	62	0	35	240	981	1,005	995	986	978	971
Alternative 2	62	0	35	240	762	1,341	1,317	1,298	1,281	1,264
Alternative 2.5	62	0	35	240	762	1,486	1,467	1,449	1,433	1,418
Alternative 3	62	0	35	240	908	1,927	1,890	1,860	1,832	1,805

Table B-9-49 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Nissan)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	83	469	623	692	889	1,018	1,096	1,094	1,116	1,096
Alternative 1	83	469	623	892	1,247	1,369	1,508	1,477	1,474	1,454
Alternative 2	83	469	623	1,074	1,465	1,571	1,978	1,983	1,956	1,945
Alternative 2.5	83	469	623	1,310	2,443	2,505	3,063	3,015	2,934	2,872
Alternative 3	83	469	623	1,310	2,448	2,510	3,070	3,184	3,138	3,074

Table B-9-50 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Subaru)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	12	18	115	493	652	787	850	901	878	858
Alternative 1	12	18	115	737	890	1,019	1,076	1,123	1,096	1,073
Alternative 2	12	18	115	737	890	1,040	1,076	1,123	1,096	1,073
Alternative 2.5	12	18	115	737	890	1,040	1,076	1,123	1,096	1,073
Alternative 3	12	18	115	737	890	1,117	1,076	1,123	1,096	1,073

Table B-9-51 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Tesla)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	0	20	111	207	293	368	362	357	351	346
Alternative 1	0	20	111	207	293	368	362	357	351	346
Alternative 2	0	20	111	207	293	368	362	357	351	346
Alternative 2.5	0	20	111	207	293	368	362	357	351	346
Alternative 3	0	20	111	207	293	368	362	357	351	346

Table B-9-52 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Toyota)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	67	169	514	569	889	948	1,292	1,271	1,275	1,254
Alternative 1	67	169	514	822	1,691	1,720	2,063	2,010	2,007	1,945
Alternative 2	67	169	514	915	1,924	1,944	2,308	2,246	2,236	2,167
Alternative 2.5	67	169	514	915	1,924	1,944	2,277	2,216	2,206	2,138
Alternative 3	67	169	514	1,195	2,503	2,487	2,828	2,737	2,736	2,640

Table B-9-53 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (Volvo)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	117	179	235	1,761	1,728	1,802	1,782	2,005	1,915	1,820
Alternative 1	117	179	235	1,807	1,902	1,992	1,930	2,070	1,978	1,881
Alternative 2	117	179	235	1,990	2,024	2,190	2,200	2,196	2,093	1,984
Alternative 2.5	117	179	235	1,837	1,886	2,065	2,130	2,108	2,014	1,915
Alternative 3	117	179	235	1,959	2,035	2,241	2,312	2,320	2,216	2,106

Table B-9-54 - Estimated Average Per Vehicle Regulatory Costs (\$), Light Truck Fleet for Manufacturer (VWA)

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Alternative 0 (Baseline)	301	358	731	967	1,172	2,578	2,598	2,551	2,486	2,413
Alternative 1	301	358	731	967	1,477	2,288	2,316	2,277	2,177	2,115
Alternative 2	301	358	731	967	1,354	2,120	2,398	2,452	2,290	2,217
Alternative 2.5	301	358	731	967	1,354	2,120	2,474	2,522	2,350	2,271
Alternative 3	301	358	731	967	1,424	2,387	2,766	2,931	2,710	2,602

10. Incremental Societal Impacts

Table B-10-1 - Incremental Total Societal Costs (\$b) by Year and Alternative for Total Fleet, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	6.2	0.3	0.4	1.5	5.4	6.3	7.6	8.1	8.5	8.1	52.4
Alternative 2	13.1	0.7	0.7	3.0	7.3	10.7	14.1	15.4	15.9	15.2	95.9
Alternative 2.5	17.1	0.9	1.0	3.9	9.1	12.5	16.8	18.1	18.5	17.6	115.5
Alternative 3	22.1	1.2	1.3	4.9	12.2	16.9	21.3	22.7	23.2	22.3	147.9

Table B-10-2 - Incremental Total Societal Costs (\$b) by Year and Alternative for Passenger Car Fleet, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	3.6	0.1	0.2	0.6	1.9	0.6	1.0	0.9	1.0	0.6	10.5
Alternative 2	7.7	0.3	0.3	1.9	3.8	3.1	3.0	1.6	1.7	0.8	24.2
Alternative 2.5	10.0	0.4	0.4	2.8	4.8	3.9	3.8	2.1	2.1	1.3	31.6
Alternative 3	13.0	0.5	0.6	3.2	5.7	4.2	3.6	1.9	1.9	0.6	35.2

Table B-10-3 - Incremental Total Societal Costs (\$b) by Year and Alternative for Light Truck Fleet, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	2.6	0.2	0.2	0.9	3.4	5.7	6.6	7.2	7.5	7.6	41.9
Alternative 2	5.4	0.4	0.4	1.1	3.5	7.5	11.1	13.8	14.2	14.4	71.7
Alternative 2.5	7.1	0.5	0.5	1.1	4.3	8.6	13.0	16.0	16.4	16.3	83.8
Alternative 3	9.1	0.6	0.7	1.7	6.5	12.7	17.6	20.8	21.3	21.6	112.7

Table B-10-4 - Incremental Total Societal Costs (\$b) by Year and Alternative for Total Fleet, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	4.5	0.2	0.2	1.3	4.4	4.9	5.7	5.8	5.9	5.4	38.3
Alternative 2	9.3	0.4	0.5	2.5	6.0	8.6	10.9	11.3	11.1	10.2	70.9
Alternative 2.5	12.2	0.6	0.6	3.4	7.6	10.1	13.2	13.5	13.1	12.0	86.2
Alternative 3	15.8	0.8	0.8	4.2	10.2	13.7	16.7	16.9	16.5	15.2	110.9

Table B-10-5 - Incremental Total Societal Costs (\$b) by Year and Alternative for Passenger Car Fleet, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	2.7	0.1	0.1	0.5	1.6	0.7	1.0	0.9	1.0	0.7	9.3
Alternative 2	5.6	0.2	0.2	1.7	3.2	2.9	2.9	1.9	1.9	1.3	21.9
Alternative 2.5	7.3	0.3	0.3	2.5	4.1	3.6	3.7	2.5	2.4	1.8	28.4
Alternative 3	9.5	0.4	0.4	2.8	4.9	4.1	3.9	2.6	2.5	1.6	32.6

Table B-10-6 - Incremental Total Societal Costs (\$b) by Year and Alternative for Light Truck Fleet, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	1.8	0.1	0.1	0.8	2.8	4.2	4.6	4.9	4.9	4.7	28.9
Alternative 2	3.7	0.2	0.3	0.9	2.8	5.7	8.0	9.4	9.2	8.9	49.0
Alternative 2.5	4.9	0.3	0.3	0.9	3.5	6.5	9.5	11.0	10.7	10.2	57.8
Alternative 3	6.4	0.4	0.4	1.4	5.4	9.6	12.8	14.3	14.0	13.6	78.3

Table B-10-7 - Incremental Total Societal Benefits (\$b) by Year and Alternative for Total Fleet, Average SCC Level, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-2.9	-0.2	-0.2	1.9	9.5	10.7	12.6	13.4	14.1	13.3	72.3
Alternative 2	-6.2	-0.4	-0.4	2.9	10.9	16.5	22.0	23.7	24.5	23.2	116.6
Alternative 2.5	-8.1	-0.5	-0.5	3.4	12.3	17.9	25.1	26.9	27.5	26.0	129.8
Alternative 3	-10.5	-0.6	-0.7	4.4	17.0	24.4	31.7	33.6	34.5	32.8	166.6

Table B-10-8 - Incremental Total Societal Benefits (\$b) by Year and Alternative for Passenger Car Fleet, Average SCC Level, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-1.6	-0.1	-0.1	0.7	3.6	5.2	6.1	6.5	6.9	6.9	34.2
Alternative 2	-3.4	-0.1	-0.1	1.5	5.8	9.8	13.0	14.3	15.1	14.5	70.3
Alternative 2.5	-4.4	-0.2	-0.2	2.0	6.8	10.9	14.6	15.9	16.6	15.9	77.8
Alternative 3	-5.7	-0.2	-0.2	2.3	8.5	13.9	17.9	19.5	20.4	19.9	96.3

Table B-10-9 - Incremental Total Societal Benefits (\$b) by Year and Alternative for Light Truck Fleet, Average SCC Level, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-1.4	-0.1	-0.1	1.2	5.9	5.5	6.5	6.9	7.2	6.5	38.0
Alternative 2	-2.8	-0.2	-0.3	1.4	5.1	6.6	9.0	9.3	9.5	8.7	46.3
Alternative 2.5	-3.8	-0.3	-0.3	1.5	5.5	6.9	10.5	11.0	10.9	10.0	52.0
Alternative 3	-4.8	-0.4	-0.4	2.1	8.5	10.5	13.8	14.1	14.1	12.9	70.3

Table B-10-10 - Incremental Total Societal Benefits (\$b) by Year and Alternative for Total Fleet, Average SCC Level, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-2.2	-0.1	-0.1	1.4	7.1	7.7	8.9	9.2	9.4	8.6	49.9
Alternative 2	-4.7	-0.3	-0.3	2.3	8.1	12.0	15.6	16.3	16.5	15.2	80.7
Alternative 2.5	-6.1	-0.4	-0.4	2.7	9.2	13.0	17.8	18.6	18.5	17.0	89.9
Alternative 3	-7.9	-0.5	-0.5	3.4	12.7	17.8	22.5	23.2	23.2	21.5	115.5

Table B-10-11 - Incremental Total Societal Benefits (\$b) by Year and Alternative for Passenger Car Fleet, Average SCC Level, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-1.2	0.0	0.0	0.5	2.7	3.8	4.4	4.5	4.7	4.5	23.9
Alternative 2	-2.6	-0.1	-0.1	1.2	4.4	7.2	9.3	10.0	10.2	9.6	49.0
Alternative 2.5	-3.3	-0.1	-0.1	1.5	5.1	8.0	10.4	11.0	11.2	10.5	54.2
Alternative 3	-4.3	-0.2	-0.2	1.8	6.4	10.2	12.8	13.5	13.8	13.1	67.0

Table B-10-12 - Incremental Total Societal Benefits (\$b) by Year and Alternative for Light Truck Fleet, Average SCC Level, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-1.0	-0.1	-0.1	0.9	4.4	3.9	4.5	4.7	4.7	4.1	26.1
Alternative 2	-2.1	-0.2	-0.2	1.1	3.8	4.8	6.3	6.4	6.3	5.6	31.7
Alternative 2.5	-2.8	-0.2	-0.2	1.1	4.1	5.0	7.4	7.5	7.3	6.5	35.7
Alternative 3	-3.6	-0.3	-0.3	1.6	6.3	7.6	9.7	9.7	9.4	8.4	48.4

Table B-10-13 - Incremental Total Societal Net Benefits (\$b) by Year and Alternative for Total Fleet, Average SCC Level, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-9.2	-0.5	-0.6	0.3	4.1	4.4	5.1	5.3	5.6	5.2	19.8
Alternative 2	-19.3	-1.1	-1.1	-0.1	3.6	5.8	7.9	8.3	8.7	8.1	20.7
Alternative 2.5	-25.2	-1.4	-1.5	-0.5	3.2	5.4	8.3	8.7	9.0	8.4	14.3
Alternative 3	-32.6	-1.8	-1.9	-0.5	4.8	7.5	10.5	10.9	11.2	10.5	18.7

Table B-10-14 - Incremental Total Societal Net Benefits (\$b) by Year and Alternative for Passenger Car Fleet, Average SCC Level, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-5.2	-0.2	-0.2	0.1	1.7	4.6	5.1	5.6	6.0	6.3	23.7
Alternative 2	-11.1	-0.4	-0.5	-0.4	2.0	6.7	10.0	12.7	13.4	13.7	46.1
Alternative 2.5	-14.4	-0.6	-0.6	-0.9	1.9	7.1	10.8	13.8	14.5	14.6	46.2
Alternative 3	-18.6	-0.7	-0.8	-0.9	2.9	9.7	14.3	17.6	18.5	19.2	61.1

Table B-10-15 - Incremental Total Societal Net Benefits (\$b) by Year and Alternative for Light Truck Fleet, Average SCC Level, Discounted at 3%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-3.9	-0.3	-0.3	0.2	2.5	-0.2	-0.1	-0.3	-0.4	-1.1	-3.9
Alternative 2	-8.2	-0.6	-0.7	0.3	1.6	-0.9	-2.1	-4.5	-4.7	-5.6	-25.4
Alternative 2.5	-10.8	-0.8	-0.9	0.3	1.2	-1.7	-2.5	-5.1	-5.4	-6.2	-31.9
Alternative 3	-14.0	-1.1	-1.1	0.4	2.0	-2.2	-3.8	-6.6	-7.2	-8.7	-42.4

Table B-10-16 - Incremental Total Societal Net Benefits (\$b) by Year and Alternative for Total Fleet, Average SCC Level, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-6.7	-0.3	-0.4	0.2	2.6	2.8	3.2	3.4	3.6	3.3	11.7
Alternative 2	-14.0	-0.7	-0.8	-0.3	2.1	3.4	4.7	5.0	5.3	5.0	9.8
Alternative 2.5	-18.3	-1.0	-1.0	-0.7	1.6	2.9	4.7	5.1	5.4	5.1	3.7
Alternative 3	-23.8	-1.2	-1.3	-0.7	2.5	4.0	5.9	6.3	6.7	6.3	4.6

Table B-10-17 - Incremental Total Societal Net Benefits (\$b) by Year and Alternative for Passenger Car Fleet, Average SCC Level, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-3.9	-0.1	-0.2	0.1	1.1	3.1	3.3	3.6	3.7	3.9	14.6
Alternative 2	-8.2	-0.3	-0.3	-0.5	1.2	4.3	6.3	8.0	8.3	8.3	27.1
Alternative 2.5	-10.6	-0.4	-0.4	-0.9	1.0	4.4	6.7	8.5	8.8	8.8	25.8
Alternative 3	-13.8	-0.5	-0.6	-1.0	1.5	6.1	8.9	10.9	11.3	11.5	34.5

Table B-10-18 - Incremental Total Societal Net Benefits (\$b) by Year and Alternative for Light Truck Fleet, Average SCC Level, Discounted at 7%

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	-2.8	-0.2	-0.2	0.1	1.6	-0.3	-0.1	-0.2	-0.2	-0.6	-2.9
Alternative 2	-5.8	-0.4	-0.4	0.2	0.9	-0.9	-1.6	-3.0	-2.9	-3.3	-17.3
Alternative 2.5	-7.7	-0.6	-0.6	0.2	0.6	-1.5	-2.0	-3.5	-3.4	-3.7	-22.1
Alternative 3	-10.0	-0.7	-0.8	0.2	0.9	-2.1	-3.1	-4.6	-4.6	-5.2	-29.9

11. Labor Impacts

Table B-11-1 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	942,950	942,950	942,950	942,950	942,950
2021	1,127,588	1,127,588	1,127,588	1,127,588	1,127,588
2022	1,211,818	1,211,818	1,211,818	1,211,818	1,211,818
2023	1,196,332	1,196,447	1,197,213	1,197,175	1,197,521
2024	1,175,103	1,178,610	1,180,147	1,181,049	1,184,184
2025	1,157,255	1,162,368	1,166,378	1,167,317	1,172,533
2026	1,152,791	1,158,611	1,165,270	1,167,634	1,173,034
2027	1,149,119	1,155,531	1,163,335	1,165,669	1,171,013
2028	1,141,681	1,148,792	1,156,905	1,158,948	1,164,948
2029	1,133,366	1,140,373	1,148,284	1,150,087	1,156,081

Table B-11-2 - Estimated Labor Utilization (1000s of Person-Years), Passenger Car Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	356,143	356,143	356,143	356,143	356,143
2021	439,162	439,162	439,162	439,162	439,162
2022	488,647	488,647	488,647	488,647	488,647
2023	491,094	491,310	492,641	492,955	493,399
2024	490,393	491,299	492,980	492,972	493,721
2025	490,745	488,641	489,741	489,214	488,397
2026	494,935	492,230	491,159	490,511	488,615
2027	497,207	493,705	489,484	488,160	485,781
2028	500,187	496,370	492,011	490,402	488,051
2029	501,496	496,805	491,671	490,298	486,755

Table B-11-3 - Estimated Labor Utilization (1000s of Person-Years), Light Truck Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	586,807	586,807	586,807	586,807	586,807
2021	688,427	688,427	688,427	688,427	688,427
2022	723,171	723,171	723,171	723,171	723,171
2023	705,238	705,137	704,571	704,219	704,122
2024	684,710	687,310	687,168	688,078	690,462
2025	666,509	673,727	676,637	678,103	684,136
2026	657,856	666,381	674,111	677,123	684,420
2027	651,912	661,827	673,850	677,509	685,232
2028	641,494	652,423	664,894	668,546	676,897
2029	631,870	643,568	656,613	659,789	669,326

Table B-11-4 - Estimated Labor Utilization (1000s of Person-Years), Domestic Car Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	230,372	230,372	230,372	230,372	230,372
2021	284,295	284,295	284,295	284,295	284,295
2022	316,747	316,747	316,747	316,747	316,747
2023	318,393	318,676	320,128	320,533	321,022
2024	317,879	318,742	320,345	320,462	321,399
2025	318,261	317,117	318,102	317,892	317,452
2026	321,190	319,341	318,979	318,619	317,587
2027	322,537	320,163	317,777	316,884	315,498
2028	324,488	321,863	319,146	318,006	316,449
2029	325,214	322,037	318,816	317,830	315,524

Table B-11-5 - Estimated Labor Utilization (1000s of Person-Years), Imported Car Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	125,770	125,770	125,770	125,770	125,770
2021	154,867	154,867	154,867	154,867	154,867
2022	171,900	171,900	171,900	171,900	171,900
2023	172,700	172,634	172,513	172,422	172,376
2024	172,513	172,557	172,634	172,509	172,323
2025	172,484	171,524	171,639	171,322	170,945
2026	173,745	172,889	172,180	171,893	171,028
2027	174,670	173,541	171,707	171,277	170,283
2028	175,699	174,506	172,865	172,396	171,602
2029	176,282	174,768	172,855	172,468	171,231

Table B-11-6 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (BMW)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	14,023	14,023	14,023	14,023	14,023
2021	16,647	16,647	16,647	16,647	16,647
2022	17,654	17,654	17,654	17,654	17,654
2023	17,313	17,309	17,293	17,284	17,281
2024	16,894	16,882	16,866	16,853	16,836
2025	16,587	16,610	16,569	16,563	16,572
2026	16,441	16,491	16,454	16,432	16,465
2027	16,345	16,433	16,546	16,540	16,570
2028	16,172	16,268	16,389	16,406	16,480
2029	15,999	16,107	16,235	16,248	16,334

Table B-11-7 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Daimler)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	18,404	18,404	18,404	18,404	18,404
2021	21,947	21,947	21,947	21,947	21,947
2022	23,551	23,551	23,551	23,551	23,551
2023	23,217	23,208	23,192	23,179	23,173
2024	22,811	22,750	22,742	22,716	22,681
2025	22,759	22,800	22,748	22,723	23,365
2026	22,765	22,785	22,699	22,652	23,384
2027	22,760	22,781	22,700	22,656	23,326
2028	22,631	22,748	22,983	22,939	23,868
2029	22,492	22,602	22,843	22,804	23,661

Table B-11-8 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (FCA)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	117,262	117,262	117,262	117,262	117,262
2021	137,960	137,960	137,960	137,960	137,960
2022	146,043	146,043	146,043	146,043	146,043
2023	144,102	144,138	143,962	143,888	143,846
2024	139,687	139,489	139,481	139,425	139,316
2025	135,771	136,339	136,326	136,393	136,565
2026	134,145	135,171	136,204	136,268	136,714
2027	133,112	134,575	136,278	136,458	137,030
2028	131,317	133,281	135,099	135,233	136,037
2029	129,391	131,668	133,587	133,685	134,768

Table B-11-9 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Ford)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	159,873	159,873	159,873	159,873	159,873
2021	189,267	189,267	189,267	189,267	189,267
2022	201,849	201,849	201,849	201,849	201,849
2023	197,550	197,844	199,128	199,024	199,060
2024	192,190	192,131	193,580	193,466	194,077
2025	187,151	188,180	189,431	189,343	190,559
2026	185,222	186,336	188,217	189,461	190,942
2027	183,756	185,201	187,887	189,446	190,934
2028	181,337	182,904	185,610	187,086	188,644
2029	178,968	180,715	183,510	184,771	186,535

Table B-11-10 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (GM)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	200,151	200,151	200,151	200,151	200,151
2021	237,844	237,844	237,844	237,844	237,844
2022	252,124	252,124	252,124	252,124	252,124
2023	247,078	246,984	246,808	246,676	246,614
2024	241,407	244,288	242,711	242,527	243,391
2025	236,850	240,993	242,451	242,531	244,756
2026	234,525	239,244	243,185	243,795	246,009
2027	233,139	237,940	242,386	243,055	245,297
2028	230,613	235,404	239,760	240,425	242,686
2029	228,345	232,898	237,154	237,746	240,138

Table B-11-11 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Honda)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	116,010	116,010	116,010	116,010	116,010
2021	139,523	139,523	139,523	139,523	139,523
2022	151,321	151,321	151,321	151,321	151,321
2023	150,286	150,230	150,374	150,868	151,387
2024	148,425	148,127	148,829	149,982	151,015
2025	148,059	147,381	148,034	149,041	149,695
2026	148,344	147,463	147,796	148,565	149,301
2027	148,085	147,206	147,856	148,256	148,990
2028	147,590	146,718	147,417	147,696	148,543
2029	146,850	145,959	146,570	146,825	147,584

Table B-11-12 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Hyundai Kia-H)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	44,182	44,182	44,182	44,182	44,182
2021	53,688	53,688	53,688	53,688	53,688
2022	58,720	58,720	58,720	58,720	58,720
2023	58,453	58,431	58,390	58,359	58,345
2024	58,010	58,008	57,953	57,854	57,827
2025	57,552	57,514	57,661	57,524	57,511
2026	57,689	57,745	58,074	58,086	57,926
2027	57,877	57,871	57,942	57,914	57,700
2028	57,983	57,933	57,972	57,933	57,674
2029	57,971	57,832	57,833	57,813	57,458

Table B-11-13 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Hyundai Kia-K)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	30,441	30,441	30,441	30,441	30,441
2021	36,641	36,641	36,641	36,641	36,641
2022	39,552	39,552	39,552	39,552	39,552
2023	39,113	39,099	39,072	39,052	39,040
2024	38,729	38,845	39,161	39,248	39,377
2025	38,249	38,412	38,878	38,946	39,410
2026	38,189	38,313	38,631	38,653	39,068
2027	38,205	38,318	38,549	38,561	38,937
2028	38,106	38,211	38,428	38,434	38,792
2029	37,950	38,040	38,242	38,253	38,578

Table B-11-14 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (JLR)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	2,498	2,498	2,498	2,498	2,498
2021	2,924	2,924	2,924	2,924	2,924
2022	3,083	3,083	3,083	3,083	3,083
2023	3,001	3,000	2,998	2,996	2,996
2024	2,919	2,919	2,920	2,919	2,917
2025	2,841	2,862	2,862	2,864	2,867
2026	2,805	2,834	2,844	2,843	2,852
2027	2,784	2,817	2,842	2,843	2,854
2028	2,742	2,777	2,805	2,807	2,821
2029	2,704	2,749	2,805	2,807	2,840

Table B-11-15 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Mazda)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	2,498	2,498	2,498	2,498	2,498
2021	2,924	2,924	2,924	2,924	2,924
2022	3,083	3,083	3,083	3,083	3,083
2023	3,001	3,000	2,998	2,996	2,996
2024	2,919	2,919	2,920	2,919	2,917
2025	2,841	2,862	2,862	2,864	2,867
2026	2,805	2,834	2,844	2,843	2,852
2027	2,784	2,817	2,842	2,843	2,854
2028	2,742	2,777	2,805	2,807	2,821
2029	2,704	2,749	2,805	2,807	2,840

Table B-11-16 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Mitsubishi)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	1,567	1,567	1,567	1,567	1,567
2021	1,849	1,849	1,849	1,849	1,849
2022	1,958	1,958	1,958	1,958	1,958
2023	1,911	1,910	1,909	1,908	1,908
2024	1,864	1,860	1,860	1,859	1,856
2025	1,823	1,824	1,822	1,822	1,821
2026	1,805	1,807	1,807	1,805	1,806
2027	1,796	1,799	1,804	1,803	1,804
2028	1,778	1,783	1,788	1,787	1,790
2029	1,761	1,767	1,773	1,773	1,777

Table B-11-17 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Nissan)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	60,047	60,047	60,047	60,047	60,047
2021	72,709	72,709	72,709	72,709	72,709
2022	79,082	79,082	79,082	79,082	79,082
2023	78,470	78,513	78,471	78,449	78,443
2024	77,814	77,921	78,055	78,529	78,709
2025	77,119	76,984	77,061	77,471	77,441
2026	77,169	77,009	76,946	77,395	77,268
2027	77,223	77,027	76,772	77,180	77,129
2028	77,187	77,035	76,789	77,163	77,081
2029	76,998	76,817	76,564	76,933	76,774

Table B-11-18 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Subaru)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	42,013	42,013	42,013	42,013	42,013
2021	50,089	50,089	50,089	50,089	50,089
2022	53,892	53,892	53,892	53,892	53,892
2023	53,196	53,212	53,175	53,147	53,132
2024	52,247	52,383	52,363	52,304	52,223
2025	51,514	51,632	51,512	51,455	51,319
2026	51,333	51,446	51,236	51,146	51,006
2027	51,243	51,364	51,160	51,076	50,944
2028	50,953	51,084	50,893	50,817	50,695
2029	50,623	50,764	50,590	50,522	50,409

Table B-11-19 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Tesla)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	22,828	22,828	22,828	22,828	22,828
2021	28,517	28,517	28,517	28,517	28,517
2022	32,078	32,078	32,078	32,078	32,078
2023	32,494	32,482	32,459	32,441	32,433
2024	32,642	32,532	32,471	32,388	32,289
2025	32,773	32,289	32,051	31,919	31,597
2026	33,158	32,581	31,980	31,812	31,374
2027	33,441	32,799	31,887	31,677	31,196
2028	33,833	33,151	32,206	31,983	31,464
2029	34,081	33,330	32,348	32,150	31,528

Table B-11-20 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Toyota)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	97,099	97,099	97,099	97,099	97,099
2021	118,061	118,061	118,061	118,061	118,061
2022	129,375	129,375	129,375	129,375	129,375
2023	128,764	128,715	128,624	128,555	128,521
2024	128,344	129,377	130,076	129,932	130,649
2025	127,250	127,666	128,176	127,962	128,349
2026	128,213	128,489	128,426	128,008	128,275
2027	128,370	128,510	127,986	127,521	127,684
2028	128,504	128,625	128,025	127,552	127,742
2029	128,384	128,349	127,587	127,162	127,172

Table B-11-21 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (Volvo)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	2,460	2,460	2,460	2,460	2,460
2021	2,992	2,992	2,992	2,992	2,992
2022	3,275	3,275	3,275	3,275	3,275
2023	3,276	3,275	3,274	3,271	3,271
2024	3,250	3,241	3,239	3,232	3,225
2025	3,239	3,212	3,198	3,189	3,170
2026	3,249	3,217	3,183	3,171	3,147
2027	3,260	3,233	3,194	3,183	3,159
2028	3,268	3,240	3,198	3,187	3,161
2029	3,268	3,237	3,193	3,183	3,152

Table B-11-22 - Estimated Labor Utilization (1000s of Person-Years), Total Fleet for Manufacturer (VWA)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	10,472	10,472	10,472	10,472	10,472
2021	12,632	12,632	12,632	12,632	12,632
2022	13,677	13,677	13,677	13,677	13,677
2023	13,606	13,600	13,591	13,583	13,580
2024	13,464	13,460	13,445	13,425	13,409
2025	13,387	13,343	13,277	13,253	13,226
2026	13,438	13,380	13,295	13,258	13,220
2027	13,435	13,371	13,265	13,226	13,187
2028	13,411	13,374	13,287	13,252	13,223
2029	13,358	13,317	13,223	13,192	13,153

Table B-11-23 - Changes in Work Loss Days (thousand instances), Total Fleet through MY 2029

Category	Regulatory Alternative			
	1	2	2.5	3
Work Loss Days from Upstream Emissions	-20.9	-24.8	-24.5	-31.2
Work Loss Days from Tailpipe Emissions	-2.3	-5.8	-6.3	-8.4
Total Work Loss Days	-23.3	-30.6	-30.8	-39.6

Table B-11-24 - Changes in Work Loss Days (thousand instances), Passenger Car Fleet through MY 2029

Category	Regulatory Alternative			
	1	2	2.5	3
Work Loss Days from Upstream Emissions	-8.6	-15.2	-17.7	-22.5
Work Loss Days from Tailpipe Emissions	-2.9	-7.4	-7.1	-8.6
Total Work Loss Days	-11.5	-22.5	-24.8	-31.2

Table B-11-25 - Changes in Work Loss Days (thousand instances), Light Truck Fleet through MY 2029

Category	Regulatory Alternative			
	1	2	2.5	3
Work Loss Days from Upstream Emissions	-12.3	-9.7	-6.9	-8.7
Work Loss Days from Tailpipe Emissions	0.6	1.6	0.8	0.3
Total Work Loss Days	-11.7	-8.1	-6.0	-8.4

12. Compliance Impacts

Table B-12-1 - Compliance Impacts and Cumulative Industry Costs by Model Year for Total Fleet, Alternative 2.5.

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Fuel Economy											
Average Required (mpg)	35.4	36.0	36.8	37.4	40.7	44.2	49.2	49.1	49.2	49.3	N/A
Change from Baseline (%)	0%	0%	0%	0%	7%	14%	25%	25%	25%	25%	N/A
Average Achieved (mpg)	34.4	36.0	38.1	40.3	42.8	44.9	47.9	48.8	49.5	49.7	N/A
Total Regulatory Costs											
Technology (non-Off-Cycle, non-AC) Costs (\$b)	0.0	0.0	0.0	3.1	7.3	10.5	15.1	15.7	15.5	14.6	0.0
Off-Cycle Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.0	0.0	0.0	3.1	7.3	10.5	15.1	15.7	15.5	14.6	81.8
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.7	1.8	2.8	2.0	1.6	1.3	10.2
Total Regulatory Costs (\$b)	0.0	0.0	0.0	3.1	8.0	12.3	17.9	17.7	17.1	15.9	92.0
Sales Impacts											
Sales Change from Baseline (m)	0.00	0.00	0.00	-0.03	-0.07	-0.10	-0.15	-0.14	-0.13	-0.12	-0.7

Table B-12-2 - Compliance Impacts and Cumulative Industry Costs by Model Year for Passenger Car Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Fuel Economy											
Average Required (mpg)	43.3	43.9	44.6	45.2	49.2	53.4	59.4	59.4	59.3	59.3	N/A
Change from Baseline (%)	0%	0%	0%	0%	7%	15%	25%	25%	25%	25%	N/A
Average Achieved (mpg)	41.8	43.6	46.7	49.2	53.1	56.4	60.3	61.4	62.2	62.4	N/A
Total Regulatory Costs											
Technology (non-Off-Cycle, non-AC) Costs (\$b)	0.0	0.0	0.0	2.4	4.3	5.9	7.9	8.0	8.0	7.5	0.0
Off-Cycle Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.3
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.0	0.0	0.0	2.4	4.3	5.9	7.9	7.9	7.9	7.4	43.6
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.4	0.8	0.9	0.3	0.1	0.0	2.4
Total Regulatory Costs (\$b)	0.0	0.0	0.0	2.4	4.6	6.6	8.8	8.6	8.3	7.7	47.0
Sales Impacts											
Sales Change from Baseline (m)	0.00	0.00	0.00	-0.01	-0.05	-0.15	-0.23	-0.30	-0.31	-0.32	-1.4

Table B-12-3 - Compliance Impacts and Cumulative Industry Costs by Model Year for Light Truck Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Fuel Economy											
Average Required (mpg)	31.0	31.5	31.9	32.4	35.1	38.2	42.4	42.4	42.4	42.4	N/A
Change from Baseline (%)	0%	0%	0%	0%	7%	14%	25%	25%	25%	25%	N/A
Average Achieved (mpg)	30.2	31.5	32.9	34.8	36.4	37.8	40.4	41.1	41.5	41.7	N/A
Total Regulatory Costs											
Technology (non-Off-Cycle, non-AC) Costs (\$b)	0.0	0.0	0.0	0.8	3.0	4.6	7.2	7.7	7.5	7.1	0.0
Off-Cycle Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.0	0.0	0.0	0.8	3.0	4.6	7.2	7.7	7.6	7.2	38.1
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.4	1.0	2.0	1.7	1.5	1.3	7.8
Total Regulatory Costs (\$b)	0.0	0.0	0.0	0.8	3.4	5.7	9.1	9.1	8.7	8.1	44.9
Sales Impacts											
Sales Change from Baseline (m)	0.00	0.00	0.00	-0.01	-0.02	0.05	0.08	0.15	0.18	0.20	0.6

Table B-12-4 - Compliance Impacts and Cumulative Industry Costs by Model Year for Domestic Car Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Fuel Economy											
Average Required (mpg)	42.5	43.1	43.7	44.4	48.2	52.5	58.3	58.3	58.3	58.3	N/A
Change from Baseline (%)	0%	0%	0%	0%	7%	15%	26%	26%	26%	26%	N/A
Average Achieved (mpg)	43.3	44.8	47.7	51.3	54.7	58.6	62.5	63.1	63.9	63.9	N/A
Total Regulatory Costs											
Technology (non-Off-Cycle, non-AC) Costs (\$b)	0.0	0.0	0.0	1.4	2.1	3.0	3.6	3.4	3.3	3.1	0.0
Off-Cycle Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.0	0.0	0.0	1.4	2.1	3.0	3.5	3.4	3.3	3.0	19.8
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.5
Total Regulatory Costs (\$b)	0.0	0.0	0.0	1.4	2.2	3.3	3.8	3.6	3.4	3.2	21.0

Table B-12-5 - Compliance Impacts and Cumulative Industry Costs by Model Year for Imported Car Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Fuel Economy											
Average Required (mpg)	44.0	44.6	45.3	46.0	50.0	54.4	60.4	60.4	60.4	60.4	N/A
Change from Baseline (%)	0%	0%	0%	0%	7%	15%	25%	25%	25%	25%	N/A
Average Achieved (mpg)	40.6	42.7	45.8	47.5	51.8	54.6	58.4	59.8	60.9	61.1	N/A
Total Regulatory Costs											
Technology (non-Off-Cycle, non-AC) Costs (\$b)	0.0	0.0	0.0	0.9	2.1	2.9	4.4	4.6	4.7	4.4	0.0
Off-Cycle Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.0	0.0	0.0	0.9	2.1	2.8	4.3	4.5	4.7	4.4	23.8
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.2	0.5	0.8	0.3	0.1	0.0	1.9
Total Regulatory Costs (\$b)	0.0	0.0	0.0	0.9	2.4	3.3	5.0	5.0	4.9	4.5	26.0

Table B-12-6 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Total)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	39.5	44.9	48.2	49.3	51.4
Percent Change from Baseline	N/A	14%	22%	25%	30%
Average Achieved (mpg)	43.8	46.4	48.9	49.7	51.6
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	88.8	121.0	153.6	170.7	195.0
Off-Cycle Technology Costs (\$b)	32.0	32.0	32.0	31.9	31.9
A/C Efficiency Technology Costs (\$b)	0.4	0.4	0.4	0.4	0.4
Subtotal Technology Costs (\$b)	121.2	153.4	186.0	203.0	227.3
Total Civil Penalties (\$b)	4.8	10.6	13.7	15.0	17.7
Total Regulatory Costs (\$b)	128.5	166.4	202.1	220.4	247.4
Sales Impacts					
Sales Change from Baseline (m)	N/A	-0.28	-0.57	-0.74	-0.97

Table B-12-7 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Passenger Car Fleet by Alternative for Manufacturer (Total)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	47.3	53.2	58.1	59.3	62.0
Percent Change from Baseline	N/A	12%	23%	25%	31%
Average Achieved (mpg)	52.8	56.5	61.4	62.4	65.1
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	38.7	52.7	73.4	82.7	91.8
Off-Cycle Technology Costs (\$b)	12.0	11.9	11.7	11.7	11.6
A/C Efficiency Technology Costs (\$b)	0.2	0.2	0.2	0.2	0.2
Subtotal Technology Costs (\$b)	51.0	64.8	85.4	94.6	103.6
Total Civil Penalties (\$b)	3.5	5.0	5.8	6.0	6.9
Total Regulatory Costs (\$b)	55.2	71.0	92.6	102.2	111.7
Sales Impacts					
Sales Change from Baseline (m)	N/A	-0.55	-1.18	-1.37	-1.79

Table B-12-8 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Light Truck Fleet by Alternative for Manufacturer (Total)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	33.9	39.0	41.5	42.4	44.3
Percent Change from Baseline	N/A	15%	22%	25%	31%
Average Achieved (mpg)	37.4	39.5	41.0	41.7	43.3
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	50.0	68.3	80.1	88.0	103.1
Off-Cycle Technology Costs (\$b)	20.0	20.1	20.2	20.2	20.3
A/C Efficiency Technology Costs (\$b)	0.2	0.2	0.2	0.2	0.2
Subtotal Technology Costs (\$b)	70.3	88.6	100.6	108.4	123.6
Total Civil Penalties (\$b)	1.3	5.6	7.9	9.0	10.8
Total Regulatory Costs (\$b)	73.3	95.4	109.5	118.2	135.6
Sales Impacts					
Sales Change from Baseline (m)	N/A	0.27	0.61	0.63	0.82

Table B-12-9 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Domestic Car Fleet by Alternative for Manufacturer (Total)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	46.4	52.2	57.0	58.3	60.9
Percent Change from Baseline	N/A	12%	23%	26%	31%
Average Achieved (mpg)	53.8	57.5	63.1	63.9	66.7
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	15.4	21.8	33.1	35.4	40.4
Off-Cycle Technology Costs (\$b)	6.2	6.1	6.1	6.0	6.0
A/C Efficiency Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
Subtotal Technology Costs (\$b)	21.7	28.0	39.2	41.5	46.4
Total Civil Penalties (\$b)	1.5	1.9	2.1	2.0	2.3
Total Regulatory Costs (\$b)	23.1	30.3	41.9	44.1	49.5

Table B-12-10 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Imported Car Fleet by Alternative for Manufacturer (Total)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	48.1	54.1	59.1	60.4	63.1
Percent Change from Baseline	N/A	12%	23%	25%	31%
Average Achieved (mpg)	52.0	55.6	59.9	61.1	63.7
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	23.3	30.9	40.3	47.3	51.4
Off-Cycle Technology Costs (\$b)	5.8	5.8	5.7	5.7	5.6
A/C Efficiency Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
Subtotal Technology Costs (\$b)	29.3	36.7	46.1	53.1	57.2
Total Civil Penalties (\$b)	2.1	3.1	3.8	4.0	4.6
Total Regulatory Costs (\$b)	32.0	40.7	50.7	58.0	62.2

Table B-12-11 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (BMW)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	42.2	47.7	51.6	52.6	54.9
Percent Change from Baseline	N/A	13%	22%	25%	30%
Average Achieved (mpg)	48.9	50.1	52.0	53.1	55.3
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	4.0	4.3	4.4	4.5	4.9
Off-Cycle Technology Costs (\$b)	0.6	0.6	0.6	0.6	0.6
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	4.6	4.9	5.0	5.1	5.6
Total Civil Penalties (\$b)	0.1	0.1	0.1	0.2	0.3
Total Regulatory Costs (\$b)	4.7	5.0	5.1	5.3	5.8

Table B-12-12 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Daimler)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	39.8	45.2	48.6	49.6	51.8
Percent Change from Baseline	N/A	14%	22%	25%	30%
Average Achieved (mpg)	41.3	44.0	45.7	46.1	51.2
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	3.0	3.5	3.8	3.8	5.3
Off-Cycle Technology Costs (\$b)	0.8	0.8	0.8	0.8	0.8
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	3.8	4.3	4.5	4.6	6.0
Total Civil Penalties (\$b)	0.5	1.6	2.3	2.5	2.2
Total Regulatory Costs (\$b)	4.6	6.1	7.1	7.3	8.4

Table B-12-13 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (FCA)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	34.4	39.5	42.2	43.1	45.0
Percent Change from Baseline	N/A	15%	23%	25%	31%
Average Achieved (mpg)	35.9	37.8	38.2	38.2	38.4
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	13.6	15.5	15.9	16.2	16.3
Off-Cycle Technology Costs (\$b)	4.1	4.1	4.1	4.1	4.1
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	17.7	19.6	20.1	20.4	20.5
Total Civil Penalties (\$b)	1.1	4.8	6.8	7.5	9.8
Total Regulatory Costs (\$b)	18.9	24.5	26.9	27.9	30.3

Table B-12-14 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Ford)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	35.4	40.3	43.1	44.1	46.0
Percent Change from Baseline	N/A	14%	22%	25%	30%
Average Achieved (mpg)	40.0	40.7	42.8	44.5	46.3
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	17.0	19.1	24.7	27.1	30.5
Off-Cycle Technology Costs (\$b)	4.4	4.4	4.4	4.4	4.4
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	21.4	23.5	29.1	31.5	34.9
Total Civil Penalties (\$b)	0.6	0.6	0.6	0.6	0.6
Total Regulatory Costs (\$b)	22.0	24.1	29.7	32.1	35.5

Table B-12-15 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (GM)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	36.3	41.1	44.1	45.0	47.0
Percent Change from Baseline	N/A	13%	22%	24%	30%
Average Achieved (mpg)	37.5	41.6	45.0	45.9	48.0
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	13.1	24.9	32.0	33.7	39.1
Off-Cycle Technology Costs (\$b)	5.6	5.6	5.7	5.7	5.7
A/C Efficiency Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
Subtotal Technology Costs (\$b)	18.8	30.6	37.7	39.4	44.8
Total Civil Penalties (\$b)	0.7	1.0	1.2	1.2	1.5
Total Regulatory Costs (\$b)	19.7	31.7	39.1	40.8	46.4

Table B-12-16 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Honda)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	43.0	48.8	52.6	53.8	56.1
Percent Change from Baseline	N/A	13%	22%	25%	30%
Average Achieved (mpg)	49.6	49.4	52.7	53.9	57.0
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	5.6	5.5	9.3	11.6	14.8
Off-Cycle Technology Costs (\$b)	4.1	4.1	4.0	4.0	4.0
A/C Efficiency Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
Subtotal Technology Costs (\$b)	9.7	9.7	13.4	15.7	18.9
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.0
Total Regulatory Costs (\$b)	9.8	9.7	13.4	15.8	19.0

Table B-12-17 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Hyundai Kia-H)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	46.0	51.7	56.3	57.5	60.1
Percent Change from Baseline	N/A	13%	22%	25%	31%
Average Achieved (mpg)	47.8	52.6	57.1	58.3	60.9
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	3.7	6.1	9.0	9.6	10.8
Off-Cycle Technology Costs (\$b)	0.7	0.7	0.7	0.7	0.7
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	4.5	6.8	9.7	10.3	11.6
Total Civil Penalties (\$b)	0.7	0.8	0.8	0.8	0.8
Total Regulatory Costs (\$b)	5.4	7.9	10.8	11.4	12.7

Table B-12-18 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Hyundai Kia-K)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	43.7	49.4	53.2	54.4	56.8
Percent Change from Baseline	N/A	13%	22%	25%	30%
Average Achieved (mpg)	46.3	49.7	53.7	54.9	57.2
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	3.1	4.6	7.1	7.8	9.1
Off-Cycle Technology Costs (\$b)	0.3	0.3	0.3	0.3	0.3
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	3.5	5.0	7.5	8.2	9.5
Total Civil Penalties (\$b)	0.1	0.1	0.1	0.1	0.1
Total Regulatory Costs (\$b)	3.7	5.2	7.7	8.4	9.7

Table B-12-19 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (JLR)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	35.9	41.2	44.0	45.0	47.0
Percent Change from Baseline	N/A	15%	22%	25%	31%
Average Achieved (mpg)	37.1	41.0	43.9	43.9	46.7
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	0.9	1.2	1.3	1.3	1.4
Off-Cycle Technology Costs (\$b)	0.3	0.3	0.3	0.3	0.3
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	1.3	1.6	1.7	1.7	1.7
Total Civil Penalties (\$b)	0.0	0.3	0.4	0.5	0.7
Total Regulatory Costs (\$b)	1.3	1.8	2.1	2.2	2.4

Table B-12-20 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Mazda)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	42.8	48.7	52.4	53.6	55.9
Percent Change from Baseline	N/A	14%	22%	25%	31%
Average Achieved (mpg)	46.1	49.3	54.0	55.6	56.5
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	3.1	3.6	4.4	4.7	4.9
Off-Cycle Technology Costs (\$b)	0.5	0.5	0.5	0.5	0.5
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	3.7	4.1	5.0	5.2	5.4
Total Civil Penalties (\$b)	0.1	0.1	0.1	0.1	0.1
Total Regulatory Costs (\$b)	4.0	4.4	5.3	5.5	5.8

Table B-12-21 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Mitsubishi)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	45.0	51.2	55.1	56.3	58.8
Percent Change from Baseline	N/A	14%	23%	25%	31%
Average Achieved (mpg)	46.3	52.2	55.1	56.7	58.8
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	0.3	0.6	0.9	1.0	1.2
Off-Cycle Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.3	0.6	0.9	1.0	1.2
Total Civil Penalties (\$b)	0.1	0.2	0.2	0.2	0.2
Total Regulatory Costs (\$b)	0.4	0.9	1.1	1.2	1.4

Table B-12-22 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Nissan)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	43.5	49.2	53.3	54.5	56.8
Percent Change from Baseline	N/A	13%	22%	25%	31%
Average Achieved (mpg)	46.1	50.3	54.7	56.1	58.4
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	4.0	7.0	11.5	19.6	21.0
Off-Cycle Technology Costs (\$b)	2.2	2.2	2.2	2.2	2.2
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	6.2	9.2	13.6	21.8	23.2
Total Civil Penalties (\$b)	0.1	0.1	0.1	0.1	0.1
Total Regulatory Costs (\$b)	6.7	9.7	14.2	22.3	23.8

Table B-12-23 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Subaru)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	41.2	47.1	50.3	51.5	53.6
Percent Change from Baseline	N/A	14%	22%	25%	30%
Average Achieved (mpg)	50.8	52.3	53.4	53.7	54.1
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	4.3	6.1	6.3	6.3	6.4
Off-Cycle Technology Costs (\$b)	1.4	1.4	1.4	1.4	1.4
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	5.7	7.6	7.7	7.8	7.9
Total Civil Penalties (\$b)	0.0	0.0	0.1	0.1	0.2
Total Regulatory Costs (\$b)	6.0	7.8	8.0	8.0	8.2

Table B-12-24 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Tesla)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	43.8	49.2	53.6	54.8	57.3
Percent Change from Baseline	N/A	12%	22%	25%	31%
Average Achieved (mpg)	759.3	758.5	757.5	757.3	756.6
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Off-Cycle Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
Total Civil Penalties (\$b)	0.0	0.0	0.0	0.0	0.0
Total Regulatory Costs (\$b)	0.1	0.1	0.1	0.1	0.1

Table B-12-25 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Toyota)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	41.6	47.2	50.8	51.9	54.2
Percent Change from Baseline	N/A	13%	22%	25%	30%
Average Achieved (mpg)	47.1	50.4	52.6	52.7	55.0
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	6.3	12.0	15.8	16.0	20.9
Off-Cycle Technology Costs (\$b)	5.7	5.7	5.7	5.7	5.6
A/C Efficiency Technology Costs (\$b)	0.1	0.1	0.1	0.1	0.1
Subtotal Technology Costs (\$b)	12.1	17.8	21.5	21.8	26.6
Total Civil Penalties (\$b)	0.1	0.1	0.1	0.1	0.1
Total Regulatory Costs (\$b)	13.0	18.6	22.3	22.6	27.4

Table B-12-26 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (Volvo)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	37.9	43.4	46.4	47.4	49.5
Percent Change from Baseline	N/A	14%	22%	25%	31%
Average Achieved (mpg)	45.5	46.4	47.6	47.6	49.5
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	1.3	1.4	1.5	1.4	1.5
Off-Cycle Technology Costs (\$b)	0.2	0.2	0.2	0.2	0.2
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	1.5	1.6	1.7	1.7	1.8
Total Civil Penalties (\$b)	0.1	0.1	0.2	0.2	0.2
Total Regulatory Costs (\$b)	1.6	1.7	1.9	1.8	2.0

Table B-12-27 - Compliance Impacts and Cumulative Industry Costs for MY 2029 Total Fleet by Alternative for Manufacturer (VWA)

Alternative	0 (Baseline)	1	2	2.5	3
Fuel Economy					
Average Required (mpg), MY 2029	41.7	47.4	50.9	52.0	54.3
Percent Change from Baseline	N/A	14%	22%	25%	30%
Average Achieved (mpg)	48.1	48.6	51.0	51.4	54.3
Total Regulatory Costs through MY 2029 Vehicles					
Technology Application Costs (\$b)	5.4	5.7	6.0	6.0	6.8
Off-Cycle Technology Costs (\$b)	0.9	0.9	0.9	0.9	0.9
A/C Efficiency Technology Costs (\$b)	0.0	0.0	0.0	0.0	0.0
Subtotal Technology Costs (\$b)	6.3	6.6	6.9	7.0	7.7
Total Civil Penalties (\$b)	0.3	0.5	0.6	0.8	0.8
Total Regulatory Costs (\$b)	6.6	7.1	7.5	7.8	8.5

13. Powertrain Technology Penetration Rate, by Model Year

**Table B-13-1 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Total)
Total Fleet, Alternative 0 (Baseline)**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	10	13	15	16	20	22	23	23	23	23
Cylinder Deactivation	8	8	10	11	11	11	14	15	15	16
Dynamic Cylinder Deactivation	3	3	3	3	3	2	2	2	2	2
Non-Hybrid Turbocharged Engines	34	35	37	37	38	38	40	40	41	42
Variable Geometry Turbo	2	2	2	2	2	1	1	1	1	1
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	50	50	50	50	49	47	47	47	46	46
Mild Hybrid Powertrains	1.9	1.9	1.9	1.8	2.0	2.0	2.1	2.1	2.1	2.1
Strong Hybrid Powertrains Total	2.8	3.9	4.6	4.9	4.9	5.9	5.9	5.9	5.9	5.9
Plug-In Hybrid Powertrains	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.2
Battery Electric Vehicles (BEVs)	1.9	2.4	3.0	3.5	3.9	4.6	5.0	5.3	5.4	5.7
BEV 200 Mile Range	0.5	0.9	1.2	1.5	1.7	1.8	2.2	2.4	2.5	2.8
BEV 300 Mile Range	1.1	1.3	1.5	1.8	1.9	2.4	2.5	2.6	2.6	2.6
BEV 400 Mile Range	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	1	1	1	1	1	1	1	1	1	1
5-Speed Automatic	1	1	1	0	0	0	0	0	0	0
6-Speed Automatic	16	13	6	3	1	1	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	27	24	21	21	19	18	17	17	16	16
9-Speed Automatic	11	11	6	3	2	1	0	0	0	0
10-Speed Automatic	10	16	28	35	38	39	41	42	42	41
DCT Transmissions	2	2	2	2	2	2	2	2	2	2
CVT Transmissions	25	26	26	26	27	27	27	27	27	28

**Table B-13-2 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Total)
Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	10	13	15	17	20	22	22	22	22	22
Cylinder Deactivation	8	8	10	11	11	10	11	11	11	11
Dynamic Cylinder Deactivation	3	3	3	3	3	3	3	3	2	2
Non-Hybrid Turbocharged Engines	34	35	37	35	37	35	37	38	39	40
Variable Geometry Turbo	2	2	2	2	3	2	2	2	2	2
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	50	50	50	51	49	46	40	38	38	38
Mild Hybrid Powertrains	1.9	1.9	1.9	1.8	2.0	2.0	5.2	7.1	7.1	7.2
Strong Hybrid Powertrains Total	2.8	3.9	4.6	5.4	7.3	11.1	12.6	12.9	13.3	13.3
Plug-In Hybrid Powertrains	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Battery Electric Vehicles (BEVs)	1.9	2.4	3.0	4.1	5.4	6.9	9.5	9.9	10.2	10.3
BEV 200 Mile Range	0.5	0.9	1.2	1.5	2.4	3.1	3.6	3.7	3.8	3.8
BEV 300 Mile Range	1.1	1.3	1.5	2.4	2.7	3.6	5.6	5.9	6.1	6.2
BEV 400 Mile Range	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	1	1	1	1	1	1	1	1	1	1
5-Speed Automatic	1	1	1	0	0	0	0	0	0	0
6-Speed Automatic	16	13	6	3	1	1	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	27	24	21	20	11	7	6	4	4	4
9-Speed Automatic	11	11	6	3	2	1	0	0	0	0
10-Speed Automatic	10	16	28	35	43	44	45	46	46	46
DCT Transmissions	2	2	2	2	2	2	2	2	2	2
CVT Transmissions	25	26	26	26	26	25	24	23	24	24

**Table B-13-3 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Total)
Passenger Car Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	17	20	23	24	30	31	29	29	30	30
Cylinder Deactivation	2	2	2	3	3	3	3	3	3	3
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	36	36	39	37	40	38	37	38	38	38
Variable Geometry Turbo	1	1	1	1	2	2	2	2	2	2
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	31	32	32	31	30	29	26	26	25	25
Mild Hybrid Powertrains	0.2	0.2	0.3	0.2	0.4	0.4	0.7	0.7	0.7	0.8
Strong Hybrid Powertrains Total	3.4	3.7	4.0	5.0	6.5	9.4	12.0	12.2	12.9	13.0
Plug-In Hybrid Powertrains	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5
Battery Electric Vehicles (BEVs)	4.1	4.7	5.6	7.2	8.4	10.6	13.7	14.4	14.8	14.8
BEV 200 Mile Range	1.2	1.7	2.2	2.6	3.6	4.9	5.9	6.1	6.2	6.3
BEV 300 Mile Range	2.5	2.6	2.9	4.2	4.3	5.3	7.3	7.8	8.1	8.1
BEV 400 Mile Range	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	2	2	2	2	2	2	2	2	2	2
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	18	15	7	3	0	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	20	20	16	17	9	7	5	5	4	4
9-Speed Automatic	5	4	2	1	1	0	0	0	0	0
10-Speed Automatic	3	6	18	21	30	30	30	29	29	29
DCT Transmissions	4	4	4	4	4	3	3	3	3	3
CVT Transmissions	40	40	40	40	39	37	34	34	34	34

**Table B-13-5 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Total)
Domestic Car Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	8	10	10	13	20	20	19	19	21	21
Cylinder Deactivation	3	4	5	6	6	6	5	5	5	6
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	42	41	46	42	42	40	40	41	41	41
Variable Geometry Turbo	1	1	1	1	1	1	1	1	1	1
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	28	29	30	30	29	26	23	23	23	23
Mild Hybrid Powertrains	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Strong Hybrid Powertrains Total	2.1	2.4	2.4	3.9	5.0	8.8	9.6	10.4	10.4	10.4
Plug-In Hybrid Powertrains	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Battery Electric Vehicles (BEVs)	8.3	8.6	10.0	11.9	13.3	15.8	19.0	19.1	19.3	19.3
BEV 200 Mile Range	2.1	2.4	3.4	3.6	5.0	6.7	8.5	8.5	8.7	8.7
BEV 300 Mile Range	5.1	5.2	5.5	7.3	7.3	8.0	9.5	9.6	9.6	9.6
BEV 400 Mile Range	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	2	2	1	1	1	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	16	14	8	2	1	1	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	19	16	16	17	9	8	8	7	7	7
9-Speed Automatic	5	5	2	0	0	0	0	0	0	0
10-Speed Automatic	6	9	18	23	30	29	26	26	26	26
DCT Transmissions	1	2	1	1	1	1	1	1	1	1
CVT Transmissions	40	41	41	40	39	35	35	35	35	35

**Table B-13-6 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Total)
Imported Car Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	24	29	34	35	39	40	37	37	37	37
Cylinder Deactivation	0	0	0	0	0	0	1	1	1	1
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	31	32	33	32	38	36	35	35	34	34
Variable Geometry Turbo	1	1	1	1	2	2	2	2	2	2
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	34	33	33	32	30	31	29	28	27	26
Mild Hybrid Powertrains	0.4	0.4	0.4	0.4	0.7	0.8	1.2	1.3	1.3	1.4
Strong Hybrid Powertrains Total	4.5	4.8	5.4	6.0	7.8	10.0	14.1	14.0	15.3	15.3
Plug-In Hybrid Powertrains	1.1	1.0	1.0	0.9	0.9	0.8	0.7	0.7	0.7	0.7
Battery Electric Vehicles (BEVs)	0.4	1.3	1.7	3.0	4.1	6.0	8.8	10.1	10.6	10.8
BEV 200 Mile Range	0.3	1.1	1.2	1.6	2.4	3.2	3.6	3.9	3.9	4.0
BEV 300 Mile Range	0.1	0.3	0.6	1.4	1.6	2.8	5.3	6.2	6.7	6.8
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	3	3	2	2	2	2	2	2	2	2
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	19	15	7	3	0	0	0	0	0	0
7-Speed Automatic	1	1	1	0	0	0	0	0	0	0
8-Speed Automatic	21	23	15	16	10	6	3	3	1	1
9-Speed Automatic	5	4	3	3	1	1	0	0	0	0
10-Speed Automatic	0	3	19	20	29	31	33	32	32	32
DCT Transmissions	6	6	6	6	5	5	5	5	5	5
CVT Transmissions	39	40	40	40	39	38	33	33	34	34

**Table B-13-11 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (GM)
Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	0	0	2	2	2	2	2	2	2	2
Cylinder Deactivation	19	18	18	18	17	13	10	10	9	9
Dynamic Cylinder Deactivation	16	16	16	15	15	15	15	15	15	15
Non-Hybrid Turbocharged Engines	41	43	44	44	47	38	46	48	50	50
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	2	2	2	2	1	1	1	1	1	1
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	63	65	64	64	69	53	39	39	39	39
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	1.2	11.3	11.3	11.3	11.2
Strong Hybrid Powertrains Total	0.0	4.6	4.6	4.5	4.5	15.5	14.2	14.2	14.1	14.1
Plug-In Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	1.2	1.8	1.9	2.2	3.9	6.8	12.3	12.9	12.9	13.0
BEV 200 Mile Range	0.0	0.5	0.5	0.7	2.4	2.6	2.6	3.2	3.2	3.2
BEV 300 Mile Range	1.2	1.3	1.4	1.5	1.5	4.2	9.7	9.7	9.7	9.7
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	0	0	0	0	0	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	34	28	5	3	0	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	14	11	22	22	8	1	1	0	0	0
9-Speed Automatic	29	28	8	7	4	0	0	0	0	0
10-Speed Automatic	14	17	49	51	69	66	63	63	62	62
DCT Transmissions	1	1	1	1	1	1	1	1	1	1
CVT Transmissions	7	8	8	9	9	9	9	9	9	9

**Table B-13-12 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Honda)
Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	0	4	10	10	10	10	8	7	7	7
Cylinder Deactivation	24	23	22	22	21	19	18	18	18	18
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	50	50	63	60	58	58	58	58	58	58
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	43	42	40	42	35	33	33	38	37	37
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	1.6	1.6	1.6	1.6	1.5	1.5
Strong Hybrid Powertrains Total	5.1	5.2	5.2	8.6	10.8	9.4	9.5	10.5	10.6	10.6
Plug-In Hybrid Powertrains	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	0.0	0.0	0.0	0.0	2.4	5.8	8.4	8.5	8.6	8.6
BEV 200 Mile Range	0.0	0.0	0.0	0.0	1.1	1.5	3.0	3.0	3.0	3.0
BEV 300 Mile Range	0.0	0.0	0.0	0.0	1.3	4.3	5.3	5.5	5.6	5.6
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	2	2	2	2	2	2	2	2	2	2
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	6	6	0	0	0	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	0	0	6	5	5	5	5	0	0	0
9-Speed Automatic	12	11	3	2	0	0	0	0	0	0
10-Speed Automatic	13	13	21	21	18	17	16	21	21	20
DCT Transmissions	2	2	3	3	3	3	1	1	1	1
CVT Transmissions	60	60	61	58	58	58	58	57	57	57

Table B-13-13 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Hyundai Kia-H) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	46	47	55	62	83	75	56	56	56	55
Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	13	14	14	14	13	9	9	9	9	9
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	27	26	26	26	25	25	20	20	20	19
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Strong Hybrid Powertrains Total	2.2	2.3	2.4	1.5	1.5	10.6	34.1	34.1	34.3	34.5
Plug-In Hybrid Powertrains	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	0.8	0.8	0.9	2.4	2.8	5.2	6.1	6.1	6.2	6.2
BEV 200 Mile Range	0.3	0.3	0.4	0.9	1.3	3.4	3.4	3.4	3.4	3.4
BEV 300 Mile Range	0.5	0.5	0.5	1.5	1.5	1.8	2.8	2.8	2.8	2.8
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	1	1	1	1	1	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	23	23	7	7	0	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	41	40	23	13	0	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0	0	0	0	0	0
10-Speed Automatic	0	0	31	40	59	50	44	44	44	43
DCT Transmissions	3	3	3	3	3	3	3	3	3	3
CVT Transmissions	29	30	31	32	32	30	12	12	12	13

Table B-13-14 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Hyundai Kia-K) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	46	64	64	64	64	74	74	79	79	79
Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	5	5	5	5	6	4	4	4	4	4
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	45	45	45	45	42	42	42	42	42	41
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
Strong Hybrid Powertrains Total	0.9	0.9	0.9	0.9	11.6	13.7	12.9	12.9	12.9	12.9
Plug-In Hybrid Powertrains	0.3	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	0.2	0.2	0.1	0.1	2.4	3.3	9.0	9.0	9.0	9.0
BEV 200 Mile Range	0.2	0.2	0.1	0.1	1.9	2.8	2.8	2.8	2.9	2.9
BEV 300 Mile Range	0.0	0.0	0.0	0.0	0.5	0.5	6.1	6.1	6.2	6.2
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	1	1	1	1	1	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	37	0	0	0	0	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	24	46	45	44	23	10	10	8	0	0
9-Speed Automatic	0	0	0	0	0	0	0	0	0	0
10-Speed Automatic	0	13	13	13	25	35	35	37	45	45
DCT Transmissions	2	2	2	2	2	2	2	2	2	2
CVT Transmissions	35	36	38	39	35	35	31	31	31	31

Table B-13-17 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Mitsubishi) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	0	0	0	0	0	78	78	78	78	78
Cylinder Deactivation	0	0	0	0	0	2	2	2	2	2
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	20	19	19	19	19	0	0	0	0	0
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	0	0	0	0	0	4	4	4	4	4
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Strong Hybrid Powertrains Total	0.0	0.0	0.0	0.0	0.0	11.4	11.3	11.4	11.3	11.3
Plug-In Hybrid Powertrains	1.7	1.7	1.7	1.7	1.7	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	0.0	0.0	0.0	0.0	0.0	4.7	4.7	4.7	4.6	4.6
BEV 200 Mile Range	0.0	0.0	0.0	0.0	0.0	3.6	3.6	3.6	3.5	3.5
BEV 300 Mile Range	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	1	1	1	1	1	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	2	2	2	2	2	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0	0	0	0	0	0
10-Speed Automatic	0	0	0	0	0	2	2	2	2	2
DCT Transmissions	0	0	0	0	0	0	0	0	0	0
CVT Transmissions	95	95	95	95	95	81	81	81	81	81

**Table B-13-18 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Nissan)
Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	0	19	24	30	49	53	53	53	59	59
Cylinder Deactivation	0	0	3	3	3	3	3	3	3	3
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	2	4	11	9	9	9	9	9	11	11
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	7	7	7	6	6	6	6	6	6	6
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Strong Hybrid Powertrains Total	0.0	0.0	0.0	0.0	3.1	11.0	11.0	11.0	11.2	11.3
Plug-In Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	1.1	1.2	1.2	4.2	6.1	8.0	9.0	9.0	9.1	9.1
BEV 200 Mile Range	1.1	1.2	1.2	1.3	2.1	3.9	3.9	3.9	4.0	4.0
BEV 300 Mile Range	0.0	0.0	0.0	2.9	4.1	4.1	5.1	5.1	5.1	5.1
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	0	0	0	0	0	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0	0	0	0	0	0
7-Speed Automatic	6	3	3	0	0	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0	0	0	0	0	0
9-Speed Automatic	3	1	1	1	1	1	0	0	0	0
10-Speed Automatic	0	5	5	4	4	4	4	4	4	4
DCT Transmissions	0	0	0	0	0	0	0	0	0	0
CVT Transmissions	89	90	90	90	85	75	75	75	75	75

**Table B-13-19 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Subaru)
Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	0	0	0	0	24	42	48	48	48	48
Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	23	23	23	23	23	23	21	21	21	21
Variable Geometry Turbo	0	0	0	14	24	24	24	24	24	24
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	73	72	72	70	69	69	69	69	69	68
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3
Strong Hybrid Powertrains Total	0.0	0.0	2.3	2.4	2.5	2.5	2.5	2.5	2.6	2.6
Plug-In Hybrid Powertrains	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	0.0	0.0	0.6	2.3	2.3	2.3	3.9	3.9	3.9	4.0
BEV 200 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	1.7	1.7
BEV 300 Mile Range	0.0	0.0	0.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	6	7	6	5	5	5	3	3	4	4
5-Speed Automatic	0	0	0	0	0	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0	0	0	0	0	0
10-Speed Automatic	0	0	0	0	0	0	0	0	0	0
DCT Transmissions	0	0	0	0	0	0	0	0	0	0
CVT Transmissions	93	93	91	90	90	90	90	90	90	90

**Table B-13-21 - Powertrain Technology Penetration Rate (%) by Model Year for Manufacturer (Toyota)
Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Non-Hybrid High Compression Engines	30	31	31	36	31	31	31	31	31	32
Cylinder Deactivation	0	0	6	6	6	6	6	6	6	6
Dynamic Cylinder Deactivation	0	0	0	0	0	0	0	0	0	0
Non-Hybrid Turbocharged Engines	4	4	3	3	17	17	31	35	38	38
Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0	0	0	0	0	0
Diesel Engines	0	0	0	0	0	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0	0	0	0	0	0
12V Stop-Start (non-hybrid)	17	17	22	27	21	21	20	20	20	20
Mild Hybrid Powertrains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Strong Hybrid Powertrains Total	13.3	13.3	13.2	14.3	17.5	17.4	17.4	17.4	17.4	17.3
Plug-In Hybrid Powertrains	1.2	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4
Battery Electric Vehicles (BEVs)	0.0	0.0	0.5	0.5	3.3	4.1	4.5	4.5	4.5	4.5
BEV 200 Mile Range	0.0	0.0	0.0	0.0	2.8	3.5	3.5	3.5	3.4	3.4
BEV 300 Mile Range	0.0	0.0	0.5	0.5	0.5	0.7	1.1	1.1	1.1	1.0
BEV 400 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BEV 500 Mile Range	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cell Vehicles (FCVs)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manual Transmissions	1	1	1	1	1	1	1	1	1	1
5-Speed Automatic	6	6	5	0	0	0	0	0	0	0
6-Speed Automatic	20	14	9	9	9	9	0	0	0	0
7-Speed Automatic	0	0	0	0	0	0	0	0	0	0
8-Speed Automatic	40	37	39	32	7	6	12	11	11	10
9-Speed Automatic	0	0	0	0	0	0	0	0	0	0
10-Speed Automatic	0	9	11	21	40	40	43	44	44	44
DCT Transmissions	0	0	0	0	0	0	0	0	0	0
CVT Transmissions	19	20	20	21	21	21	21	21	21	22

**Table B-14-2 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer
(Total) Total Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	31	28	23	20	14	11	7	5	5	4
Mass Reduction Level 1 (%)	14	15	16	16	20	19	20	20	19	19
Mass Reduction Level 2 (%)	21	21	19	19	10	10	8	8	6	6
Mass Reduction Level 3 (%)	25	27	32	31	39	39	39	41	42	42
Mass Reduction Level 4 (%)	8	9	11	13	16	21	25	26	27	27
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,938	3,914	3,882	3,861	3,836	3,816	3,798	3,793	3,782	3,777
Diff. from Baseline - Fleet (pounds)	0	0	0	3	17	24	29	30	32	31

**Table B-14-3 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer
(Total) Passenger Car Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	33	30	25	23	13	9	8	5	5	5
Mass Reduction Level 1 (%)	13	13	15	15	22	21	20	22	22	22
Mass Reduction Level 2 (%)	20	20	18	19	6	6	5	4	3	3
Mass Reduction Level 3 (%)	29	31	32	30	40	39	36	37	38	38
Mass Reduction Level 4 (%)	5	6	9	13	18	24	30	30	32	32
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	1	1	1	1	1	1
Avg Curb Weight - Fleet (pounds)	3,938	3,914	3,882	3,861	3,836	3,816	3,798	3,793	3,782	3,777
Diff. from Baseline - Fleet (pounds)	0	0	0	3	17	24	29	30	32	31

**Table B-14-4 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer
(Total) Light Truck Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	30	26	20	18	16	12	6	5	4	4
Mass Reduction Level 1 (%)	14	16	16	17	18	18	21	18	17	17
Mass Reduction Level 2 (%)	22	22	20	18	13	13	11	11	9	9
Mass Reduction Level 3 (%)	23	25	31	33	39	40	42	44	47	47
Mass Reduction Level 4 (%)	11	11	12	14	14	17	21	22	22	23
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,938	3,914	3,882	3,861	3,836	3,816	3,798	3,793	3,782	3,777
Diff. from Baseline - Fleet (pounds)	0	0	0	3	17	24	29	30	32	31

**Table B-14-5 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer
(Total) Domestic Car Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	19	19	19	16	16	12	10	9	8	8
Mass Reduction Level 1 (%)	17	13	10	11	10	6	6	6	6	6
Mass Reduction Level 2 (%)	21	21	22	23	6	6	5	3	1	1
Mass Reduction Level 3 (%)	36	36	36	30	38	38	39	41	41	41
Mass Reduction Level 4 (%)	7	10	13	21	30	38	40	41	44	44
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,938	3,914	3,882	3,861	3,836	3,816	3,798	3,793	3,782	3,777
Diff. from Baseline - Fleet (pounds)	0	0	0	3	17	24	29	30	32	31

**Table B-14-6 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer
(Total) Imported Car Fleet, Alternative 2.5**

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	45	39	31	29	11	7	6	2	2	2
Mass Reduction Level 1 (%)	9	13	20	20	33	34	33	36	36	36
Mass Reduction Level 2 (%)	20	19	15	15	7	6	6	6	5	5
Mass Reduction Level 3 (%)	23	25	29	29	41	39	33	34	35	35
Mass Reduction Level 4 (%)	3	3	5	6	7	12	20	21	21	22
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	1	1	1	1	1	1	1
Avg Curb Weight - Fleet (pounds)	3,938	3,914	3,882	3,861	3,836	3,816	3,798	3,793	3,782	3,777
Diff. from Baseline - Fleet (pounds)	0	0	0	3	17	24	29	30	32	31

Table B-14-7 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (BMW) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	60	55	39	28	20	7	4	3	3	0
Mass Reduction Level 1 (%)	16	15	32	42	42	42	42	30	29	29
Mass Reduction Level 2 (%)	3	3	3	3	3	0	0	0	0	0
Mass Reduction Level 3 (%)	21	26	25	26	34	39	43	55	56	59
Mass Reduction Level 4 (%)	0	0	0	0	0	11	11	12	12	12
Mass Reduction Level 5 (%)	1	1	1	1	1	1	1	1	1	1
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,212	4,183	4,147	4,119	4,092	4,041	4,030	4,004	3,998	3,988
Diff. from Baseline - Fleet (pounds)	0	0	0	1	0	-5	-8	11	12	11

Table B-14-8 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Daimler) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	39	34	33	33	28	21	2	2	2	2
Mass Reduction Level 1 (%)	8	8	8	8	4	4	23	19	19	19
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	49	54	54	55	53	60	60	64	64	60
Mass Reduction Level 4 (%)	1	2	2	2	13	13	13	13	13	17
Mass Reduction Level 5 (%)	2	2	2	2	2	2	2	2	2	2
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,177	4,148	4,134	4,125	4,087	4,059	4,024	4,020	4,015	4,007
Diff. from Baseline - Fleet (pounds)	0	0	0	0	-7	-12	-15	-24	-25	-20

Table B-14-9 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (FCA) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	45	44	30	23	23	23	8	8	4	4
Mass Reduction Level 1 (%)	46	40	37	37	37	37	37	25	17	17
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	1	2	18	20	20	20	35	47	57	57
Mass Reduction Level 4 (%)	7	13	14	19	19	19	19	19	21	21
Mass Reduction Level 5 (%)	1	1	1	1	1	1	1	1	1	1
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,497	4,475	4,419	4,382	4,380	4,380	4,339	4,321	4,291	4,290
Diff. from Baseline - Fleet (pounds)	0	0	0	0	0	-2	17	35	46	46

Table B-14-10 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Ford) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	35	35	31	27	22	22	22	22	22	22
Mass Reduction Level 1 (%)	7	7	3	3	9	9	9	9	9	9
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	16	16	15	15	15	15	15	15	15	15
Mass Reduction Level 4 (%)	42	42	51	55	54	54	54	54	54	54
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,258	4,251	4,207	4,189	4,173	4,172	4,171	4,172	4,169	4,167
Diff. from Baseline - Fleet (pounds)	0	0	0	0	-1	-4	-21	-26	-27	-40

Table B-14-11 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (GM) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	20	14	7	4	4	4	4	0	0	0
Mass Reduction Level 1 (%)	22	22	27	27	27	8	6	10	10	10
Mass Reduction Level 2 (%)	5	5	5	5	1	1	0	0	0	0
Mass Reduction Level 3 (%)	52	59	59	61	63	63	53	50	49	49
Mass Reduction Level 4 (%)	1	1	3	3	5	24	37	40	42	42
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,162	4,125	4,104	4,089	4,079	4,028	4,002	3,993	3,987	3,984
Diff. from Baseline - Fleet (pounds)	0	0	0	0	4	50	72	74	75	74

Table B-14-12 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Honda) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 1 (%)	7	7	7	7	7	7	7	7	7	7
Mass Reduction Level 2 (%)	28	27	14	9	2	0	0	0	0	0
Mass Reduction Level 3 (%)	65	66	79	66	73	75	72	72	72	71
Mass Reduction Level 4 (%)	0	0	0	18	18	18	21	21	21	21
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,481	3,467	3,441	3,405	3,393	3,388	3,383	3,384	3,379	3,375
Diff. from Baseline - Fleet (pounds)	0	0	0	22	22	18	17	13	13	12

Table B-14-13 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Hyundai Kia-H) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	2	2	2	2	1	1	1	0	0	0
Mass Reduction Level 1 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 2 (%)	52	51	35	34	15	15	6	6	6	6
Mass Reduction Level 3 (%)	35	36	52	52	71	71	53	53	51	51
Mass Reduction Level 4 (%)	11	12	12	12	13	13	41	41	43	43
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,366	3,354	3,331	3,323	3,302	3,300	3,260	3,259	3,252	3,249
Diff. from Baseline - Fleet (pounds)	0	0	0	0	13	9	37	34	36	35

Table B-14-14 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Hyundai Kia-K) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	37	33	34	34	2	2	2	0	0	0
Mass Reduction Level 1 (%)	19	23	22	22	43	43	39	39	39	39
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	42	42	43	43	54	40	40	40	40	40
Mass Reduction Level 4 (%)	1	1	1	1	1	15	19	21	21	21
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,658	3,644	3,634	3,627	3,562	3,544	3,533	3,526	3,523	3,520
Diff. from Baseline - Fleet (pounds)	0	0	0	0	45	59	66	69	68	68

Table B-14-15 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (JLR) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	25	25	25	25	25	12	12	12	12	12
Mass Reduction Level 1 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 2 (%)	46	46	46	28	20	20	13	13	13	0
Mass Reduction Level 3 (%)	0	0	0	17	26	39	46	46	46	59
Mass Reduction Level 4 (%)	29	29	29	30	30	30	30	30	30	30
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,432	4,429	4,425	4,407	4,398	4,360	4,352	4,353	4,351	4,338
Diff. from Baseline - Fleet (pounds)	0	0	0	0	0	17	16	15	15	14

Table B-14-16 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Mazda) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	64	64	63	63	62	19	9	9	9	9
Mass Reduction Level 1 (%)	0	0	0	0	0	0	10	10	10	10
Mass Reduction Level 2 (%)	2	2	2	2	2	0	0	0	0	0
Mass Reduction Level 3 (%)	30	31	31	32	32	32	32	32	32	32
Mass Reduction Level 4 (%)	3	0	0	0	0	46	46	46	45	45
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	3	3	3	3	3	3	3	3	4
Avg Curb Weight - Fleet (pounds)	3,548	3,533	3,525	3,520	3,516	3,338	3,322	3,322	3,320	3,320
Diff. from Baseline - Fleet (pounds)	0	0	0	0	-1	174	171	169	167	166

Table B-14-17 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Mitsubishi) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	85	84	83	82	81	0	0	0	0	0
Mass Reduction Level 1 (%)	0	0	0	0	0	81	81	81	81	80
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	15	16	17	18	19	19	19	19	19	20
Mass Reduction Level 4 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,153	3,141	3,127	3,119	3,113	3,014	3,013	3,013	3,009	3,006
Diff. from Baseline - Fleet (pounds)	0	0	0	0	-1	-6	-10	-13	-15	-16

Table B-14-18 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Nissan) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	47	25	19	17	15	4	4	4	2	2
Mass Reduction Level 1 (%)	0	21	27	26	26	37	37	37	39	39
Mass Reduction Level 2 (%)	39	39	40	40	18	18	18	15	9	6
Mass Reduction Level 3 (%)	14	15	15	15	15	15	15	15	15	15
Mass Reduction Level 4 (%)	0	0	0	0	23	23	23	26	31	35
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	2	4	4	4	4	4	4
Avg Curb Weight - Fleet (pounds)	3,604	3,563	3,543	3,521	3,460	3,446	3,445	3,440	3,418	3,406
Diff. from Baseline - Fleet (pounds)	0	0	0	12	65	61	58	60	72	81

Table B-14-19 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Subaru) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	5	0	0	0	0	0	0	0	0	0
Mass Reduction Level 1 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 2 (%)	95	95	94	94	94	94	94	94	94	94
Mass Reduction Level 3 (%)	1	5	5	5	5	5	6	5	6	6
Mass Reduction Level 4 (%)	0	0	1	1	1	1	1	1	1	1
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,591	3,574	3,567	3,563	3,560	3,559	3,558	3,559	3,557	3,555
Diff. from Baseline - Fleet (pounds)	0	0	0	0	-1	-3	-5	-7	-8	-8

Table B-14-20 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Tesla) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 1 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	17	17	16	16	15	15	15	15	15	15
Mass Reduction Level 4 (%)	83	83	84	84	85	85	85	85	85	85
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,344	4,335	4,326	4,321	4,317	4,317	4,316	4,316	4,314	4,312
Diff. from Baseline - Fleet (pounds)	0	0	0	0	-1	-3	-5	-8	-8	-8

Table B-14-21 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Toyota) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	53	53	45	44	21	20	11	7	7	7
Mass Reduction Level 1 (%)	0	0	3	3	26	27	36	40	40	40
Mass Reduction Level 2 (%)	46	46	46	47	15	14	9	7	0	0
Mass Reduction Level 3 (%)	1	1	6	6	37	38	44	46	53	52
Mass Reduction Level 4 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,808	3,790	3,746	3,730	3,676	3,672	3,651	3,646	3,633	3,629
Diff. from Baseline - Fleet (pounds)	0	0	0	0	45	40	40	39	44	43

Table B-14-22 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (Volvo) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	19	20	21	22	23	23	23	0	0	0
Mass Reduction Level 1 (%)	20	20	19	19	19	19	19	19	19	18
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	61	60	59	59	58	58	56	79	79	79
Mass Reduction Level 4 (%)	0	0	0	0	0	0	2	2	2	2
Mass Reduction Level 5 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,181	4,175	4,171	4,168	4,166	4,165	4,161	4,096	4,093	4,091
Diff. from Baseline - Fleet (pounds)	0	0	0	0	0	-2	-3	61	62	62

Table B-14-23 - Mass Reduction Penetration Rate and Curb Weights by Model Year for Manufacturer (VWA) Total Fleet, Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Mass Reduction Level 0 (%)	38	38	37	37	37	11	7	7	1	1
Mass Reduction Level 1 (%)	56	56	57	57	38	62	56	56	59	55
Mass Reduction Level 2 (%)	0	0	0	0	0	0	0	0	0	0
Mass Reduction Level 3 (%)	5	5	5	5	24	24	30	31	34	37
Mass Reduction Level 4 (%)	0	0	0	0	0	1	5	5	5	5
Mass Reduction Level 5 (%)	0	0	1	1	1	1	1	1	1	1
Mass Reduction Level 6 (%)	0	0	0	0	0	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,848	3,834	3,819	3,809	3,781	3,740	3,714	3,714	3,698	3,691
Diff. from Baseline - Fleet (pounds)	0	0	0	0	21	19	29	26	29	32

15. Powertrain Technology Penetration Rate, by Alternative

Table B-15-1 - Powertrain Technology Penetration Rate (%) for Manufacturer (Total), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	23	26	25	22	23
Cylinder Deactivation	16	11	11	11	11
Dynamic Cylinder Deactivation	2	2	2	2	3
Non-Hybrid Turbocharged Engines	42	44	39	40	36
Variable Geometry Turbo	1	2	2	2	2
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	46	45	40	38	35
Mild Hybrid	2.1	1.8	6.1	7.2	7.3
Strong Hybrid	5.9	9.0	12.1	13.3	16.6
Plug-In Hybrid	0.2	0.3	0.3	0.4	0.4
Battery Electric Vehicles (BEVs)	5.70	6.83	9.31	10.29	11.91
BEV 200 Mile Range	2.77	3.46	3.72	3.82	3.99
BEV 300 Mile Range	2.65	3.08	5.31	6.19	7.64
BEV 400 Mile Range	0.28	0.28	0.28	0.28	0.28
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.01	0.01	0.01	0.01	0.01
Manual Transmissions	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	16	8	3	4	3
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	41	46	47	46	43
DCT Transmissions	0	0	0	0	0
CVT Transmissions	28	27	25	24	23

**Table B-15-2 - Powertrain Technology Penetration Rate (%) for Manufacturer (Total), MY 2029
Passenger Car Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	31	35	35	30	32
Cylinder Deactivation	5	4	3	3	3
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	44	41	34	38	31
Variable Geometry Turbo	1	2	2	2	1
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	28	26	25	25	26
Mild Hybrid	1.1	0.7	0.8	0.8	1.0
Strong Hybrid	4.5	6.6	11.0	13.0	15.5
Plug-In Hybrid	0.1	0.5	0.4	0.5	0.5
Battery Electric Vehicles (BEVs)	8.70	10.68	14.39	14.83	16.31
BEV 200 Mile Range	4.09	5.17	6.04	6.27	6.71
BEV 300 Mile Range	4.16	5.06	7.90	8.11	9.14
BEV 400 Mile Range	0.45	0.45	0.45	0.45	0.45
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.01	0.01	0.01	0.01	0.01
Manual Transmissions	2	2	2	2	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	14	10	4	4	3
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	27	27	30	29	28
DCT Transmissions	0	0	0	0	0
CVT Transmissions	41	41	36	34	33

Table B-15-3 - Powertrain Technology Penetration Rate (%) for Manufacturer (Total), MY 2029 Light Truck Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	15	16	15	15	15
Cylinder Deactivation	27	19	19	18	18
Dynamic Cylinder Deactivation	5	5	5	5	5
Non-Hybrid Turbocharged Engines	40	47	43	42	40
Variable Geometry Turbo	1	2	2	2	2
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	1	1	1	1
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	64	63	54	50	44
Mild Hybrid	3.1	2.9	11.1	13.2	13.2
Strong Hybrid	7.3	11.5	13.3	13.6	17.6
Plug-In Hybrid	0.2	0.1	0.1	0.1	0.1
Battery Electric Vehicles (BEVs)	2.67	3.04	4.47	6.00	7.83
BEV 200 Mile Range	1.43	1.78	1.51	1.51	1.47
BEV 300 Mile Range	1.12	1.14	2.84	4.37	6.25
BEV 400 Mile Range	0.12	0.12	0.12	0.12	0.12
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	19	6	3	3	3
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	56	64	64	62	57
DCT Transmissions	0	0	0	0	0
CVT Transmissions	14	14	14	14	14

**Table B-15-4 - Powertrain Technology Penetration Rate (%) for Manufacturer (Total), MY 2029
Domestic Car Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	19	26	22	21	20
Cylinder Deactivation	9	7	6	6	5
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	46	45	42	41	38
Variable Geometry Turbo	1	1	1	1	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	27	24	23	23	22
Mild Hybrid	0.1	0.1	0.0	0.0	0.0
Strong Hybrid	2.8	5.2	7.1	10.4	12.9
Plug-In Hybrid	0.3	0.1	0.1	0.3	0.3
Battery Electric Vehicles (BEVs)	12.61	14.72	19.29	19.26	20.63
BEV 200 Mile Range	5.19	7.02	8.60	8.73	8.75
BEV 300 Mile Range	6.48	6.76	9.74	9.58	10.93
BEV 400 Mile Range	0.93	0.94	0.95	0.95	0.95
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	14	15	7	7	6
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	26	21	28	26	25
DCT Transmissions	0	0	0	0	0
CVT Transmissions	42	42	37	35	33

**Table B-15-5 - Powertrain Technology Penetration Rate (%) for Manufacturer (Total), MY 2029
Imported Car Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	43	44	46	37	43
Cylinder Deactivation	1	1	1	1	1
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	43	37	27	34	24
Variable Geometry Turbo	1	3	2	2	2
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	29	29	27	26	28
Mild Hybrid	1.9	1.2	1.5	1.4	1.9
Strong Hybrid	6.1	7.8	14.4	15.4	18.0
Plug-In Hybrid	0.0	0.9	0.7	0.7	0.7
Battery Electric Vehicles (BEVs)	5.11	6.98	9.92	10.78	12.38
BEV 200 Mile Range	3.08	3.48	3.70	4.02	4.86
BEV 300 Mile Range	2.03	3.50	6.22	6.76	7.52
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.02	0.02	0.02	0.02	0.02
Manual Transmissions	3	2	2	2	2
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	13	5	1	1	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	27	33	32	32	30
DCT Transmissions	0	0	0	0	0
CVT Transmissions	40	39	35	34	32

Table B-15-6 - Powertrain Technology Penetration Rate (%) for Manufacturer (BMW), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	0	0	0	0	0
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	90	88	86	85	82
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	78	83	80	78	72
Mild Hybrid	9.7	4.8	5.8	6.2	10.0
Strong Hybrid	1.6	0.2	0.0	0.1	0.4
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	10.53	12.24	13.76	15.33	17.90
BEV 200 Mile Range	4.26	4.20	4.12	4.11	4.06
BEV 300 Mile Range	6.27	8.03	9.64	11.22	13.84
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	1	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	7	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	70	79	78	76	73
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-7 - Powertrain Technology Penetration Rate (%) for Manufacturer (Daimler), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	0	0	0	0	0
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	95	90	88	87	78
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	74	73	61	60	48
Mild Hybrid	17.3	7.9	7.2	7.5	20.9
Strong Hybrid	1.8	6.3	17.3	17.3	7.3
Plug-In Hybrid	0.5	0.5	0.5	0.5	0.5
Battery Electric Vehicles (BEVs)	4.29	9.82	11.60	12.27	21.18
BEV 200 Mile Range	3.21	2.87	3.16	3.56	3.04
BEV 300 Mile Range	0.41	6.26	7.73	8.00	17.43
BEV 400 Mile Range	0.68	0.69	0.70	0.70	0.71
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	76	66	53	53	54
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-8 - Powertrain Technology Penetration Rate (%) for Manufacturer (FCA), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	2	2	2	2	2
Cylinder Deactivation	79	64	63	61	61
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	8	22	22	22	22
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	1	1	1	1	1
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	68	66	65	64	63
Mild Hybrid	10.2	10.3	10.3	10.3	10.3
Strong Hybrid	0.5	1.5	0.9	2.5	2.7
Plug-In Hybrid	0.4	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	3.12	5.34	6.29	6.23	6.49
BEV 200 Mile Range	2.04	3.73	4.23	4.23	4.23
BEV 300 Mile Range	1.09	1.61	2.06	2.00	2.26
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	95	92	92	91	90
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-9 - Powertrain Technology Penetration Rate (%) for Manufacturer (Ford), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	5	5	5	5	5
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	85	81	79	76	72
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	76	72	51	38	34
Mild Hybrid	0.0	0.0	19.0	28.1	28.5
Strong Hybrid	11.6	14.7	14.1	14.9	17.9
Plug-In Hybrid	0.7	0.3	0.3	0.7	0.7
Battery Electric Vehicles (BEVs)	3.94	4.83	8.00	10.79	12.45
BEV 200 Mile Range	2.74	3.04	2.95	3.19	3.14
BEV 300 Mile Range	1.20	1.79	5.05	7.60	9.31
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	21	20	16	19	15
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	63	60	61	55	54
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-10 - Powertrain Technology Penetration Rate (%) for Manufacturer (GM), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	2	2	2	2	2
Cylinder Deactivation	31	12	10	9	9
Dynamic Cylinder Deactivation	15	15	15	15	15
Non-Hybrid Turbocharged Engines	47	62	50	50	46
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	2	1	1	2
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	62	56	40	39	31
Mild Hybrid	0.0	0.0	11.2	11.2	10.5
Strong Hybrid	4.4	15.7	15.4	14.1	22.4
Plug-In Hybrid	0.0	0.2	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	5.14	6.30	11.02	12.96	14.50
BEV 200 Mile Range	2.49	2.90	2.89	3.24	3.26
BEV 300 Mile Range	2.64	3.40	8.14	9.72	11.24
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	22	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	57	67	63	62	53
DCT Transmissions	0	0	0	0	0
CVT Transmissions	10	10	9	9	9

Table B-15-11 - Powertrain Technology Penetration Rate (%) for Manufacturer (Honda), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	8	8	8	7	7
Cylinder Deactivation	18	18	18	18	18
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	65	65	62	58	51
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	34	34	38	37	38
Mild Hybrid	0.0	0.0	0.5	1.5	0.0
Strong Hybrid	4.3	5.3	8.0	10.6	15.1
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	5.23	4.87	7.21	8.64	10.60
BEV 200 Mile Range	3.04	3.02	3.03	3.03	3.60
BEV 300 Mile Range	2.19	1.85	4.18	5.62	6.99
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.02	0.02	0.02	0.02	0.02
Manual Transmissions	2	2	2	2	2
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	5	5	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	20	19	22	20	19
DCT Transmissions	0	0	0	0	0
CVT Transmissions	63	62	60	57	52

Table B-15-12 - Powertrain Technology Penetration Rate (%) for Manufacturer (Hyundai Kia-H), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	82	80	60	55	56
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	14	10	9	9	6
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	24	27	19	19	20
Mild Hybrid	0.0	0.0	2.2	0.0	0.0
Strong Hybrid	1.6	4.8	29.4	34.5	35.5
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	2.85	6.26	5.86	6.23	9.24
BEV 200 Mile Range	0.96	3.98	3.46	3.44	4.53
BEV 300 Mile Range	1.88	2.27	2.41	2.79	4.71
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.03	0.03	0.03	0.03	0.03
Manual Transmissions	1	0	1	1	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	10	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	47	54	44	43	40
DCT Transmissions	0	0	0	0	0
CVT Transmissions	34	32	17	13	12

Table B-15-13 - Powertrain Technology Penetration Rate (%) for Manufacturer (Hyundai Kia-K), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	86	90	82	79	73
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	6	5	5	5	4
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	42	43	48	41	40
Mild Hybrid	0.0	0.0	0.2	0.2	0.0
Strong Hybrid	0.8	1.2	6.9	12.9	25.1
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	2.73	3.22	8.45	9.05	8.97
BEV 200 Mile Range	2.30	2.77	2.86	2.87	2.84
BEV 300 Mile Range	0.43	0.44	5.59	6.18	6.14
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	32	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	21	53	48	45	34
DCT Transmissions	0	0	0	0	0
CVT Transmissions	40	39	34	31	29

Table B-15-14 - Powertrain Technology Penetration Rate (%) for Manufacturer (JLR), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	0	0	0	0	0
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	95	90	85	85	79
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	1	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	71	64	53	53	53
Mild Hybrid	24.3	26.7	31.8	31.8	26.4
Strong Hybrid	0.0	0.0	0.0	0.0	0.3
Plug-In Hybrid	0.7	1.2	1.2	1.2	1.2
Battery Electric Vehicles (BEVs)	3.99	8.58	13.70	13.80	19.09
BEV 200 Mile Range	2.58	4.20	4.28	4.28	4.47
BEV 300 Mile Range	1.42	4.37	9.42	9.52	14.62
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	95	90	85	85	79
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-15 - Powertrain Technology Penetration Rate (%) for Manufacturer (Mazda), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	68	68	68	68	62
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	0	0	0	0	0
Variable Geometry Turbo	27	25	17	13	14
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	0	2	22	24	17
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	0.0	1.8	10.0	14.0	19.2
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	5.15	5.07	5.00	4.98	4.92
BEV 200 Mile Range	4.07	4.02	3.96	3.95	3.91
BEV 300 Mile Range	1.07	1.04	1.04	1.03	1.01
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	84	49	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	11	44	85	81	76
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

**Table B-15-16 - Powertrain Technology Penetration Rate (%) for Manufacturer (Mitsubishi), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	2	78	78	78	72
Cylinder Deactivation	0	2	2	2	2
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	18	18	11	0	0
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	0	2	7	4	18
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	0.0	0.0	4.9	11.3	19.0
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	1.61	1.63	3.87	4.63	4.65
BEV 200 Mile Range	0.54	0.54	2.78	3.53	3.55
BEV 300 Mile Range	1.08	1.09	1.09	1.10	1.10
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	2	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	0	2	2	2	2
DCT Transmissions	0	0	0	0	0
CVT Transmissions	95	95	88	81	73

Table B-15-17 - Powertrain Technology Penetration Rate (%) for Manufacturer (Nissan), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	49	72	62	59	56
Cylinder Deactivation	3	3	3	3	3
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	13	12	11	11	11
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	6	7	6	6	15
Mild Hybrid	0.0	0.0	0.1	0.0	0.0
Strong Hybrid	0.0	0.7	9.7	11.3	11.7
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	1.85	4.30	8.06	9.08	10.93
BEV 200 Mile Range	1.39	3.84	4.01	3.99	5.82
BEV 300 Mile Range	0.45	0.46	4.05	5.08	5.11
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	8	6	4	4	4
DCT Transmissions	0	0	0	0	0
CVT Transmissions	89	88	77	75	73

**Table B-15-18 - Powertrain Technology Penetration Rate (%) for Manufacturer (Subaru), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	47	48	48	48	48
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	48	22	21	21	20
Variable Geometry Turbo	0	25	25	24	24
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	68	68	69	68	69
Mild Hybrid	0.0	0.0	0.0	0.3	0.0
Strong Hybrid	2.8	3.1	2.6	2.6	2.5
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	2.29	2.29	3.84	3.95	4.62
BEV 200 Mile Range	0.05	0.05	1.61	1.72	2.38
BEV 300 Mile Range	2.23	2.23	2.23	2.23	2.23
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	6	5	4	4	4
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	0	0	0	0	0
DCT Transmissions	0	0	0	0	0
CVT Transmissions	89	89	89	90	89

Table B-15-19 - Powertrain Technology Penetration Rate (%) for Manufacturer (Tesla), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	0	0	0	0	0
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	0	0	0	0	0
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	0	0	0	0	0
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	0.0	0.0	0.0	0.0	0.0
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	100.00	100.00	100.00	100.00	100.00
BEV 200 Mile Range	25.32	25.25	25.17	25.15	25.09
BEV 300 Mile Range	60.13	59.98	59.77	59.73	59.59
BEV 400 Mile Range	14.55	14.77	15.07	15.12	15.32
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	0	0	0	0	0
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-20 - Powertrain Technology Penetration Rate (%) for Manufacturer (Toyota), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	33	35	45	32	41
Cylinder Deactivation	6	6	7	6	6
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	38	38	23	38	24
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	19	22	20	20	17
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	13.2	14.5	17.3	17.3	19.4
Plug-In Hybrid	0.0	1.4	1.4	1.4	1.4
Battery Electric Vehicles (BEVs)	3.10	3.42	4.46	4.46	5.97
BEV 200 Mile Range	2.48	2.79	3.41	3.41	2.68
BEV 300 Mile Range	0.62	0.63	1.05	1.05	3.29
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.02	0.02	0.02	0.02	0.02
Manual Transmissions	1	1	1	1	1
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	44	30	11	10	9
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	16	27	43	44	42
DCT Transmissions	0	0	0	0	0
CVT Transmissions	22	22	22	22	21

Table B-15-21 - Powertrain Technology Penetration Rate (%) for Manufacturer (Volvo), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	0	0	0	0	0
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	51	51	51	50	49
Variable Geometry Turbo	0	0	0	0	0
Electric Variable Geometry Turbo	6	6	6	6	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	51	49	48	46	48
Mild Hybrid	0.0	0.0	0.6	0.0	0.4
Strong Hybrid	33.0	34.4	32.3	36.1	37.4
Plug-In Hybrid	1.6	1.6	1.5	1.5	1.6
Battery Electric Vehicles (BEVs)	8.84	9.04	11.54	10.61	12.56
BEV 200 Mile Range	3.35	3.19	3.13	3.12	3.09
BEV 300 Mile Range	5.50	5.86	8.42	7.49	9.47
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	0	0	0	0	0
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	56	55	55	52	48
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

Table B-15-22 - Powertrain Technology Penetration Rate (%) for Manufacturer (VWA), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Non-Hybrid High Compression Engines	4	4	5	5	5
Cylinder Deactivation	0	0	0	0	0
Dynamic Cylinder Deactivation	0	0	0	0	0
Non-Hybrid Turbocharged Engines	54	51	49	48	44
Variable Geometry Turbo	9	6	10	10	4
Electric Variable Geometry Turbo	0	0	0	0	0
Diesel Engines	0	0	0	0	0
Compressed Natural Gas	0	0	0	0	0
12V Stop-Start (non-hybrid)	59	53	55	55	45
Mild Hybrid	2.9	4.9	4.0	3.3	2.5
Strong Hybrid	28.0	33.1	27.5	27.6	37.2
Plug-In Hybrid	0.5	0.6	0.5	0.5	0.5
Battery Electric Vehicles (BEVs)	5.81	5.53	9.79	10.37	12.04
BEV 200 Mile Range	4.25	4.19	5.74	5.72	5.65
BEV 300 Mile Range	1.56	1.35	4.05	4.66	6.39
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00
Manual Transmissions	3	3	3	3	3
5-Speed Automatic	0	0	0	0	0
6-Speed Automatic	0	0	0	0	0
7-Speed Automatic	0	0	0	0	0
8-Speed Automatic	0	0	0	0	0
9-Speed Automatic	0	0	0	0	0
10-Speed Automatic	37	33	38	38	28
DCT Transmissions	0	0	0	0	0
CVT Transmissions	0	0	0	0	0

16. Mass Reduction Penetration Rate, by Model Year

**Table B-16-1 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Total), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	8	2	2	4	2
Mass Reduction Level 1 (%)	26	27	22	19	19
Mass Reduction Level 2 (%)	17	6	6	6	6
Mass Reduction Level 3 (%)	36	50	43	42	33
Mass Reduction Level 4 (%)	13	15	27	27	39
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,808	3,789	3,774	3,777	3,759
Diff. from Baseline - Fleet (pounds)	0	18	34	31	49
Avg Curb Weight - Passenger Car (pounds)	3,324	3,293	3,266	3,269	3,246
Diff. from Baseline - Passenger Car (pounds)	0	32	58	55	78
Avg Curb Weight - Light Truck (pounds)	4,296	4,278	4,257	4,258	4,234
Diff. from Baseline - Light Trucks (pounds)	0	18	39	38	62

**Table B-16-2 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Total), MY 2029
Passenger Car Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	12	1	1	5	1
Mass Reduction Level 1 (%)	23	30	25	22	23
Mass Reduction Level 2 (%)	18	3	3	3	3
Mass Reduction Level 3 (%)	35	49	38	38	28
Mass Reduction Level 4 (%)	11	16	32	32	45
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	1	1
Avg Curb Weight - Fleet (pounds)	3,808	3,789	3,774	3,777	3,759
Diff. from Baseline - Fleet (pounds)	0	18	34	31	49
Avg Curb Weight - Passenger Car (pounds)	3,324	3,293	3,266	3,269	3,246
Diff. from Baseline - Passenger Car (pounds)	0	32	58	55	78
Avg Curb Weight - Light Truck (pounds)	4,296	4,278	4,257	4,258	4,234
Diff. from Baseline - Light Trucks (pounds)	0	18	39	38	62

**Table B-16-3 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Total), MY 2029
Light Truck Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	4	3	3	4	3
Mass Reduction Level 1 (%)	29	24	18	17	15
Mass Reduction Level 2 (%)	16	9	9	9	9
Mass Reduction Level 3 (%)	37	51	47	47	39
Mass Reduction Level 4 (%)	14	14	23	23	34
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,808	3,789	3,774	3,777	3,759
Diff. from Baseline - Fleet (pounds)	0	18	34	31	49
Avg Curb Weight - Passenger Car (pounds)	3,324	3,293	3,266	3,269	3,246
Diff. from Baseline - Passenger Car (pounds)	0	32	58	55	78
Avg Curb Weight - Light Truck (pounds)	4,296	4,278	4,257	4,258	4,234
Diff. from Baseline - Light Trucks (pounds)	0	18	39	38	62

**Table B-16-4 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Total), MY 2029
Domestic Car Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	1	0	0	8	0
Mass Reduction Level 1 (%)	24	23	15	6	15
Mass Reduction Level 2 (%)	22	2	1	1	1
Mass Reduction Level 3 (%)	39	60	40	41	28
Mass Reduction Level 4 (%)	14	15	44	44	56
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,808	3,789	3,774	3,777	3,759
Diff. from Baseline - Fleet (pounds)	0	18	34	31	49
Avg Curb Weight - Passenger Car (pounds)	3,324	3,293	3,266	3,269	3,246
Diff. from Baseline - Passenger Car (pounds)	0	32	58	55	78
Avg Curb Weight - Light Truck (pounds)	4,296	4,278	4,257	4,258	4,234
Diff. from Baseline - Light Trucks (pounds)	0	18	39	38	62

**Table B-16-5 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Total), MY 2029
Imported Car Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	22	2	2	2	2
Mass Reduction Level 1 (%)	23	37	36	36	31
Mass Reduction Level 2 (%)	14	5	5	5	5
Mass Reduction Level 3 (%)	32	40	36	35	27
Mass Reduction Level 4 (%)	9	16	21	22	35
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	1	1
Avg Curb Weight - Fleet (pounds)	3,808	3,789	3,774	3,777	3,759
Diff. from Baseline - Fleet (pounds)	0	18	34	31	49
Avg Curb Weight - Passenger Car (pounds)	3,324	3,293	3,266	3,269	3,246
Diff. from Baseline - Passenger Car (pounds)	0	32	58	55	78
Avg Curb Weight - Light Truck (pounds)	4,296	4,278	4,257	4,258	4,234
Diff. from Baseline - Light Trucks (pounds)	0	18	39	38	62

**Table B-16-6 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (BMW), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	43	42	29	29	28
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	43	45	58	59	59
Mass Reduction Level 4 (%)	13	12	12	12	12
Mass Reduction Level 5 (%)	1	1	1	1	1
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,999	4,003	3,987	3,988	3,992
Diff. from Baseline - Fleet (pounds)	0	-4	12	11	7
Avg Curb Weight - Passenger Car (pounds)	3,705	3,702	3,701	3,701	3,701
Diff. from Baseline - Passenger Car (pounds)	0	3	4	4	4
Avg Curb Weight - Light Truck (pounds)	4,682	4,682	4,605	4,605	4,604
Diff. from Baseline - Light Trucks (pounds)	0	0	77	77	77

Table B-16-7 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Daimler), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	2	2	2	2	2
Mass Reduction Level 1 (%)	18	18	19	19	0
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	56	64	64	60	83
Mass Reduction Level 4 (%)	22	14	13	17	13
Mass Reduction Level 5 (%)	2	2	2	2	2
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,987	4,003	4,011	4,007	3,984
Diff. from Baseline - Fleet (pounds)	0	-16	-24	-20	2
Avg Curb Weight - Passenger Car (pounds)	3,617	3,632	3,633	3,623	3,634
Diff. from Baseline - Passenger Car (pounds)	0	-15	-16	-5	-16
Avg Curb Weight - Light Truck (pounds)	4,432	4,437	4,437	4,437	4,368
Diff. from Baseline - Light Trucks (pounds)	0	-5	-5	-5	64

**Table B-16-8 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (FCA), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	4	4	4	4	4
Mass Reduction Level 1 (%)	51	24	17	17	17
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	24	51	51	57	58
Mass Reduction Level 4 (%)	21	21	27	21	20
Mass Reduction Level 5 (%)	1	1	1	1	1
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,336	4,295	4,282	4,290	4,291
Diff. from Baseline - Fleet (pounds)	0	41	54	46	44
Avg Curb Weight - Passenger Car (pounds)	3,607	3,583	3,551	3,563	3,558
Diff. from Baseline - Passenger Car (pounds)	0	24	56	44	49
Avg Curb Weight - Light Truck (pounds)	4,482	4,435	4,421	4,428	4,428
Diff. from Baseline - Light Trucks (pounds)	0	47	61	54	54

**Table B-16-9 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Ford), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	2	2	2	22	2
Mass Reduction Level 1 (%)	30	30	29	9	26
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	15	15	15	15	18
Mass Reduction Level 4 (%)	54	54	54	54	54
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,127	4,132	4,137	4,167	4,138
Diff. from Baseline - Fleet (pounds)	0	-5	-10	-40	-11
Avg Curb Weight - Passenger Car (pounds)	3,459	3,459	3,459	3,530	3,459
Diff. from Baseline - Passenger Car (pounds)	0	0	0	-71	0
Avg Curb Weight - Light Truck (pounds)	4,428	4,428	4,428	4,439	4,423
Diff. from Baseline - Light Trucks (pounds)	0	0	0	-11	5

**Table B-16-10 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (GM), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	30	30	10	10	10
Mass Reduction Level 2 (%)	5	2	0	0	0
Mass Reduction Level 3 (%)	61	63	49	49	49
Mass Reduction Level 4 (%)	3	5	42	42	42
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,058	4,058	3,983	3,984	3,988
Diff. from Baseline - Fleet (pounds)	0	0	75	74	69
Avg Curb Weight - Passenger Car (pounds)	3,231	3,225	3,133	3,133	3,133
Diff. from Baseline - Passenger Car (pounds)	0	6	97	97	97
Avg Curb Weight - Light Truck (pounds)	4,533	4,528	4,452	4,452	4,452
Diff. from Baseline - Light Trucks (pounds)	0	5	81	81	81

Table B-16-11 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Honda), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	7	7	7	7	7
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	93	93	71	71	51
Mass Reduction Level 4 (%)	0	0	22	21	42
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,387	3,394	3,374	3,375	3,348
Diff. from Baseline - Fleet (pounds)	0	-6	13	12	39
Avg Curb Weight - Passenger Car (pounds)	3,094	3,095	3,052	3,053	3,051
Diff. from Baseline - Passenger Car (pounds)	0	-2	42	41	43
Avg Curb Weight - Light Truck (pounds)	3,930	3,930	3,930	3,930	3,848
Diff. from Baseline - Light Trucks (pounds)	0	0	0	0	82

**Table B-16-12 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Hyundai Kia-H),
MY 2029 Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	2	0	0	0	0
Mass Reduction Level 2 (%)	23	6	6	6	6
Mass Reduction Level 3 (%)	62	50	51	51	43
Mass Reduction Level 4 (%)	14	44	43	43	51
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,284	3,240	3,248	3,249	3,244
Diff. from Baseline - Fleet (pounds)	0	44	36	35	40
Avg Curb Weight - Passenger Car (pounds)	3,196	3,145	3,152	3,153	3,145
Diff. from Baseline - Passenger Car (pounds)	0	50	44	43	50
Avg Curb Weight - Light Truck (pounds)	4,184	4,184	4,184	4,184	4,184
Diff. from Baseline - Light Trucks (pounds)	0	0	0	0	0

**Table B-16-13 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Hyundai Kia-K),
MY 2029 Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	23	0	0	0	0
Mass Reduction Level 1 (%)	32	38	39	39	39
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	44	56	40	40	28
Mass Reduction Level 4 (%)	1	6	21	21	33
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,588	3,533	3,519	3,520	3,506
Diff. from Baseline - Fleet (pounds)	0	55	69	68	82
Avg Curb Weight - Passenger Car (pounds)	3,408	3,347	3,318	3,318	3,318
Diff. from Baseline - Passenger Car (pounds)	0	61	90	90	89
Avg Curb Weight - Light Truck (pounds)	3,989	3,935	3,935	3,935	3,881
Diff. from Baseline - Light Trucks (pounds)	0	54	54	54	108

**Table B-16-14 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (JLR), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	12	12	12	12	12
Mass Reduction Level 1 (%)	13	0	0	0	0
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	46	58	59	59	59
Mass Reduction Level 4 (%)	30	30	30	30	30
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,353	4,335	4,338	4,338	4,340
Diff. from Baseline - Fleet (pounds)	0	17	15	14	13
Avg Curb Weight - Passenger Car (pounds)	3,483	3,483	3,483	3,483	3,483
Diff. from Baseline - Passenger Car (pounds)	0	0	0	0	0
Avg Curb Weight - Light Truck (pounds)	4,409	4,389	4,389	4,389	4,389
Diff. from Baseline - Light Trucks (pounds)	0	20	20	20	20

Table B-16-15 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Mazda), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	51	9	9	9	9
Mass Reduction Level 1 (%)	10	52	10	10	10
Mass Reduction Level 2 (%)	2	0	0	0	0
Mass Reduction Level 3 (%)	33	35	75	32	32
Mass Reduction Level 4 (%)	0	0	2	45	45
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	4	4	4	4	3
Avg Curb Weight - Fleet (pounds)	3,485	3,431	3,376	3,320	3,321
Diff. from Baseline - Fleet (pounds)	0	54	109	166	164
Avg Curb Weight - Passenger Car (pounds)	3,254	3,218	3,177	3,139	3,139
Diff. from Baseline - Passenger Car (pounds)	0	37	77	115	115
Avg Curb Weight - Light Truck (pounds)	3,749	3,671	3,594	3,516	3,516
Diff. from Baseline - Light Trucks (pounds)	0	78	156	234	234

Table B-16-16 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Mitsubishi), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	79	80	80	80	81
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	21	20	20	20	0
Mass Reduction Level 4 (%)	0	0	0	0	19
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	2,990	2,997	3,005	3,006	2,995
Diff. from Baseline - Fleet (pounds)	0	-6	-14	-16	-5
Avg Curb Weight - Passenger Car (pounds)	2,707	2,716	2,727	2,729	2,703
Diff. from Baseline - Passenger Car (pounds)	0	-9	-20	-22	5
Avg Curb Weight - Light Truck (pounds)	3,267	3,267	3,267	3,267	3,267
Diff. from Baseline - Light Trucks (pounds)	0	0	0	0	0

Table B-16-17 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Nissan), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	2	2	2	2	2
Mass Reduction Level 1 (%)	42	38	39	39	15
Mass Reduction Level 2 (%)	42	6	6	6	6
Mass Reduction Level 3 (%)	15	54	15	15	9
Mass Reduction Level 4 (%)	0	0	39	35	65
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	4	4
Avg Curb Weight - Fleet (pounds)	3,487	3,463	3,418	3,406	3,344
Diff. from Baseline - Fleet (pounds)	0	24	69	81	143
Avg Curb Weight - Passenger Car (pounds)	3,233	3,200	3,140	3,127	3,070
Diff. from Baseline - Passenger Car (pounds)	0	33	93	106	163
Avg Curb Weight - Light Truck (pounds)	4,208	4,192	4,166	4,154	4,065
Diff. from Baseline - Light Trucks (pounds)	0	16	42	53	143

Table B-16-18 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Subaru), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	0	0	0	0	0
Mass Reduction Level 2 (%)	93	93	94	94	94
Mass Reduction Level 3 (%)	6	6	6	6	6
Mass Reduction Level 4 (%)	1	1	1	1	1
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,547	3,550	3,554	3,555	3,558
Diff. from Baseline - Fleet (pounds)	0	-3	-7	-8	-11
Avg Curb Weight - Passenger Car (pounds)	3,218	3,218	3,218	3,218	3,218
Diff. from Baseline - Passenger Car (pounds)	0	0	0	0	0
Avg Curb Weight - Light Truck (pounds)	3,676	3,676	3,676	3,676	3,676
Diff. from Baseline - Light Trucks (pounds)	0	0	0	0	0

**Table B-16-19 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Tesla), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	0	0	0	0	0
Mass Reduction Level 1 (%)	0	0	0	0	0
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	15	15	15	15	15
Mass Reduction Level 4 (%)	85	85	85	85	85
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,304	4,307	4,311	4,312	4,315
Diff. from Baseline - Fleet (pounds)	0	-3	-8	-8	-11
Avg Curb Weight - Passenger Car (pounds)	4,276	4,278	4,282	4,282	4,284
Diff. from Baseline - Passenger Car (pounds)	0	-2	-6	-6	-8
Avg Curb Weight - Light Truck (pounds)	5,553	5,553	5,553	5,553	5,553
Diff. from Baseline - Light Trucks (pounds)	0	0	0	0	0

Table B-16-20 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Toyota), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	34	6	7	7	7
Mass Reduction Level 1 (%)	13	41	40	40	39
Mass Reduction Level 2 (%)	47	0	0	0	0
Mass Reduction Level 3 (%)	5	53	52	52	5
Mass Reduction Level 4 (%)	0	0	0	0	49
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,671	3,615	3,627	3,629	3,567
Diff. from Baseline - Fleet (pounds)	0	56	45	43	105
Avg Curb Weight - Passenger Car (pounds)	3,265	3,184	3,187	3,188	3,124
Diff. from Baseline - Passenger Car (pounds)	0	81	78	78	141
Avg Curb Weight - Light Truck (pounds)	4,295	4,258	4,258	4,258	4,184
Diff. from Baseline - Light Trucks (pounds)	0	37	37	37	111

Table B-16-21 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (Volvo), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	25	0	0	0	0
Mass Reduction Level 1 (%)	18	18	18	18	42
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	54	79	79	79	56
Mass Reduction Level 4 (%)	2	2	2	2	2
Mass Reduction Level 5 (%)	0	0	0	0	0
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	4,153	4,085	4,090	4,091	4,128
Diff. from Baseline - Fleet (pounds)	0	68	63	62	25
Avg Curb Weight - Passenger Car (pounds)	3,890	3,714	3,716	3,716	3,804
Diff. from Baseline - Passenger Car (pounds)	0	177	174	174	86
Avg Curb Weight - Light Truck (pounds)	4,266	4,240	4,242	4,243	4,256
Diff. from Baseline - Light Trucks (pounds)	0	25	23	23	9

**Table B-16-22 - Mass Reduction Penetration Rate and Curb Weights for Manufacturer (VWA), MY 2029
Total Fleet by Alternative**

Alternative	0 (Baseline)	1	2	2.5	3
Mass Reduction Level 0 (%)	1	1	1	1	1
Mass Reduction Level 1 (%)	88	55	55	55	56
Mass Reduction Level 2 (%)	0	0	0	0	0
Mass Reduction Level 3 (%)	10	41	37	37	37
Mass Reduction Level 4 (%)	0	2	5	5	5
Mass Reduction Level 5 (%)	1	1	1	1	1
Mass Reduction Level 6 (%)	0	0	0	0	0
Avg Curb Weight - Fleet (pounds)	3,722	3,684	3,689	3,691	3,696
Diff. from Baseline - Fleet (pounds)	0	39	33	32	26
Avg Curb Weight - Passenger Car (pounds)	3,380	3,310	3,303	3,304	3,304
Diff. from Baseline - Passenger Car (pounds)	0	71	77	77	76
Avg Curb Weight - Light Truck (pounds)	4,082	4,064	4,064	4,064	4,064
Diff. from Baseline - Light Trucks (pounds)	0	18	18	18	18

17. Electrification Rates

Table B-17-1 - Electrification Rates (%) for Manufacturer (Total), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	2.1	1.8	6.1	7.2	7.3
Strong Hybrid	5.9	9.0	12.1	13.3	16.6
Plug-In Hybrid	0.2	0.3	0.3	0.4	0.4
Battery Electric Vehicles (BEVs)	5.70	6.83	9.31	10.29	11.91
BEV 200 Mile Range	2.77	3.46	3.72	3.82	3.99
BEV 300 Mile Range	2.65	3.08	5.31	6.19	7.64
BEV 400 Mile Range	0.28	0.28	0.28	0.28	0.28
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.01	0.01	0.01	0.01	0.01

Table B-17-2 - Electrification Rates (%) for Manufacturer (Total), MY 2029 Passenger Car Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	1.1	0.7	0.8	0.8	1.0
Strong Hybrid	4.5	6.6	11.0	13.0	15.5
Plug-In Hybrid	0.1	0.5	0.4	0.5	0.5
Battery Electric Vehicles (BEVs)	8.70	10.68	14.39	14.83	16.31
BEV 200 Mile Range	4.09	5.17	6.04	6.27	6.71
BEV 300 Mile Range	4.16	5.06	7.90	8.11	9.14
BEV 400 Mile Range	0.45	0.45	0.45	0.45	0.45
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.01	0.01	0.01	0.01	0.01

Table B-17-3 - Electrification Rates (%) for Manufacturer (Total), MY 2029 Light Truck Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	3.1	2.9	11.1	13.2	13.2
Strong Hybrid	7.3	11.5	13.3	13.6	17.6
Plug-In Hybrid	0.2	0.1	0.1	0.1	0.1
Battery Electric Vehicles (BEVs)	2.67	3.04	4.47	6.00	7.83
BEV 200 Mile Range	1.43	1.78	1.51	1.51	1.47
BEV 300 Mile Range	1.12	1.14	2.84	4.37	6.25
BEV 400 Mile Range	0.12	0.12	0.12	0.12	0.12
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-4 - Electrification Rates (%) for Manufacturer (Total), MY 2029 Domestic Car Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.1	0.1	0.0	0.0	0.0
Strong Hybrid	2.8	5.2	7.1	10.4	12.9
Plug-In Hybrid	0.3	0.1	0.1	0.3	0.3
Battery Electric Vehicles (BEVs)	12.61	14.72	19.29	19.26	20.63
BEV 200 Mile Range	5.19	7.02	8.60	8.73	8.75
BEV 300 Mile Range	6.48	6.76	9.74	9.58	10.93
BEV 400 Mile Range	0.93	0.94	0.95	0.95	0.95
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-5 - Electrification Rates (%) for Manufacturer (Total), MY 2029 Imported Car Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	1.9	1.2	1.5	1.4	1.9
Strong Hybrid	6.1	7.8	14.4	15.4	18.0
Plug-In Hybrid	0.0	0.9	0.7	0.7	0.7
Battery Electric Vehicles (BEVs)	5.11	6.98	9.92	10.78	12.38
BEV 200 Mile Range	3.08	3.48	3.70	4.02	4.86
BEV 300 Mile Range	2.03	3.50	6.22	6.76	7.52
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.02	0.02	0.02	0.02	0.02

Table B-17-6 - Electrification Rates (%) for Manufacturer (BMW), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	9.7	4.8	5.8	6.2	10.0
Strong Hybrid	1.6	0.2	0.0	0.1	0.4
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	10.53	12.24	13.76	15.33	17.90
BEV 200 Mile Range	4.26	4.20	4.12	4.11	4.06
BEV 300 Mile Range	6.27	8.03	9.64	11.22	13.84
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-7 - Electrification Rates (%) for Manufacturer (Daimler), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	17.3	7.9	7.2	7.5	20.9
Strong Hybrid	1.8	6.3	17.3	17.3	7.3
Plug-In Hybrid	0.5	0.5	0.5	0.5	0.5
Battery Electric Vehicles (BEVs)	4.29	9.82	11.60	12.27	21.18
BEV 200 Mile Range	3.21	2.87	3.16	3.56	3.04
BEV 300 Mile Range	0.41	6.26	7.73	8.00	17.43
BEV 400 Mile Range	0.68	0.69	0.70	0.70	0.71
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-8 - Electrification Rates (%) for Manufacturer (FCA), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	10.2	10.3	10.3	10.3	10.3
Strong Hybrid	0.5	1.5	0.9	2.5	2.7
Plug-In Hybrid	0.4	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	3.12	5.34	6.29	6.23	6.49
BEV 200 Mile Range	2.04	3.73	4.23	4.23	4.23
BEV 300 Mile Range	1.09	1.61	2.06	2.00	2.26
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-9 - Electrification Rates (%) for Manufacturer (Ford), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	19.0	28.1	28.5
Strong Hybrid	11.6	14.7	14.1	14.9	17.9
Plug-In Hybrid	0.7	0.3	0.3	0.7	0.7
Battery Electric Vehicles (BEVs)	3.94	4.83	8.00	10.79	12.45
BEV 200 Mile Range	2.74	3.04	2.95	3.19	3.14
BEV 300 Mile Range	1.20	1.79	5.05	7.60	9.31
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-10 - Electrification Rates (%) for Manufacturer (GM), MY 2029 Total Fleet by Alternative

Electrification Rates (%) for Manufacturer (GM), MY 2029 Total Fleet by Alternative					
Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	11.2	11.2	10.5
Strong Hybrid	4.4	15.7	15.4	14.1	22.4
Plug-In Hybrid	0.0	0.2	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	5.14	6.30	11.02	12.96	14.50
BEV 200 Mile Range	2.49	2.90	2.89	3.24	3.26
BEV 300 Mile Range	2.64	3.40	8.14	9.72	11.24
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-11 - Electrification Rates (%) for Manufacturer (Honda), MY 2029 Total Fleet by Alternative

Electrification Rates (%) for Manufacturer (Honda), MY 2029 Total Fleet by Alternative					
Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.5	1.5	0.0
Strong Hybrid	4.3	5.3	8.0	10.6	15.1
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	5.23	4.87	7.21	8.64	10.60
BEV 200 Mile Range	3.04	3.02	3.03	3.03	3.60
BEV 300 Mile Range	2.19	1.85	4.18	5.62	6.99
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.02	0.02	0.02	0.02	0.02

Table B-17-12 - Electrification Rates (%) for Manufacturer (Hyundai Kia-H), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	2.2	0.0	0.0
Strong Hybrid	1.6	4.8	29.4	34.5	35.5
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	2.85	6.26	5.86	6.23	9.24
BEV 200 Mile Range	0.96	3.98	3.46	3.44	4.53
BEV 300 Mile Range	1.88	2.27	2.41	2.79	4.71
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.03	0.03	0.03	0.03	0.03

Table B-17-13 - Electrification Rates (%) for Manufacturer (Hyundai Kia-K), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.2	0.2	0.0
Strong Hybrid	0.8	1.2	6.9	12.9	25.1
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	2.73	3.22	8.45	9.05	8.97
BEV 200 Mile Range	2.30	2.77	2.86	2.87	2.84
BEV 300 Mile Range	0.43	0.44	5.59	6.18	6.14
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-14 - Electrification Rates (%) for Manufacturer (JLR), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	24.3	26.7	31.8	31.8	26.4
Strong Hybrid	0.0	0.0	0.0	0.0	0.3
Plug-In Hybrid	0.7	1.2	1.2	1.2	1.2
Battery Electric Vehicles (BEVs)	3.99	8.58	13.70	13.80	19.09
BEV 200 Mile Range	2.58	4.20	4.28	4.28	4.47
BEV 300 Mile Range	1.42	4.37	9.42	9.52	14.62
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-15 - Electrification Rates (%) for Manufacturer (Mazda), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	0.0	1.8	10.0	14.0	19.2
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	5.15	5.07	5.00	4.98	4.92
BEV 200 Mile Range	4.07	4.02	3.96	3.95	3.91
BEV 300 Mile Range	1.07	1.04	1.04	1.03	1.01
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-16 - Electrification Rates (%) for Manufacturer (Mitsubishi), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	0.0	0.0	4.9	11.3	19.0
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	1.61	1.63	3.87	4.63	4.65
BEV 200 Mile Range	0.54	0.54	2.78	3.53	3.55
BEV 300 Mile Range	1.08	1.09	1.09	1.10	1.10
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-17 - Electrification Rates (%) for Manufacturer (Nissan), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.1	0.0	0.0
Strong Hybrid	0.0	0.7	9.7	11.3	11.7
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	1.85	4.30	8.06	9.08	10.93
BEV 200 Mile Range	1.39	3.84	4.01	3.99	5.82
BEV 300 Mile Range	0.45	0.46	4.05	5.08	5.11
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-18 - Electrification Rates (%) for Manufacturer (Subaru), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.0	0.3	0.0
Strong Hybrid	2.8	3.1	2.6	2.6	2.5
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	2.29	2.29	3.84	3.95	4.62
BEV 200 Mile Range	0.05	0.05	1.61	1.72	2.38
BEV 300 Mile Range	2.23	2.23	2.23	2.23	2.23
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-19 - Electrification Rates (%) for Manufacturer (Tesla), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	0.0	0.0	0.0	0.0	0.0
Plug-In Hybrid	0.0	0.0	0.0	0.0	0.0
Battery Electric Vehicles (BEVs)	100.00	100.00	100.00	100.00	100.00
BEV 200 Mile Range	25.32	25.25	25.17	25.15	25.09
BEV 300 Mile Range	60.13	59.98	59.77	59.73	59.59
BEV 400 Mile Range	14.55	14.77	15.07	15.12	15.32
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-20 - Electrification Rates (%) for Manufacturer (Toyota), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.0	0.0	0.0
Strong Hybrid	13.2	14.5	17.3	17.3	19.4
Plug-In Hybrid	0.0	1.4	1.4	1.4	1.4
Battery Electric Vehicles (BEVs)	3.10	3.42	4.46	4.46	5.97
BEV 200 Mile Range	2.48	2.79	3.41	3.41	2.68
BEV 300 Mile Range	0.62	0.63	1.05	1.05	3.29
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.02	0.02	0.02	0.02	0.02

Table B-17-21 - Electrification Rates (%) for Manufacturer (Volvo), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	0.0	0.0	0.6	0.0	0.4
Strong Hybrid	33.0	34.4	32.3	36.1	37.4
Plug-In Hybrid	1.6	1.6	1.5	1.5	1.6
Battery Electric Vehicles (BEVs)	8.84	9.04	11.54	10.61	12.56
BEV 200 Mile Range	3.35	3.19	3.13	3.12	3.09
BEV 300 Mile Range	5.50	5.86	8.42	7.49	9.47
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

Table B-17-22 - Electrification Rates (%) for Manufacturer (VWA), MY 2029 Total Fleet by Alternative

Alternative	0 (Baseline)	1	2	2.5	3
Mild Hybrid	2.9	4.9	4.0	3.3	2.5
Strong Hybrid	28.0	33.1	27.5	27.6	37.2
Plug-In Hybrid	0.5	0.6	0.5	0.5	0.5
Battery Electric Vehicles (BEVs)	5.81	5.53	9.79	10.37	12.04
BEV 200 Mile Range	4.25	4.19	5.74	5.72	5.65
BEV 300 Mile Range	1.56	1.35	4.05	4.66	6.39
BEV 400 Mile Range	0.00	0.00	0.00	0.00	0.00
BEV 500 Mile Range	0.00	0.00	0.00	0.00	0.00
Fuel Cell Vehicles (FCVs)	0.00	0.00	0.00	0.00	0.00

18. Required and Achieved CAFE Levels, Comparison

Table B-18-1 - Required and Achieved CAFE Levels (mpg) for Total Fleet for Alternative 2.5

Model Year	Total		
	Required	Achieved	Difference
2020	35.4	34.4	-1.0
2021	36.0	36.0	-0.1
2022	36.8	38.1	1.4
2023	37.4	40.3	2.9
2024	40.7	42.8	2.1
2025	44.2	44.9	0.7
2026	49.2	47.9	-1.2
2027	49.1	48.8	-0.3
2028	49.2	49.5	0.3
2029	49.3	49.7	0.5

Table B-18-2 - Required and Achieved CAFE Levels (mpg) for Passenger Car Fleet for Alternative 2.5

Model Year	Total		
	Required	Achieved	Difference
2020	43.3	41.8	-1.4
2021	43.9	43.6	-0.3
2022	44.6	46.7	2.1
2023	45.2	49.2	4.0
2024	49.2	53.1	4.0
2025	53.4	56.4	3.0
2026	59.4	60.3	0.9
2027	59.4	61.4	2.0
2028	59.3	62.2	2.9
2029	59.3	62.4	3.0

Table B-18-3 - Required and Achieved CAFE Levels (mpg) for Light Truck Fleet for Alternative 2.5

Model Year	Total		
	Required	Achieved	Difference
2020	31.0	30.2	-0.8
2021	31.5	31.5	0.0
2022	31.9	32.9	1.0
2023	32.4	34.8	2.3
2024	35.1	36.4	1.2
2025	38.2	37.8	-0.4
2026	42.4	40.4	-2.1
2027	42.4	41.1	-1.3
2028	42.4	41.5	-0.9
2029	42.4	41.7	-0.7

Table B-18-4 - Required and Achieved CAFE Levels (mpg) for Total Fleet for Alternative 2.5, Part 1 of 5

Model Year	BMW			Daimler			FCA			Ford		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	37.7	34.5	-3.2	35.6	31.7	-4.0	31.3	28.3	-3.0	31.8	31.4	-0.4
2021	38.4	37.2	-1.3	36.3	33.8	-2.5	31.7	29.2	-2.6	32.4	33.1	0.7
2022	39.2	40.0	0.9	37.0	34.7	-2.3	32.3	31.2	-1.1	33.0	35.2	2.3
2023	39.9	42.2	2.3	37.6	36.5	-1.1	32.8	33.5	0.7	33.6	38.9	5.4
2024	43.4	43.5	0.1	41.0	37.7	-3.3	35.7	33.9	-1.8	36.4	39.8	3.4
2025	47.3	46.5	-0.7	44.6	39.6	-5.1	38.8	34.0	-4.8	39.6	40.2	0.6
2026	52.5	48.4	-4.1	49.5	40.5	-9.0	43.1	35.9	-7.2	44.0	43.3	-0.7
2027	52.5	52.0	-0.5	49.5	42.3	-7.3	43.1	36.8	-6.3	44.0	44.4	0.4
2028	52.6	52.8	0.3	49.6	45.3	-4.3	43.1	37.8	-5.3	44.0	44.5	0.4
2029	52.6	53.1	0.5	49.6	46.1	-3.6	43.1	38.2	-4.9	44.1	44.5	0.4

Table B-18-5 - Required and Achieved CAFE Levels (mpg) for Total Fleet for Alternative 2.5, Part 2 of 5

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	32.7	30.9	-1.8	38.6	40.2	1.7	41.6	38.0	-3.6	38.9	36.7	-2.2
2021	33.2	32.4	-0.8	39.3	41.2	1.8	42.3	39.3	-3.0	39.7	40.7	1.0
2022	33.9	34.0	0.1	40.1	44.2	4.1	43.1	42.3	-0.7	40.5	41.5	1.0
2023	34.4	34.7	0.3	40.7	45.9	5.2	43.8	43.9	0.1	41.3	41.9	0.6
2024	37.2	37.1	-0.1	44.4	48.3	3.9	47.6	47.6	0.0	44.9	48.7	3.8
2025	40.5	40.5	0.1	48.3	50.6	2.4	51.7	50.7	-1.0	48.9	50.9	2.0
2026	44.9	45.0	0.1	53.7	52.2	-1.4	57.5	57.5	0.0	54.3	53.5	-0.8
2027	44.9	45.6	0.7	53.6	53.3	-0.3	57.5	57.9	0.5	54.3	54.4	0.1
2028	44.9	45.9	0.9	53.7	53.8	0.1	57.5	58.2	0.7	54.4	54.8	0.5
2029	45.0	45.9	0.9	53.8	53.9	0.1	57.5	58.3	0.8	54.4	54.9	0.5

Table B-18-6 - Required and Achieved CAFE Levels (mpg) for Total Fleet for Alternative 2.5, Part 3 of 5

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	32.6	28.9	-3.7	38.7	36.6	-2.1	40.7	39.3	-1.4	39.2	37.8	-1.4
2021	33.1	30.1	-3.1	39.3	37.8	-1.5	41.3	39.9	-1.4	39.9	40.2	0.3
2022	33.7	31.5	-2.1	40.0	38.7	-1.3	42.1	40.1	-1.9	40.6	42.3	1.7
2023	34.2	33.9	-0.3	40.7	43.7	3.0	42.8	40.3	-2.5	41.3	45.1	3.8
2024	37.3	36.1	-1.2	44.3	45.1	0.8	46.5	40.4	-6.1	45.0	49.0	4.0
2025	40.5	37.0	-3.5	48.1	51.2	3.0	50.6	56.5	5.9	48.9	52.5	3.6
2026	45.0	38.5	-6.4	53.5	55.5	2.0	56.2	56.6	0.4	54.4	54.0	-0.4
2027	45.0	39.3	-5.7	53.5	55.5	2.0	56.2	56.6	0.3	54.4	54.5	0.1
2028	45.0	39.3	-5.6	53.6	55.6	2.0	56.3	56.6	0.4	54.4	55.8	1.4
2029	45.0	43.9	-1.1	53.6	55.6	2.0	56.3	56.7	0.4	54.5	56.1	1.6

Table B-18-7 - Required and Achieved CAFE Levels (mpg) for Total Fleet for Alternative 2.5, Part 4 of 5

Model Year	Subaru			Tesla			Toyota			Volvo		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	37.0	39.3	2.2	40.5	720.0	679.5	37.1	36.6	-0.5	34.3	33.1	-1.2
2021	37.7	40.1	2.4	40.4	740.6	700.2	37.9	38.1	0.2	34.9	33.4	-1.5
2022	38.3	42.9	4.6	41.1	745.2	704.1	38.6	40.3	1.7	35.5	33.6	-1.9
2023	39.0	46.8	7.7	41.8	751.9	710.2	39.3	42.6	3.3	36.0	40.8	4.8
2024	42.5	49.5	7.0	45.4	754.4	709.1	42.9	47.5	4.6	39.2	41.1	1.9
2025	46.2	51.1	4.9	49.3	756.2	706.9	46.6	48.2	1.6	42.7	42.5	-0.2
2026	51.4	53.4	2.0	54.8	756.4	701.6	51.8	51.5	-0.3	47.4	43.6	-3.7
2027	51.4	53.5	2.1	54.8	756.3	701.5	51.8	52.0	0.2	47.3	47.5	0.1
2028	51.4	53.6	2.1	54.8	756.8	702.0	51.9	52.6	0.7	47.4	47.6	0.2
2029	51.5	53.7	2.2	54.8	757.3	702.5	51.9	52.7	0.7	47.4	47.6	0.2

Table B-18-8 - Required and Achieved CAFE Levels (mpg) for Total Fleet for Alternative 2.5, Part 5 of 5

Model Year	VWA			Total		
	Required	Achieved	Difference	Required	Achieved	Difference
2020	37.1	33.4	-3.7	35.4	34.4	-1.0
2021	37.9	34.9	-3.0	36.0	36.0	-0.1
2022	38.7	36.8	-1.9	36.8	38.1	1.4
2023	39.4	38.7	-0.7	37.4	40.3	2.9
2024	42.9	41.1	-1.8	40.7	42.8	2.1
2025	46.7	46.0	-0.6	44.2	44.9	0.7
2026	51.9	49.0	-2.9	49.2	47.9	-1.2
2027	51.9	50.2	-1.7	49.1	48.8	-0.3
2028	52.0	51.3	-0.6	49.2	49.5	0.3
2029	52.0	51.4	-0.6	49.3	49.7	0.5

**Table B-18-9 - Required and Achieved CAFE Levels (mpg) for Passenger Car Fleet for Alternative 2.5,
Part 1 of 5**

Model Year	BMW			Daimler			FCA			Ford		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	42.5	36.7	-5.8	41.4	33.9	-7.5	41.6	30.7	-10.9	42.2	36.9	-5.3
2021	43.1	40.1	-3.0	42.0	37.3	-4.7	42.0	36.9	-5.1	42.8	37.4	-5.4
2022	43.8	43.8	0.0	42.7	38.9	-3.8	42.5	37.6	-4.9	43.5	43.9	0.3
2023	44.4	45.8	1.4	43.3	39.7	-3.6	43.0	39.5	-3.5	44.1	56.9	12.8
2024	48.3	47.9	-0.4	47.1	42.4	-4.7	46.8	40.4	-6.4	47.9	56.8	8.9
2025	52.5	52.5	0.0	51.2	43.7	-7.5	50.9	40.5	-10.4	52.2	58.7	6.5
2026	58.3	55.6	-2.7	56.8	44.0	-12.8	56.4	53.2	-3.2	57.9	60.0	2.1
2027	58.3	58.4	0.1	56.8	47.6	-9.2	56.4	56.0	-0.4	57.9	60.2	2.3
2028	58.3	58.8	0.5	56.8	55.1	-1.7	56.4	56.9	0.5	57.9	60.0	2.1
2029	58.3	59.2	0.9	56.8	56.8	0.0	56.4	56.9	0.5	57.9	59.9	2.0

**Table B-18-10 - Required and Achieved CAFE Levels (mpg) for Passenger Car Fleet for Alternative 2.5,
Part 2 of 5**

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	43.9	40.3	-3.6	43.6	45.0	1.4	43.3	39.4	-4.0	44.0	41.9	-2.1
2021	44.5	40.8	-3.7	44.3	46.0	1.7	44.0	40.9	-3.2	44.7	45.7	1.0
2022	45.2	44.0	-1.2	45.0	48.9	3.9	44.7	44.5	-0.3	45.4	46.8	1.4
2023	45.8	45.8	-0.1	45.6	51.2	5.6	45.5	45.7	0.2	46.1	47.0	0.9
2024	49.8	49.3	-0.5	49.6	52.9	3.3	49.4	50.1	0.7	50.1	51.6	1.5
2025	54.2	54.1	-0.1	53.9	55.4	1.5	53.7	53.9	0.2	54.5	55.4	0.9
2026	60.2	59.8	-0.4	59.9	58.5	-1.4	59.6	59.6	0.0	60.5	59.9	-0.6
2027	60.2	61.4	1.2	59.9	59.2	-0.7	59.6	60.1	0.5	60.5	60.5	0.0
2028	60.1	61.5	1.3	59.9	59.9	0.0	59.6	60.4	0.8	60.5	61.1	0.6
2029	60.1	61.5	1.3	59.9	59.9	0.0	59.6	60.5	0.9	60.5	61.1	0.6

**Table B-18-11 - Required and Achieved CAFE Levels (mpg) for Passenger Car Fleet for Alternative 2.5,
Part 3 of 5**

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	42.1	35.7	-6.4	43.9	38.8	-5.2	46.5	42.8	-3.7	43.2	42.0	-1.2
2021	42.7	36.9	-5.8	44.6	41.3	-3.3	47.2	44.3	-2.9	43.9	43.4	-0.5
2022	43.3	37.0	-6.3	45.2	43.1	-2.1	48.0	44.7	-3.3	44.5	45.5	1.1
2023	44.0	38.7	-5.3	45.9	48.3	2.3	48.8	45.0	-3.8	45.1	48.2	3.0
2024	47.8	51.2	3.4	50.0	50.9	1.0	53.1	45.2	-7.9	49.1	53.6	4.6
2025	52.0	51.2	-0.8	54.3	57.8	3.5	57.7	64.9	7.2	53.4	58.8	5.4
2026	57.8	51.2	-6.6	60.3	60.5	0.2	64.1	65.1	1.0	59.3	59.1	-0.2
2027	57.8	54.3	-3.5	60.3	60.5	0.2	64.1	65.0	0.9	59.3	59.4	0.2
2028	57.8	54.7	-3.1	60.3	60.5	0.2	64.1	65.1	1.0	59.3	61.1	1.8
2029	57.8	57.8	0.0	60.3	60.5	0.2	64.2	65.2	1.0	59.3	61.2	1.9

**Table B-18-12 - Required and Achieved CAFE Levels (mpg) for Passenger Car Fleet for Alternative 2.5,
Part 4 of 5**

Model Year	Subaru			Tesla			Toyota			Volvo		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	44.9	38.1	-6.8	40.9	731.7	690.8	43.6	45.9	2.3	40.9	35.7	-5.2
2021	45.5	40.1	-5.4	40.8	752.4	711.6	44.3	47.1	2.8	41.5	36.4	-5.1
2022	46.2	46.1	-0.1	41.4	754.6	713.2	45.0	49.1	4.2	42.2	36.5	-5.7
2023	46.9	47.9	1.0	42.1	755.9	713.8	45.6	49.8	4.2	42.8	40.7	-2.1
2024	51.0	52.0	1.0	45.7	756.7	711.0	49.7	56.4	6.8	46.5	41.0	-5.5
2025	55.5	52.3	-3.2	49.7	756.9	707.2	53.9	57.8	3.9	50.5	43.3	-7.2
2026	61.6	61.6	0.0	55.2	757.1	701.9	59.9	59.3	-0.6	56.1	47.1	-9.0
2027	61.6	61.6	0.0	55.2	757.0	701.8	59.9	60.4	0.5	56.1	56.3	0.1
2028	61.6	61.6	0.0	55.2	757.5	702.3	59.9	60.6	0.7	56.1	56.4	0.3
2029	61.6	61.6	0.0	55.2	758.0	702.8	59.9	60.7	0.8	56.1	56.5	0.4

**Table B-18-13 - Required and Achieved CAFE Levels (mpg) for Passenger Car Fleet for Alternative 2.5,
Part 5 of 5**

Model Year	VWA			Total		
	Required	Achieved	Difference	Required	Achieved	Difference
2020	43.6	38.0	-5.5	43.3	41.8	-1.4
2021	44.3	38.7	-5.6	43.9	43.6	-0.3
2022	45.0	40.7	-4.3	44.6	46.7	2.1
2023	45.7	43.6	-2.1	45.2	49.2	4.0
2024	49.7	48.7	-1.0	49.2	53.1	4.0
2025	54.0	52.1	-1.9	53.4	56.4	3.0
2026	60.0	57.2	-2.8	59.4	60.3	0.9
2027	60.0	57.3	-2.7	59.4	61.4	2.0
2028	60.0	60.2	0.2	59.3	62.2	2.9
2029	60.0	60.4	0.4	59.3	62.4	3.0

**Table B-18-14 - Required and Achieved CAFE Levels (mpg) for Light Truck Fleet for Alternative 2.5,
Part 1 of 5**

Model Year	BMW			Daimler			FCA			Ford		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	31.7	31.3	-0.4	31.7	29.9	-1.8	30.1	28.0	-2.1	29.2	29.8	0.6
2021	32.2	32.9	0.7	32.2	31.0	-1.2	30.5	28.2	-2.3	29.7	31.7	2.0
2022	32.6	34.4	1.8	32.6	31.3	-1.3	31.0	30.3	-0.7	30.1	32.7	2.6
2023	33.1	36.4	3.3	33.1	33.7	0.6	31.5	32.6	1.1	30.6	34.5	3.9
2024	36.0	36.6	0.6	36.0	33.7	-2.3	34.2	32.9	-1.3	33.1	35.4	2.3
2025	39.2	37.7	-1.5	39.2	35.9	-3.3	37.2	33.0	-4.2	36.0	35.6	-0.4
2026	43.5	38.1	-5.4	43.5	37.3	-6.2	41.3	33.9	-7.4	40.0	38.8	-1.2
2027	43.5	42.4	-1.1	43.5	37.7	-5.8	41.3	34.6	-6.7	40.0	40.0	0.0
2028	43.5	43.5	0.0	43.5	37.8	-5.7	41.3	35.6	-5.7	40.0	40.1	0.1
2029	43.5	43.5	0.0	43.5	38.0	-5.5	41.3	36.0	-5.3	40.0	40.1	0.1

**Table B-18-15 - Required and Achieved CAFE Levels (mpg) for Light Truck Fleet for Alternative 2.5,
Part 2 of 5**

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	29.1	27.8	-1.3	33.3	35.1	1.8	31.3	29.5	-1.8	32.8	30.6	-2.2
2021	29.5	29.4	-0.1	33.8	35.7	1.9	31.7	29.5	-2.2	33.3	34.3	1.0
2022	30.0	30.4	0.4	34.3	38.5	4.2	32.2	29.5	-2.7	33.9	34.4	0.5
2023	30.4	30.8	0.4	34.8	39.4	4.6	32.7	32.3	-0.4	34.4	34.7	0.3
2024	32.7	32.7	0.0	37.8	42.2	4.4	35.5	32.4	-3.1	37.4	43.9	6.5
2025	35.6	35.7	0.1	41.1	44.3	3.2	38.6	32.5	-6.1	40.6	43.9	3.3
2026	39.5	39.7	0.2	45.7	44.3	-1.4	42.9	42.9	0.0	45.1	44.1	-1.0
2027	39.5	40.1	0.6	45.7	45.7	0.0	42.9	43.0	0.1	45.1	45.4	0.3
2028	39.5	40.3	0.8	45.7	45.9	0.2	42.9	43.0	0.1	45.1	45.4	0.3
2029	39.5	40.3	0.8	45.7	45.9	0.2	42.9	43.0	0.1	45.1	45.4	0.3

**Table B-18-16 - Required and Achieved CAFE Levels (mpg) for Light Truck Fleet for Alternative 2.5,
Part 3 of 5**

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	32.3	28.7	-3.6	34.8	34.7	-0.1	36.8	36.8	0.0	32.5	31.0	-1.5
2021	32.8	29.8	-3.0	35.3	35.0	-0.3	37.3	36.8	-0.5	33.0	34.3	1.3
2022	33.3	31.3	-2.0	35.8	35.1	-0.7	37.9	36.8	-1.1	33.5	36.1	2.6
2023	33.8	33.7	-0.1	36.4	39.8	3.4	38.5	36.8	-1.7	34.0	38.8	4.8
2024	36.8	35.5	-1.3	39.6	40.2	0.6	41.8	36.8	-5.0	37.0	40.0	3.0
2025	40.0	36.4	-3.6	43.0	45.6	2.6	45.4	50.5	5.1	40.2	41.1	0.9
2026	44.4	38.0	-6.4	47.8	51.1	3.3	50.5	50.5	0.0	44.7	44.1	-0.6
2027	44.4	38.7	-5.7	47.8	51.1	3.3	50.5	50.5	0.0	44.7	44.7	0.0
2028	44.4	38.7	-5.7	47.8	51.1	3.3	50.5	50.5	0.0	44.7	45.4	0.7
2029	44.4	43.3	-1.1	47.8	51.1	3.3	50.5	50.5	0.0	44.7	45.9	1.2

**Table B-18-17 - Required and Achieved CAFE Levels (mpg) for Light Truck Fleet for Alternative 2.5,
Part 4 of 5**

Model Year	Subaru			Tesla			Toyota			Volvo		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	35.4	39.6	4.2	30.6	477.8	447.2	31.8	29.8	-2.0	32.5	32.3	-0.2
2021	35.9	40.1	4.2	31.1	483.0	451.9	32.3	31.0	-1.3	33.0	32.4	-0.6
2022	36.4	42.0	5.6	31.6	510.7	479.1	32.7	32.7	0.0	33.5	32.6	-0.9
2023	37.0	46.4	9.4	32.0	625.8	593.8	33.2	35.7	2.5	34.0	40.9	6.9
2024	40.2	48.7	8.5	34.8	673.3	638.5	36.1	39.0	2.9	36.9	41.1	4.2
2025	43.7	50.7	7.0	37.9	728.5	690.6	39.3	39.3	0.0	40.2	42.2	2.0
2026	48.6	51.0	2.4	42.1	728.5	686.4	43.6	43.6	0.0	44.6	42.4	-2.2
2027	48.6	51.2	2.6	42.1	728.5	686.4	43.6	43.6	0.0	44.6	44.7	0.1
2028	48.6	51.2	2.6	42.1	728.5	686.4	43.6	44.3	0.7	44.6	44.8	0.2
2029	48.6	51.3	2.7	42.1	728.4	686.3	43.6	44.3	0.7	44.6	44.8	0.2

**Table B-18-18 - Required and Achieved CAFE Levels (mpg) for Light Truck Fleet for Alternative 2.5,
Part 5 of 5**

Model Year	VWA			Total		
	Required	Achieved	Difference	Required	Achieved	Difference
2020	33.5	30.7	-2.8	31.0	30.2	-0.8
2021	34.1	32.5	-1.6	31.5	31.5	0.0
2022	34.6	34.1	-0.5	31.9	32.9	1.0
2023	35.1	35.2	0.1	32.4	34.8	2.3
2024	38.2	36.0	-2.2	35.1	36.4	1.2
2025	41.5	41.6	0.1	38.2	37.8	-0.4
2026	46.1	43.2	-2.9	42.4	40.4	-2.1
2027	46.1	45.0	-1.1	42.4	41.1	-1.3
2028	46.1	45.0	-1.1	42.4	41.5	-0.9
2029	46.1	45.0	-1.1	42.4	41.7	-0.7

**Table B-18-19 - Required and Achieved CAFE Levels (mpg) for Domestic Car Fleet for Alternative 2.5,
Part 1 of 5**

Model Year	BMW			Daimler			FCA			Ford		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	0.0	0.0	0.0	0.0	0.0	0.0	40.9	29.9	-11.0	41.9	36.8	-5.1
2021	0.0	0.0	0.0	0.0	0.0	0.0	41.3	36.9	-4.4	42.5	37.3	-5.2
2022	0.0	0.0	0.0	0.0	0.0	0.0	41.8	37.1	-4.7	43.2	44.2	1.0
2023	0.0	0.0	0.0	0.0	0.0	0.0	42.3	39.2	-3.1	43.8	56.0	12.2
2024	0.0	0.0	0.0	0.0	0.0	0.0	46.0	39.7	-6.3	47.6	55.9	8.3
2025	0.0	0.0	0.0	0.0	0.0	0.0	50.0	39.8	-10.2	51.8	57.8	6.0
2026	0.0	0.0	0.0	0.0	0.0	0.0	55.5	55.0	-0.5	57.5	59.2	1.7
2027	0.0	0.0	0.0	0.0	0.0	0.0	55.5	55.0	-0.5	57.5	59.4	1.9
2028	0.0	0.0	0.0	0.0	0.0	0.0	55.4	55.9	0.5	57.5	59.2	1.7
2029	0.0	0.0	0.0	0.0	0.0	0.0	55.4	55.8	0.4	57.5	59.1	1.6

**Table B-18-20 - Required and Achieved CAFE Levels (mpg) for Domestic Car Fleet for Alternative 2.5,
Part 2 of 5**

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	42.9	40.1	-2.8	43.2	44.7	1.5	47.3	52.9	5.6	0.0	0.0	0.0
2021	43.5	40.3	-3.2	43.9	45.8	1.9	48.0	52.9	4.9	0.0	0.0	0.0
2022	44.2	42.8	-1.4	44.6	48.2	3.6	48.7	53.2	4.5	0.0	0.0	0.0
2023	44.8	44.8	0.0	45.2	51.0	5.8	49.5	64.7	15.2	0.0	0.0	0.0
2024	48.7	48.7	0.0	49.2	53.0	3.8	53.8	64.9	11.1	0.0	0.0	0.0
2025	53.0	55.1	2.1	53.5	54.9	1.4	58.4	65.2	6.8	0.0	0.0	0.0
2026	58.9	60.3	1.4	59.4	58.7	-0.7	64.9	65.4	0.5	0.0	0.0	0.0
2027	58.9	60.4	1.5	59.4	59.4	0.0	64.9	65.9	1.0	0.0	0.0	0.0
2028	58.8	60.5	1.7	59.4	59.4	0.0	64.9	65.9	1.0	0.0	0.0	0.0
2029	58.8	60.5	1.7	59.4	59.4	0.0	64.9	65.9	1.0	0.0	0.0	0.0

**Table B-18-21 - Required and Achieved CAFE Levels (mpg) for Domestic Car Fleet for Alternative 2.5,
Part 3 of 5**

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	0.0	0.0	0.0	45.0	38.7	-6.3	0.0	0.0	0.0	43.0	43.5	0.5
2021	0.0	0.0	0.0	45.7	38.9	-6.8	0.0	0.0	0.0	43.7	43.8	0.1
2022	0.0	0.0	0.0	46.4	39.2	-7.2	0.0	0.0	0.0	44.3	45.7	1.4
2023	0.0	0.0	0.0	47.1	44.4	-2.7	0.0	0.0	0.0	45.0	46.7	1.7
2024	0.0	0.0	0.0	51.2	44.7	-6.5	0.0	0.0	0.0	48.9	52.3	3.4
2025	0.0	0.0	0.0	55.6	63.3	7.7	0.0	0.0	0.0	53.2	58.8	5.6
2026	0.0	0.0	0.0	61.8	63.6	1.8	0.0	0.0	0.0	59.1	59.1	0.0
2027	0.0	0.0	0.0	61.8	63.6	1.8	0.0	0.0	0.0	59.1	59.3	0.2
2028	0.0	0.0	0.0	61.8	63.6	1.8	0.0	0.0	0.0	59.1	61.4	2.3
2029	0.0	0.0	0.0	61.8	63.6	1.8	0.0	0.0	0.0	59.1	61.5	2.4

**Table B-18-22 - Required and Achieved CAFE Levels (mpg) for Domestic Car Fleet for Alternative 2.5,
Part 4 of 5**

Model Year	Subaru			Tesla			Toyota			Volvo		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	0.0	0.0	0.0	40.9	731.7	690.8	42.1	43.7	1.6	41.0	36.4	-4.6
2021	0.0	0.0	0.0	40.8	752.4	711.6	42.8	45.7	2.9	41.6	36.4	-5.2
2022	0.0	0.0	0.0	41.4	754.6	713.2	43.4	46.0	2.6	42.3	36.4	-5.9
2023	0.0	0.0	0.0	42.1	755.9	713.8	44.1	47.2	3.1	42.9	40.6	-2.3
2024	0.0	0.0	0.0	45.7	756.7	711.0	47.9	52.5	4.6	46.7	40.9	-5.8
2025	0.0	0.0	0.0	49.7	756.9	707.2	52.1	55.4	3.3	50.7	44.1	-6.6
2026	0.0	0.0	0.0	55.2	757.1	701.9	57.9	55.7	-2.2	56.3	44.2	-12.1
2027	0.0	0.0	0.0	55.2	757.0	701.8	57.9	57.9	0.0	56.3	56.3	0.0
2028	0.0	0.0	0.0	55.2	757.5	702.3	57.9	57.9	0.0	56.3	56.3	0.0
2029	0.0	0.0	0.0	55.2	758.0	702.8	57.9	57.9	0.0	56.3	56.3	0.0

**Table B-18-23 - Required and Achieved CAFE Levels (mpg) for Domestic Car Fleet for Alternative 2.5,
Part 5 of 5**

Model Year	VWA			Total		
	Required	Achieved	Difference	Required	Achieved	Difference
2020	41.2	34.3	-6.9	42.5	43.3	0.8
2021	41.9	34.5	-7.4	43.1	44.8	1.7
2022	42.7	34.8	-7.9	43.7	47.7	4.0
2023	43.4	36.1	-7.3	44.4	51.3	6.9
2024	47.2	41.9	-5.3	48.2	54.7	6.5
2025	51.3	42.0	-9.3	52.5	58.6	6.1
2026	57.0	44.3	-12.7	58.3	62.5	4.2
2027	57.0	44.3	-12.7	58.3	63.1	4.8
2028	57.0	57.0	0.0	58.3	63.9	5.6
2029	57.1	57.1	0.0	58.3	63.9	5.6

**Table B-18-24 - Required and Achieved CAFE Levels (mpg) for Imported Car Fleet for Alternative 2.5,
Part 1 of 5**

Model Year	BMW			Daimler			FCA			Ford		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	42.5	36.7	-5.8	41.4	33.9	-7.5	44.8	34.4	-10.4	48.0	38.8	-9.2
2021	43.1	40.1	-3.0	42.0	37.3	-4.7	45.5	36.9	-8.6	48.7	38.9	-9.8
2022	43.8	43.8	0.0	42.7	38.9	-3.8	46.1	40.1	-6.0	49.5	39.1	-10.4
2023	44.4	45.8	1.4	43.3	39.7	-3.6	46.7	41.0	-5.7	50.2	79.1	28.9
2024	48.3	47.9	-0.4	47.1	42.4	-4.7	50.8	43.7	-7.1	54.6	79.1	24.5
2025	52.5	52.5	0.0	51.2	43.7	-7.5	55.2	43.8	-11.4	59.3	79.1	19.8
2026	58.3	55.6	-2.7	56.8	44.0	-12.8	61.3	46.3	-15.0	65.9	79.1	13.2
2027	58.3	58.4	0.1	56.8	47.6	-9.2	61.3	61.3	0.0	65.9	79.1	13.2
2028	58.3	58.8	0.5	56.8	55.1	-1.7	61.3	62.1	0.8	65.9	79.1	13.2
2029	58.3	59.2	0.9	56.8	56.8	0.0	61.3	62.5	1.2	65.9	79.1	13.2

**Table B-18-25 - Required and Achieved CAFE Levels (mpg) for Imported Car Fleet for Alternative 2.5,
Part 2 of 5**

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	46.8	40.8	-6.0	45.4	46.5	1.1	43.2	39.0	-4.2	44.0	41.9	-2.1
2021	47.5	42.1	-5.4	46.1	47.0	0.9	43.9	40.5	-3.4	44.7	45.7	1.0
2022	48.3	47.9	-0.4	46.8	51.9	5.1	44.6	44.2	-0.4	45.4	46.8	1.4
2023	49.1	48.7	-0.4	47.4	52.2	4.8	45.3	45.1	-0.2	46.1	47.0	0.9
2024	53.3	51.2	-2.1	51.6	52.6	1.0	49.2	49.6	0.4	50.1	51.6	1.5
2025	58.0	51.5	-6.5	56.0	57.7	1.7	53.5	53.5	0.0	54.5	55.4	0.9
2026	64.4	58.3	-6.1	62.3	57.8	-4.5	59.4	59.4	0.0	60.5	59.9	-0.6
2027	64.4	64.4	0.0	62.3	58.6	-3.7	59.4	59.9	0.5	60.5	60.5	0.0
2028	64.4	64.4	0.0	62.3	62.3	0.0	59.4	60.2	0.8	60.5	61.1	0.6
2029	64.4	64.5	0.1	62.2	62.3	0.1	59.4	60.3	0.9	60.5	61.1	0.6

**Table B-18-26 - Required and Achieved CAFE Levels (mpg) for Imported Car Fleet for Alternative 2.5,
Part 3 of 5**

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	42.1	35.7	-6.4	43.8	38.8	-5.0	46.5	42.8	-3.7	43.6	38.4	-5.2
2021	42.7	36.9	-5.8	44.4	41.6	-2.8	47.2	44.3	-2.9	44.3	42.3	-2.0
2022	43.3	37.0	-6.3	45.1	43.7	-1.4	48.0	44.7	-3.3	45.0	45.1	0.1
2023	44.0	38.7	-5.3	45.8	48.8	3.0	48.8	45.0	-3.8	45.6	53.1	7.5
2024	47.8	51.2	3.4	49.8	51.8	2.0	53.1	45.2	-7.9	49.6	58.2	8.6
2025	52.0	51.2	-0.8	54.1	57.2	3.1	57.7	64.9	7.2	53.9	58.6	4.7
2026	57.8	51.2	-6.6	60.1	60.1	0.0	64.1	65.1	1.0	59.9	59.0	-0.9
2027	57.8	54.3	-3.5	60.1	60.1	0.0	64.1	65.0	0.9	59.9	59.9	0.0
2028	57.8	54.7	-3.1	60.1	60.1	0.0	64.1	65.1	1.0	59.9	60.1	0.2
2029	57.8	57.8	0.0	60.1	60.1	0.0	64.2	65.2	1.0	59.9	60.2	0.3

**Table B-18-27 - Required and Achieved CAFE Levels (mpg) for Imported Car Fleet for Alternative 2.5,
Part 4 of 5**

Model Year	Subaru			Tesla			Toyota			Volvo		
	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference	Required	Achieved	Difference
2020	44.9	38.1	-6.8	0.0	0.0	0.0	44.2	46.8	2.6	40.8	35.1	-5.7
2021	45.5	40.1	-5.4	0.0	0.0	0.0	44.9	47.6	2.7	41.4	36.4	-5.0
2022	46.2	46.1	-0.1	0.0	0.0	0.0	45.6	50.5	4.9	42.0	36.6	-5.4
2023	46.9	47.9	1.0	0.0	0.0	0.0	46.3	51.0	4.7	42.6	40.8	-1.8
2024	51.0	52.0	1.0	0.0	0.0	0.0	50.4	58.2	7.8	46.3	41.1	-5.2
2025	55.5	52.3	-3.2	0.0	0.0	0.0	54.7	58.8	4.1	50.3	42.4	-7.9
2026	61.6	61.6	0.0	0.0	0.0	0.0	60.8	60.9	0.1	55.9	50.9	-5.0
2027	61.6	61.6	0.0	0.0	0.0	0.0	60.8	61.5	0.7	55.9	56.2	0.3
2028	61.6	61.6	0.0	0.0	0.0	0.0	60.8	61.8	1.0	55.9	56.5	0.6
2029	61.6	61.6	0.0	0.0	0.0	0.0	60.8	61.9	1.1	55.9	56.7	0.8

**Table B-18-28 - Required and Achieved CAFE Levels (mpg) for Imported Car Fleet for Alternative 2.5,
Part 5 of 5**

Model Year	VWA			Total		
	Required	Achieved	Difference	Required	Achieved	Difference
2020	44.1	38.9	-5.2	44.0	40.6	-3.4
2021	44.8	39.6	-5.2	44.6	42.7	-2.0
2022	45.5	42.1	-3.4	45.3	45.8	0.5
2023	46.2	45.4	-0.8	46.0	47.5	1.5
2024	50.2	50.2	0.0	50.0	51.8	1.8
2025	54.5	54.6	0.1	54.4	54.6	0.2
2026	60.6	60.6	0.0	60.4	58.4	-2.0
2027	60.6	60.7	0.1	60.4	59.8	-0.5
2028	60.6	60.9	0.3	60.4	60.9	0.5
2029	60.6	61.1	0.5	60.4	61.1	0.7

19. Regulatory Costs, Comparison

Table B-19-1 - Regulatory Costs (\$b) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	2.6	2.6	0.0
2021	4.9	4.9	0.0
2022	9.0	9.0	0.0
2023	12.8	15.9	3.1
2024	14.4	22.4	8.0
2025	16.4	28.7	12.3
2026	17.6	35.5	17.9
2027	17.4	35.1	17.7
2028	16.9	34.0	17.1
2029	16.5	32.4	15.9

Table B-19-2 - Regulatory Costs (\$b) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	1.5	1.5	0.0
2021	2.2	2.2	0.0
2022	4.3	4.3	0.0
2023	5.1	7.5	2.4
2024	5.8	10.5	4.6
2025	6.9	13.5	6.6
2026	7.5	16.4	8.8
2027	7.4	16.0	8.6
2028	7.2	15.6	8.3
2029	7.1	14.8	7.7

Table B-19-3 - Regulatory Costs (\$b) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	1.2	1.2	0.0
2021	2.7	2.7	0.0
2022	4.7	4.7	0.0
2023	7.6	8.4	0.8
2024	8.5	12.0	3.4
2025	9.4	15.2	5.7
2026	10.1	19.1	9.1
2027	10.0	19.1	9.1
2028	9.7	18.4	8.7
2029	9.5	17.6	8.1

**Table B-19-4 - Regulatory Costs (\$b) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5,
Part 1 of 5**

Model Year	BMW			Daimler			FCA			Ford		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.2	0.2	0.0	0.6	0.6	0.0	0.2	0.2	0.0
2021	0.3	0.3	0.0	0.2	0.2	0.0	0.5	0.5	0.0	1.1	1.1	0.0
2022	0.3	0.3	0.0	0.4	0.4	0.0	1.3	1.3	0.0	1.9	1.9	0.0
2023	0.4	0.4	0.0	0.4	0.4	0.0	2.3	2.3	0.0	2.7	3.8	1.0
2024	0.4	0.5	0.0	0.4	0.6	0.2	2.4	2.6	0.2	2.8	3.8	1.0
2025	0.6	0.6	0.0	0.5	0.9	0.3	2.3	3.3	1.0	2.6	3.7	1.0
2026	0.7	0.8	0.1	0.6	1.2	0.6	2.4	4.5	2.1	2.8	4.5	1.7
2027	0.7	0.8	0.2	0.6	1.2	0.6	2.4	4.4	2.0	2.7	4.6	1.9
2028	0.7	0.8	0.2	0.6	1.2	0.6	2.4	4.3	1.9	2.6	4.4	1.8
2029	0.6	0.8	0.1	0.6	1.1	0.5	2.3	4.1	1.8	2.5	4.1	1.6

**Table B-19-5 - Regulatory Costs (\$b) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5,
Part 2 of 5**

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.6	0.6	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.1	0.1	0.0
2021	1.1	1.1	0.0	0.1	0.1	0.0	0.3	0.3	0.0	0.2	0.2	0.0
2022	1.4	1.4	0.0	0.4	0.4	0.0	0.4	0.4	0.0	0.3	0.3	0.0
2023	2.0	2.0	0.0	0.7	1.0	0.3	0.5	0.5	0.0	0.3	0.3	0.0
2024	2.2	3.0	0.9	0.8	1.6	0.8	0.6	0.7	0.2	0.5	0.9	0.4
2025	2.6	5.5	2.9	1.5	2.4	0.9	0.6	1.2	0.6	0.4	1.0	0.6
2026	2.5	7.3	4.8	1.7	2.6	0.9	0.7	2.0	1.4	0.5	1.4	0.9
2027	2.5	7.0	4.5	1.6	2.6	1.0	0.7	2.0	1.3	0.5	1.4	0.9
2028	2.4	6.7	4.3	1.5	2.6	1.0	0.7	2.0	1.3	0.5	1.4	0.9
2029	2.4	6.3	3.9	1.5	2.4	1.0	0.7	1.9	1.2	0.5	1.3	0.9

**Table B-19-6 - Regulatory Costs (\$b) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5,
Part 3 of 5**

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
2021	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.3	0.3	0.0
2022	0.1	0.1	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.5	0.5	0.0
2023	0.1	0.1	0.0	0.4	0.4	0.0	0.1	0.1	0.0	0.5	1.8	1.2
2024	0.2	0.2	0.1	0.4	0.5	0.0	0.1	0.1	0.1	0.8	2.9	2.1
2025	0.2	0.3	0.1	0.5	0.7	0.2	0.1	0.2	0.2	0.9	3.3	2.5
2026	0.2	0.4	0.2	0.5	0.8	0.3	0.1	0.2	0.1	0.9	3.5	2.5
2027	0.2	0.4	0.2	0.5	0.8	0.3	0.1	0.2	0.1	0.9	3.4	2.5
2028	0.2	0.4	0.2	0.5	0.8	0.3	0.0	0.2	0.1	0.9	3.4	2.4
2029	0.2	0.4	0.2	0.4	0.7	0.3	0.0	0.2	0.1	0.9	3.2	2.3

**Table B-19-7 - Regulatory Costs (\$b) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5,
Part 4 of 5**

Model Year	Subaru			Tesla			Toyota			Volvo		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2021	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0
2022	0.3	0.3	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.1	0.1	0.0
2023	0.6	0.8	0.2	0.0	0.0	0.0	1.0	1.3	0.4	0.2	0.2	0.0
2024	0.7	1.0	0.3	0.0	0.0	0.0	1.5	3.0	1.5	0.2	0.2	0.0
2025	0.8	1.1	0.3	0.0	0.0	0.0	1.6	3.1	1.6	0.2	0.2	0.0
2026	0.9	1.2	0.4	0.0	0.0	0.0	2.0	3.6	1.6	0.2	0.3	0.0
2027	0.9	1.2	0.3	0.0	0.0	0.0	1.9	3.5	1.6	0.2	0.3	0.0
2028	0.8	1.2	0.3	0.0	0.0	0.0	1.9	3.5	1.6	0.2	0.3	0.0
2029	0.8	1.1	0.3	0.0	0.0	0.0	1.9	3.4	1.4	0.2	0.3	0.0

**Table B-19-8 - Regulatory Costs (\$b) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5,
Part 5 of 5**

Model Year	VWA			Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.2	0.2	0.0	2.6	2.6	0.0
2021	0.1	0.1	0.0	4.9	4.9	0.0
2022	0.4	0.4	0.0	9.0	9.0	0.0
2023	0.5	0.5	0.0	12.8	15.9	3.1
2024	0.6	0.8	0.2	14.4	22.4	8.0
2025	1.0	1.0	0.0	16.4	28.7	12.3
2026	1.0	1.3	0.3	17.6	35.5	17.9
2027	1.0	1.2	0.2	17.4	35.1	17.7
2028	1.0	1.2	0.2	16.9	34.0	17.1
2029	0.9	1.1	0.2	16.5	32.4	15.9

Table B-19-9 - Regulatory Costs (\$b) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 1 of 5

Model Year	BMW			Daimler			FCA			Ford		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.2	0.0	0.1	0.1	0.0
2021	0.2	0.2	0.0	0.2	0.2	0.0	0.3	0.3	0.0	0.3	0.3	0.0
2022	0.3	0.3	0.0	0.3	0.3	0.0	0.4	0.4	0.0	0.7	0.7	0.0
2023	0.3	0.3	0.0	0.3	0.3	0.0	0.4	0.4	0.0	1.0	2.0	1.0
2024	0.3	0.4	0.0	0.3	0.4	0.1	0.5	0.5	0.1	0.9	1.8	0.9
2025	0.5	0.5	0.0	0.3	0.5	0.2	0.5	0.7	0.2	0.9	1.8	0.9
2026	0.6	0.6	0.0	0.4	0.7	0.4	0.5	1.2	0.7	0.9	1.7	0.8
2027	0.5	0.6	0.1	0.4	0.7	0.4	0.5	1.2	0.7	0.9	1.6	0.7
2028	0.5	0.6	0.1	0.4	0.8	0.4	0.5	1.1	0.6	0.8	1.5	0.6
2029	0.5	0.5	0.1	0.4	0.7	0.4	0.5	1.1	0.6	0.8	1.4	0.6

Table B-19-10 - Regulatory Costs (\$b) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 2 of 5

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.3	0.3	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.1	0.1	0.0
2021	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.3	0.0	0.1	0.1	0.0
2022	0.4	0.4	0.0	0.3	0.3	0.0	0.4	0.4	0.0	0.1	0.1	0.0
2023	0.6	0.6	0.0	0.4	0.6	0.3	0.4	0.4	0.0	0.1	0.1	0.0
2024	0.6	0.9	0.3	0.4	0.8	0.4	0.5	0.7	0.2	0.2	0.3	0.1
2025	1.0	1.7	0.7	0.8	1.3	0.6	0.5	1.2	0.6	0.2	0.5	0.3
2026	0.9	2.2	1.3	1.0	1.6	0.6	0.5	1.8	1.2	0.2	0.9	0.6
2027	0.9	2.1	1.2	0.9	1.6	0.6	0.6	1.8	1.2	0.3	0.9	0.6
2028	0.9	2.0	1.1	0.9	1.5	0.6	0.6	1.7	1.1	0.3	0.9	0.6
2029	0.8	1.9	1.0	0.9	1.5	0.6	0.6	1.7	1.1	0.2	0.8	0.6

Table B-19-11 - Regulatory Costs (\$b) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 3 of 5

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
2021	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.2	0.2	0.0
2022	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.2	0.2	0.0
2023	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.3	1.3	1.0
2024	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.1	0.0	0.4	2.0	1.6
2025	0.0	0.0	0.0	0.4	0.5	0.1	0.0	0.1	0.1	0.5	2.5	1.9
2026	0.0	0.0	0.0	0.4	0.5	0.1	0.0	0.1	0.1	0.6	2.4	1.8
2027	0.0	0.0	0.0	0.4	0.5	0.1	0.0	0.1	0.1	0.5	2.3	1.8
2028	0.0	0.0	0.0	0.4	0.5	0.1	0.0	0.1	0.1	0.5	2.3	1.8
2029	0.0	0.0	0.0	0.3	0.5	0.1	0.0	0.1	0.1	0.5	2.3	1.7

Table B-19-12 - Regulatory Costs (\$b) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 4 of 5

Model Year	Subaru			Tesla			Toyota			Volvo		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2022	0.3	0.3	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0
2023	0.3	0.3	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0
2024	0.3	0.4	0.1	0.0	0.0	0.0	0.6	1.2	0.5	0.0	0.0	0.0
2025	0.3	0.4	0.1	0.0	0.0	0.0	0.7	1.3	0.6	0.0	0.1	0.0
2026	0.3	0.5	0.2	0.0	0.0	0.0	0.8	1.5	0.7	0.1	0.1	0.0
2027	0.3	0.5	0.2	0.0	0.0	0.0	0.8	1.5	0.7	0.1	0.1	0.0
2028	0.3	0.5	0.2	0.0	0.0	0.0	0.8	1.5	0.7	0.1	0.1	0.0
2029	0.3	0.5	0.2	0.0	0.0	0.0	0.8	1.4	0.6	0.1	0.1	0.0

Table B-19-13 - Regulatory Costs (\$b) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 5 of 5

Model Year	VWA			Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.1	0.1	0.0	1.5	1.5	0.0
2021	0.0	0.0	0.0	2.2	2.2	0.0
2022	0.2	0.2	0.0	4.3	4.3	0.0
2023	0.2	0.2	0.0	5.1	7.5	2.4
2024	0.2	0.4	0.1	5.8	10.5	4.6
2025	0.3	0.5	0.2	6.9	13.5	6.6
2026	0.3	0.6	0.3	7.5	16.4	8.8
2027	0.3	0.6	0.2	7.4	16.0	8.6
2028	0.3	0.5	0.2	7.2	15.6	8.3
2029	0.3	0.5	0.2	7.1	14.8	7.7

Table B-19-14 - Regulatory Costs (\$b) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 1 of 5

Model Year	BMW			Daimler			FCA			Ford		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.1	0.1	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.9	0.9	0.0
2022	0.1	0.1	0.0	0.1	0.1	0.0	0.9	0.9	0.0	1.2	1.2	0.0
2023	0.1	0.1	0.0	0.1	0.1	0.0	1.9	1.9	0.0	1.7	1.8	0.0
2024	0.1	0.1	0.0	0.1	0.1	0.1	1.9	2.1	0.2	1.8	1.9	0.1
2025	0.1	0.1	0.0	0.2	0.3	0.2	1.9	2.6	0.7	1.8	1.9	0.1
2026	0.1	0.2	0.0	0.2	0.5	0.2	1.9	3.3	1.4	1.9	2.8	0.9
2027	0.1	0.2	0.1	0.3	0.5	0.2	1.9	3.2	1.3	1.8	3.0	1.2
2028	0.1	0.2	0.1	0.3	0.4	0.1	1.9	3.2	1.3	1.8	2.9	1.1
2029	0.1	0.2	0.1	0.3	0.4	0.1	1.8	3.1	1.3	1.7	2.7	1.0

Table B-19-15 - Regulatory Costs (\$b) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 2 of 5

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
2022	1.0	1.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0
2023	1.4	1.4	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0
2024	1.5	2.1	0.6	0.4	0.8	0.4	0.0	0.0	0.0	0.2	0.6	0.3
2025	1.6	3.8	2.2	0.7	1.1	0.4	0.0	0.1	0.0	0.2	0.5	0.3
2026	1.6	5.1	3.5	0.7	1.0	0.3	0.1	0.3	0.1	0.2	0.5	0.3
2027	1.6	4.9	3.3	0.6	1.1	0.4	0.1	0.3	0.1	0.2	0.5	0.3
2028	1.5	4.7	3.1	0.6	1.0	0.4	0.1	0.2	0.1	0.2	0.5	0.3
2029	1.6	4.4	2.8	0.6	1.0	0.4	0.1	0.2	0.1	0.2	0.5	0.3

Table B-19-16 - Regulatory Costs (\$b) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 3 of 5

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0
2022	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0
2023	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.5	0.2
2024	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.9	0.6
2025	0.2	0.3	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.4	0.9	0.5
2026	0.2	0.4	0.2	0.1	0.3	0.2	0.0	0.1	0.1	0.4	1.1	0.7
2027	0.2	0.3	0.2	0.1	0.3	0.2	0.0	0.1	0.1	0.4	1.1	0.7
2028	0.2	0.3	0.2	0.1	0.3	0.2	0.0	0.1	0.1	0.4	1.0	0.6
2029	0.2	0.3	0.2	0.1	0.3	0.2	0.0	0.1	0.1	0.4	1.0	0.6

Table B-19-17 - Regulatory Costs (\$b) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 4 of 5

Model Year	Subaru			Tesla			Toyota			Volvo		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0
2022	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0
2023	0.3	0.5	0.2	0.0	0.0	0.0	0.6	0.9	0.3	0.2	0.2	0.0
2024	0.4	0.6	0.2	0.0	0.0	0.0	0.8	1.8	1.0	0.2	0.2	0.0
2025	0.5	0.7	0.2	0.0	0.0	0.0	0.9	1.8	0.9	0.2	0.2	0.0
2026	0.6	0.7	0.2	0.0	0.0	0.0	1.2	2.1	0.9	0.2	0.2	0.0
2027	0.6	0.7	0.2	0.0	0.0	0.0	1.1	2.0	0.9	0.2	0.2	0.0
2028	0.6	0.7	0.2	0.0	0.0	0.0	1.1	2.0	0.9	0.2	0.2	0.0
2029	0.5	0.7	0.1	0.0	0.0	0.0	1.1	1.9	0.8	0.2	0.2	0.0

Table B-19-18 - Regulatory Costs (\$b) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 5 of 5

Model Year	VWA			Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	0.1	0.1	0.0	1.2	1.2	0.0
2021	0.1	0.1	0.0	2.7	2.7	0.0
2022	0.2	0.2	0.0	4.7	4.7	0.0
2023	0.3	0.3	0.0	7.6	8.4	0.8
2024	0.3	0.4	0.1	8.5	12.0	3.4
2025	0.7	0.6	-0.1	9.4	15.2	5.7
2026	0.7	0.7	0.0	10.1	19.1	9.1
2027	0.7	0.7	0.0	10.0	19.1	9.1
2028	0.7	0.6	0.0	9.7	18.4	8.7
2029	0.6	0.6	0.0	9.5	17.6	8.1

20. Vehicle Price Increase

Table B-20-1 - Comparison of Average Vehicle Price Increase (dollars) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	194	194	0
2021	303	303	0
2022	516	516	0
2023	747	931	184
2024	859	1,344	485
2025	996	1,753	757
2026	1,073	2,187	1,113
2027	1,065	2,167	1,102
2028	1,042	2,109	1,067
2029	1,024	2,024	999

Table B-20-2 - Comparison of Average Vehicle Price Increase (dollars) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	250	250	0
2021	309	309	0
2022	533	533	0
2023	638	932	295
2024	731	1,316	585
2025	872	1,729	857
2026	939	2,103	1,165
2027	922	2,061	1,139
2028	894	2,000	1,106
2029	870	1,900	1,030

Table B-20-3 - Comparison of Average Vehicle Price Increase (dollars) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	150	150	0
2021	297	297	0
2022	501	501	0
2023	845	930	85
2024	975	1,369	394
2025	1,112	1,775	662
2026	1,202	2,263	1,061
2027	1,203	2,264	1,061
2028	1,189	2,211	1,022
2029	1,180	2,141	961

Table B-20-4 - Comparison of Average Vehicle Price Increase (dollars) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 1 of 5

Model Year	BMW			Daimler			FCA			Ford		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	75	75	0	422	422	0	392	392	0	137	137	0
2021	742	742	0	494	494	0	265	265	0	574	574	0
2022	808	808	0	804	804	0	687	687	0	925	925	0
2023	1,042	1,043	1	848	848	0	1,288	1,293	4	1,327	1,840	512
2024	1,102	1,231	129	886	1,230	345	1,344	1,487	142	1,376	1,881	505
2025	1,670	1,579	-92	1,177	1,952	775	1,370	1,944	574	1,343	1,875	532
2026	1,834	2,023	188	1,340	2,723	1,383	1,419	2,630	1,211	1,445	2,337	892
2027	1,767	2,257	490	1,426	2,753	1,327	1,433	2,583	1,150	1,403	2,383	980
2028	1,695	2,171	476	1,398	2,693	1,295	1,444	2,571	1,127	1,372	2,280	908
2029	1,623	2,064	441	1,389	2,524	1,136	1,420	2,495	1,074	1,330	2,162	832

Table B-20-5 - Comparison of Average Vehicle Price Increase (dollars) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 2 of 5

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	276	276	0	0	0	0	521	521	0	211	211	0
2021	397	397	0	66	66	0	317	317	0	305	305	0
2022	502	502	0	252	252	0	403	403	0	331	331	0
2023	695	695	0	424	602	177	492	492	0	361	359	-2
2024	787	1,104	317	509	996	487	600	787	187	588	1,168	580
2025	963	2,048	1,086	896	1,484	587	634	1,323	689	571	1,360	789
2026	962	2,757	1,795	1,016	1,601	585	710	2,204	1,494	596	1,860	1,264
2027	943	2,637	1,695	970	1,640	669	758	2,207	1,449	648	1,873	1,224
2028	919	2,535	1,616	934	1,606	673	737	2,147	1,410	626	1,835	1,209
2029	937	2,412	1,475	891	1,527	635	728	2,079	1,351	603	1,756	1,152

Table B-20-6 - Comparison of Average Vehicle Price Increase (dollars) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 3 of 5

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	96	96	0	329	329	0	141	141	0	87	87	0
2021	78	78	0	981	981	0	43	43	0	265	265	0
2022	401	401	0	1,114	1,114	0	104	104	0	349	349	0
2023	811	811	0	1,344	1,356	12	417	417	0	409	1,345	936
2024	1,001	1,330	329	1,402	1,555	153	520	972	453	586	2,231	1,645
2025	1,076	1,768	693	1,537	2,286	750	421	1,577	1,156	682	2,626	1,944
2026	1,158	2,427	1,269	1,577	2,659	1,082	414	1,539	1,124	724	2,736	2,012
2027	1,210	2,361	1,151	1,548	2,595	1,047	400	1,496	1,096	717	2,674	1,957
2028	1,186	2,341	1,155	1,514	2,536	1,021	389	1,456	1,067	716	2,658	1,942
2029	1,193	2,440	1,247	1,474	2,471	997	376	1,415	1,039	704	2,575	1,872

Table B-20-7 - Comparison of Average Vehicle Price Increase (dollars) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 4 of 5

Model Year	Subaru			Tesla			Toyota			Volvo		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	28	28	0	0	0	0	49	49	0	171	171	0
2021	61	61	0	8	8	0	116	116	0	336	336	0
2022	360	360	0	26	26	0	356	356	0	397	397	0
2023	674	857	184	28	28	0	433	588	155	1,549	1,604	55
2024	785	1,094	309	29	29	0	656	1,339	682	1,546	1,723	176
2025	903	1,237	334	33	34	0	714	1,427	713	1,676	1,981	305
2026	969	1,374	406	33	33	0	895	1,641	746	1,833	2,212	379
2027	997	1,385	389	32	32	1	871	1,620	749	1,987	2,300	313
2028	973	1,350	377	31	32	1	858	1,595	738	1,898	2,198	300
2029	950	1,315	364	31	31	1	867	1,544	676	1,802	2,088	286

Table B-20-8 - Comparison of Average Vehicle Price Increase (dollars) for Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 5 of 5

Model Year	VWA			Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	363	363	0	194	194	0
2021	253	253	0	303	303	0
2022	673	673	0	516	516	0
2023	906	906	0	747	931	184
2024	1,072	1,445	373	859	1,344	485
2025	1,857	1,965	108	996	1,753	757
2026	1,905	2,460	555	1,073	2,187	1,113
2027	1,854	2,361	508	1,065	2,167	1,102
2028	1,792	2,201	409	1,042	2,109	1,067
2029	1,720	2,100	380	1,024	2,024	999

Table B-20-9 - Comparison of Average Vehicle Price Increase (dollars) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 1 of 5

Model Year	BMW			Daimler			FCA			Ford		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	99	99	0	644	644	0	970	970	0	284	284	0
2021	945	945	0	868	868	0	1,352	1,352	0	503	503	0
2022	1,008	1,008	0	1,280	1,280	0	1,486	1,486	0	1,246	1,246	0
2023	1,097	1,107	10	1,250	1,250	0	1,516	1,516	0	1,649	3,409	1,760
2024	1,174	1,374	200	1,341	1,754	413	1,711	1,964	253	1,552	3,148	1,596
2025	1,902	1,785	-117	1,429	2,272	842	1,745	2,686	942	1,473	3,115	1,642
2026	2,127	2,360	233	1,510	3,102	1,592	1,867	4,508	2,641	1,545	2,957	1,412
2027	2,031	2,409	378	1,553	3,209	1,656	1,832	4,464	2,633	1,481	2,774	1,293
2028	1,932	2,255	323	1,498	3,374	1,876	1,882	4,243	2,360	1,420	2,591	1,171
2029	1,837	2,135	297	1,450	3,116	1,666	1,819	3,993	2,174	1,353	2,400	1,046

Table B-20-10 - Comparison of Average Vehicle Price Increase (dollars) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 2 of 5

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	392	392	0	0	0	0	549	549	0	228	228	0
2021	152	152	0	97	97	0	335	335	0	219	219	0
2022	437	437	0	276	276	0	437	437	0	254	254	0
2023	583	583	0	339	628	288	497	497	0	266	263	-3
2024	658	974	316	391	809	418	616	818	202	432	658	227
2025	1,026	1,788	763	728	1,314	586	644	1,397	753	426	986	559
2026	987	2,386	1,399	946	1,554	607	648	2,123	1,475	444	1,733	1,288
2027	951	2,268	1,317	902	1,554	652	704	2,134	1,429	500	1,726	1,225
2028	914	2,145	1,231	869	1,535	666	685	2,076	1,391	482	1,698	1,215
2029	877	2,011	1,135	827	1,456	629	678	2,009	1,331	463	1,606	1,143

Table B-20-11 - Comparison of Average Vehicle Price Increase (dollars) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 3 of 5

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	141	141	0	551	551	0	236	236	0	89	89	0
2021	56	56	0	1,962	1,962	0	92	92	0	178	178	0
2022	62	62	0	2,146	2,146	0	182	182	0	238	238	0
2023	467	466	0	2,260	2,283	23	612	612	0	297	1,359	1,062
2024	1,065	1,951	886	2,269	2,554	285	730	1,202	472	468	2,148	1,680
2025	1,009	2,217	1,208	2,440	3,240	800	562	1,676	1,114	555	2,672	2,117
2026	966	2,720	1,754	2,401	3,358	957	552	1,616	1,064	587	2,611	2,024
2027	1,203	2,724	1,521	2,325	3,251	926	527	1,546	1,019	579	2,543	1,964
2028	1,227	2,691	1,465	2,247	3,151	904	506	1,481	975	573	2,554	1,981
2029	1,176	2,122	946	2,160	3,043	884	484	1,413	929	565	2,464	1,899

Table B-20-12 - Comparison of Average Vehicle Price Increase (dollars) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 4 of 5

Model Year	Subaru			Tesla			Toyota			Volvo		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	88	88	0	0	0	0	34	34	0	327	327	0
2021	210	210	0	8	8	0	72	72	0	780	780	0
2022	1,148	1,148	0	23	23	0	232	232	0	833	833	0
2023	1,224	1,225	0	23	23	0	330	342	12	997	997	0
2024	1,176	1,699	523	23	23	0	487	910	423	1,084	1,305	221
2025	1,230	1,813	582	25	25	0	549	1,052	503	1,362	1,767	404
2026	1,296	2,241	945	25	25	0	621	1,182	561	1,960	2,420	461
2027	1,256	2,152	896	24	24	0	600	1,189	589	1,945	2,786	841
2028	1,221	2,073	852	24	24	0	581	1,162	581	1,857	2,657	800
2029	1,185	1,990	805	24	24	0	616	1,128	512	1,759	2,513	754

Table B-20-13 - Comparison of Average Vehicle Price Increase (dollars) for Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 5 of 5

Model Year	VWA			Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	448	448	0	250	250	0
2021	118	118	0	309	309	0
2022	604	604	0	533	533	0
2023	836	836	0	638	932	295
2024	962	1,544	582	731	1,316	585
2025	1,099	1,797	697	872	1,729	857
2026	1,197	2,444	1,247	939	2,103	1,165
2027	1,154	2,187	1,033	922	2,061	1,139
2028	1,116	2,043	927	894	2,000	1,106
2029	1,061	1,922	862	870	1,900	1,030

Table B-20-14 - Comparison of Average Vehicle Price Increase (dollars) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 1 of 5

Model Year	BMW			Daimler			FCA			Ford		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	35	35	0	226	226	0	300	300	0	83	83	0
2021	379	379	0	141	141	0	83	83	0	600	600	0
2022	425	425	0	325	325	0	547	547	0	799	799	0
2023	932	916	-17	429	429	0	1,247	1,252	5	1,197	1,205	8
2024	954	938	-16	395	668	273	1,277	1,399	122	1,303	1,359	55
2025	1,177	1,152	-25	896	1,607	711	1,300	1,807	508	1,288	1,361	73
2026	1,197	1,322	124	1,147	2,311	1,164	1,333	2,282	949	1,401	2,078	677
2027	1,180	1,941	762	1,279	2,258	979	1,355	2,235	879	1,369	2,220	851
2028	1,156	1,994	837	1,280	1,941	661	1,357	2,257	900	1,350	2,148	798
2029	1,126	1,913	786	1,315	1,861	546	1,340	2,210	870	1,319	2,060	741

Table B-20-15 - Comparison of Average Vehicle Price Increase (dollars) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 2 of 5

Model Year	GM			Honda			Hyundai Kia-H			Hyundai Kia-K		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	219	219	0	0	0	0	289	289	0	183	183	0
2021	518	518	0	21	21	0	161	161	0	450	450	0
2022	536	536	0	215	215	0	96	96	0	470	470	0
2023	754	754	0	560	560	0	444	444	0	541	541	0
2024	856	1,173	317	705	1,303	598	452	495	43	896	2,165	1,269
2025	928	2,188	1,260	1,184	1,766	582	537	627	89	865	2,097	1,232
2026	948	2,957	2,009	1,137	1,679	542	1,318	2,977	1,659	913	2,113	1,200
2027	938	2,836	1,898	1,092	1,782	690	1,288	2,900	1,612	962	2,164	1,202
2028	921	2,747	1,826	1,052	1,728	676	1,263	2,829	1,566	939	2,113	1,174
2029	972	2,633	1,661	1,011	1,649	638	1,235	2,757	1,522	914	2,062	1,148

Table B-20-16 - Comparison of Average Vehicle Price Increase (dollars) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 3 of 5

Model Year	JLR			Mazda			Mitsubishi			Nissan		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	94	94	0	122	122	0	62	62	0	83	83	0
2021	79	79	0	31	31	0	0	0	0	469	469	0
2022	418	418	0	72	72	0	35	35	0	623	623	0
2023	830	830	0	394	394	0	240	240	0	692	1,310	618
2024	997	1,296	298	484	501	16	326	762	436	889	2,443	1,554
2025	1,080	1,743	663	561	1,274	714	289	1,486	1,197	1,018	2,505	1,487
2026	1,169	2,410	1,241	673	1,915	1,243	284	1,467	1,183	1,096	3,063	1,968
2027	1,211	2,341	1,130	685	1,898	1,213	280	1,449	1,170	1,094	3,015	1,921
2028	1,183	2,320	1,137	687	1,872	1,186	275	1,433	1,158	1,116	2,934	1,818
2029	1,194	2,459	1,264	689	1,848	1,160	272	1,418	1,146	1,096	2,872	1,776

Table B-20-17 - Comparison of Average Vehicle Price Increase (dollars) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 4 of 5

Model Year	Subaru			Tesla			Toyota			Volvo		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	12	12	0	0	0	0	67	67	0	117	117	0
2021	18	18	0	20	20	0	169	169	0	179	179	0
2022	115	115	0	111	111	0	514	514	0	235	235	0
2023	493	737	244	207	207	0	569	915	346	1,761	1,837	76
2024	652	890	238	293	293	0	889	1,924	1,035	1,728	1,886	158
2025	787	1,040	253	368	368	0	948	1,944	996	1,802	2,065	263
2026	850	1,076	226	362	362	0	1,292	2,277	985	1,782	2,130	348
2027	901	1,123	222	357	357	0	1,271	2,216	945	2,005	2,108	104
2028	878	1,096	218	351	351	0	1,275	2,206	931	1,915	2,014	100
2029	858	1,073	214	346	346	0	1,254	2,138	884	1,820	1,915	95

Table B-20-18 - Comparison of Average Vehicle Price Increase (dollars) for Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5, Part 5 of 5

Model Year	VWA			Total		
	Alternative 0 (Baseline)	Alternative 2.5	Difference	Alternative 0 (Baseline)	Alternative 2.5	Difference
2020	301	301	0	150	150	0
2021	358	358	0	297	297	0
2022	731	731	0	501	501	0
2023	967	967	0	845	930	85
2024	1,172	1,354	181	975	1,369	394
2025	2,578	2,120	-458	1,112	1,775	662
2026	2,598	2,474	-124	1,202	2,263	1,061
2027	2,551	2,522	-29	1,203	2,264	1,061
2028	2,486	2,350	-136	1,189	2,211	1,022
2029	2,413	2,271	-141	1,180	2,141	961

21. Technology Costs, Price Increase, Sales, and Labor Utilization

Table B-21-1 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Total) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	194	194	0	0%	13.6	13.6	0.0	0.0%	943	943	0.0	0.0%
2021	4	4	0	0%	303	303	0	0%	16.2	16.2	0.0	0.0%	1,128	1,128	0.0	0.0%
2022	8	8	0	0%	516	516	0	0%	17.4	17.4	0.0	0.0%	1,212	1,212	0.0	0.0%
2023	9	12	3	34%	747	931	184	25%	17.1	17.0	0.0	-0.2%	1,196	1,197	0.8	0.1%
2024	10	17	7	73%	859	1,344	485	57%	16.7	16.7	-0.1	-0.4%	1,175	1,181	5.9	0.5%
2025	11	22	11	93%	996	1,753	757	76%	16.5	16.4	-0.1	-0.6%	1,157	1,167	10.1	0.9%
2026	12	27	15	124%	1,073	2,187	1,113	104%	16.4	16.2	-0.1	-0.9%	1,153	1,168	14.8	1.3%
2027	12	28	16	132%	1,065	2,167	1,102	104%	16.3	16.2	-0.1	-0.9%	1,149	1,166	16.6	1.4%
2028	12	27	16	134%	1,042	2,109	1,067	102%	16.2	16.1	-0.1	-0.8%	1,142	1,159	17.3	1.5%
2029	11	26	15	129%	1,024	2,024	999	98%	16.1	16.0	-0.1	-0.8%	1,133	1,150	16.7	1.5%

Table B-21-2 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Total) Passenger Car Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	250	250	0	0%	5.9	5.9	0.0	0.0%	356	356	0.0	0.0%
2021	1	1	0	0%	309	309	0	0%	7.3	7.3	0.0	0.0%	439	439	0.0	0.0%
2022	3	3	0	0%	533	533	0	0%	8.0	8.0	0.0	0.0%	489	489	0.0	0.0%
2023	4	6	2	60%	638	932	295	46%	8.0	8.0	0.0	-0.2%	491	493	1.9	0.4%
2024	4	9	4	98%	731	1,316	585	80%	8.0	7.9	-0.1	-0.6%	490	493	2.6	0.5%
2025	5	11	6	117%	872	1,729	857	98%	8.0	7.8	-0.1	-1.9%	491	489	-1.5	-0.3%
2026	5	13	8	146%	939	2,103	1,165	124%	8.0	7.8	-0.2	-2.9%	495	491	-4.4	-0.9%
2027	5	13	8	153%	922	2,061	1,139	124%	8.0	7.8	-0.3	-3.7%	497	488	-9.0	-1.8%
2028	5	13	8	158%	894	2,000	1,106	124%	8.1	7.8	-0.3	-3.8%	500	490	-9.8	-2.0%
2029	5	12	7	152%	870	1,900	1,030	118%	8.1	7.8	-0.3	-3.9%	501	490	-11.2	-2.2%

Table B-21-3 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Total) Light Truck Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	150	150	0	0%	7.7	7.7	0.0	0.0%	587	587	0.0	0.0%
2021	2	2	0	0%	297	297	0	0%	8.9	8.9	0.0	0.0%	688	688	0.0	0.0%
2022	4	4	0	0%	501	501	0	0%	9.3	9.3	0.0	0.0%	723	723	0.0	0.0%
2023	5	6	1	14%	845	930	85	10%	9.0	9.0	0.0	-0.2%	705	704	-1.0	-0.1%
2024	6	9	3	54%	975	1,369	394	40%	8.7	8.7	0.0	-0.2%	685	688	3.4	0.5%
2025	6	11	5	73%	1,112	1,775	662	60%	8.5	8.5	0.0	0.6%	667	678	11.6	1.7%
2026	7	14	7	107%	1,202	2,263	1,061	88%	8.4	8.4	0.1	1.0%	658	677	19.3	2.9%
2027	7	14	8	115%	1,203	2,264	1,061	88%	8.3	8.4	0.2	1.9%	652	678	25.6	3.9%
2028	7	14	7	115%	1,189	2,211	1,022	86%	8.2	8.3	0.2	2.1%	641	669	27.1	4.2%

2029	6	14	7	112%	1,180	2,141	961	81%	8.0	8.2	0.2	2.5%	632	660	27.9	4.4%
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Table B-21-4 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (BMW) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	75	75	0	0%	0.3	0.3	0.0	0.0%	14	14	0.0	0.0%
2021	0	0	0	0%	742	742	0	0%	0.4	0.4	0.0	0.0%	17	17	0.0	0.0%
2022	0	0	0	0%	808	808	0	0%	0.4	0.4	0.0	0.0%	18	18	0.0	0.0%
2023	0	0	0	0%	1,042	1,043	1	0%	0.4	0.4	0.0	-0.2%	17	17	0.0	-0.2%
2024	0	0	0	14%	1,102	1,231	129	12%	0.4	0.4	0.0	-0.5%	17	17	0.0	-0.2%
2025	1	0	0	-8%	1,670	1,579	-92	-5%	0.4	0.4	0.0	-1.4%	17	17	0.0	-0.1%
2026	1	1	0	-1%	1,834	2,023	188	10%	0.4	0.4	0.0	-2.2%	16	16	0.0	-0.1%
2027	1	1	0	26%	1,767	2,257	490	28%	0.4	0.4	0.0	-2.6%	16	17	0.2	1.2%
2028	1	1	0	29%	1,695	2,171	476	28%	0.4	0.4	0.0	-2.7%	16	16	0.2	1.4%
2029	1	1	0	28%	1,623	2,064	441	27%	0.4	0.4	0.0	-2.8%	16	16	0.2	1.6%

Table B-21-5 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Daimler) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	422	422	0	0%	0.4	0.4	0.0	0.0%	18	18	0.0	0.0%
2021	0	0	0	0%	494	494	0	0%	0.4	0.4	0.0	0.0%	22	22	0.0	0.0%
2022	0	0	0	0%	804	804	0	0%	0.5	0.5	0.0	0.0%	24	24	0.0	0.0%
2023	0	0	0	0%	848	848	0	0%	0.5	0.5	0.0	-0.2%	23	23	0.0	-0.2%
2024	0	0	0	-10%	886	1,230	345	39%	0.5	0.5	0.0	-0.4%	23	23	-0.1	-0.4%
2025	0	0	0	1%	1,177	1,952	775	66%	0.4	0.4	0.0	-0.9%	23	23	0.0	-0.2%
2026	0	0	0	0%	1,340	2,723	1,383	103%	0.4	0.4	0.0	-1.3%	23	23	-0.1	-0.5%
2027	0	1	0	24%	1,426	2,753	1,327	93%	0.4	0.4	0.0	-1.5%	23	23	-0.1	-0.5%
2028	0	1	0	78%	1,398	2,693	1,295	93%	0.4	0.4	0.0	-1.5%	23	23	0.3	1.4%
2029	0	1	0	81%	1,389	2,524	1,136	82%	0.4	0.4	0.0	-1.4%	22	23	0.3	1.4%

Table B-21-6 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (FCA) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	392	392	0	0%	1.5	1.5	0.0	0.0%	117	117	0.0	0.0%
2021	0	0	0	0%	265	265	0	0%	1.8	1.8	0.0	0.0%	138	138	0.0	0.0%
2022	1	1	0	0%	687	687	0	0%	1.9	1.9	0.0	0.0%	146	146	0.0	0.0%
2023	2	2	0	0%	1,288	1,293	4	0%	1.8	1.8	0.0	-0.2%	144	144	-0.2	-0.1%
2024	2	2	0	0%	1,344	1,487	142	11%	1.8	1.7	0.0	-0.2%	140	139	-0.3	-0.2%
2025	2	2	0	0%	1,370	1,944	574	42%	1.7	1.7	0.0	0.2%	136	136	0.6	0.5%
2026	2	2	0	27%	1,419	2,630	1,211	85%	1.7	1.7	0.0	0.5%	134	136	2.1	1.6%
2027	2	2	1	36%	1,433	2,583	1,150	80%	1.7	1.7	0.0	1.1%	133	136	3.3	2.5%
2028	2	3	1	40%	1,444	2,571	1,127	78%	1.7	1.7	0.0	1.3%	131	135	3.9	3.0%
2029	2	3	1	43%	1,420	2,495	1,074	76%	1.6	1.7	0.0	1.5%	129	134	4.3	3.3%

Table B-21-7 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Ford) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	137	137	0	0%	1.7	1.7	0.0	0.0%	160	160	0.0	0.0%
2021	1	1	0	0%	574	574	0	0%	2.0	2.0	0.0	0.0%	189	189	0.0	0.0%
2022	2	2	0	0%	925	925	0	0%	2.1	2.1	0.0	0.0%	202	202	0.0	0.0%
2023	2	3	1	49%	1,327	1,840	512	39%	2.1	2.0	0.0	-0.2%	198	199	1.5	0.7%
2024	2	3	1	48%	1,376	1,881	505	37%	2.0	2.0	0.0	-0.3%	192	193	1.3	0.7%
2025	2	3	1	52%	1,343	1,875	532	40%	2.0	2.0	0.0	-0.1%	187	189	2.2	1.2%
2026	2	4	2	80%	1,445	2,337	892	62%	1.9	1.9	0.0	0.0%	185	189	4.2	2.3%
2027	2	4	2	91%	1,403	2,383	980	70%	1.9	1.9	0.0	0.4%	184	189	5.7	3.1%
2028	2	4	2	87%	1,372	2,280	908	66%	1.9	1.9	0.0	0.6%	181	187	5.7	3.2%
2029	2	4	2	83%	1,330	2,162	832	63%	1.9	1.9	0.0	0.8%	179	185	5.8	3.2%

Table B-21-8 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (GM) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	276	276	0	0%	2.3	2.3	0.0	0.0%	200	200	0.0	0.0%
2021	1	1	0	0%	397	397	0	0%	2.7	2.7	0.0	0.0%	238	238	0.0	0.0%
2022	1	1	0	0%	502	502	0	0%	2.9	2.9	0.0	0.0%	252	252	0.0	0.0%
2023	1	1	0	0%	695	695	0	0%	2.8	2.8	0.0	-0.2%	247	247	-0.4	-0.2%
2024	1	2	1	57%	787	1,104	317	40%	2.7	2.7	0.0	-0.3%	241	243	1.1	0.5%
2025	2	4	3	161%	963	2,048	1,086	113%	2.7	2.7	0.0	0.0%	237	243	5.7	2.4%
2026	2	6	5	273%	962	2,757	1,795	187%	2.6	2.7	0.0	0.1%	235	244	9.3	4.0%
2027	2	6	4	277%	943	2,637	1,695	180%	2.6	2.6	0.0	0.5%	233	243	9.9	4.3%
2028	2	6	4	273%	919	2,535	1,616	176%	2.6	2.6	0.0	0.7%	231	240	9.8	4.3%
2029	2	5	4	240%	937	2,412	1,475	157%	2.6	2.6	0.0	0.8%	228	238	9.4	4.1%

Table B-21-9 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Honda) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	0	0	0	0%	1.3	1.3	0.0	0.0%	116	116	0.0	0.0%
2021	0	0	0	0%	66	66	0	0%	1.6	1.6	0.0	0.0%	140	140	0.0	0.0%
2022	0	0	0	0%	252	252	0	0%	1.7	1.7	0.0	0.0%	151	151	0.0	0.0%
2023	0	1	0	84%	424	602	177	42%	1.7	1.7	0.0	-0.2%	150	151	0.6	0.4%
2024	0	1	1	198%	509	996	487	96%	1.7	1.6	0.0	-0.5%	148	150	1.6	1.0%
2025	1	2	1	117%	896	1,484	587	66%	1.6	1.6	0.0	-1.2%	148	149	1.0	0.7%
2026	1	2	1	92%	1,016	1,601	585	58%	1.6	1.6	0.0	-1.8%	148	149	0.2	0.1%
2027	1	2	1	112%	970	1,640	669	69%	1.6	1.6	0.0	-2.2%	148	148	0.2	0.1%
2028	1	2	1	119%	934	1,606	673	72%	1.6	1.6	0.0	-2.2%	148	148	0.1	0.1%
2029	1	2	1	120%	891	1,527	635	71%	1.6	1.6	0.0	-2.2%	147	147	0.0	0.0%

Table B-21-10 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Hyundai Kia-H) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	521	521	0	0%	0.7	0.7	0.0	0.0%	44	44	0.0	0.0%
2021	0	0	0	0%	317	317	0	0%	0.9	0.9	0.0	0.0%	54	54	0.0	0.0%
2022	0	0	0	0%	403	403	0	0%	1.0	1.0	0.0	0.0%	59	59	0.0	0.0%
2023	0	0	0	0%	492	492	0	0%	1.0	1.0	0.0	-0.2%	58	58	-0.1	-0.2%
2024	0	1	0	29%	600	787	187	31%	0.9	0.9	0.0	-0.5%	58	58	-0.2	-0.3%
2025	0	1	1	121%	634	1,323	689	109%	0.9	0.9	0.0	-1.1%	58	58	0.0	0.0%
2026	1	2	1	264%	710	2,204	1,494	210%	0.9	0.9	0.0	-1.7%	58	58	0.4	0.7%
2027	0	2	1	264%	758	2,207	1,449	191%	0.9	0.9	0.0	-2.0%	58	58	0.0	0.1%
2028	0	2	1	266%	737	2,147	1,410	191%	0.9	0.9	0.0	-2.0%	58	58	-0.1	-0.1%
2029	0	2	1	259%	728	2,079	1,351	186%	0.9	0.9	0.0	-2.0%	58	58	-0.2	-0.3%

**Table B-21-11 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Hyundai Kia-K)
Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5**

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	211	211	0	0%	0.6	0.6	0.0	0.0%	30	30	0.0	0.0%
2021	0	0	0	0%	305	305	0	0%	0.7	0.7	0.0	0.0%	37	37	0.0	0.0%
2022	0	0	0	0%	331	331	0	0%	0.8	0.8	0.0	0.0%	40	40	0.0	0.0%
2023	0	0	0	-1%	361	359	-2	0%	0.8	0.8	0.0	-0.2%	39	39	-0.1	-0.2%
2024	0	1	0	105%	588	1,168	580	99%	0.8	0.8	0.0	-0.5%	39	39	0.5	1.3%
2025	0	1	1	139%	571	1,360	789	138%	0.8	0.8	0.0	-1.4%	38	39	0.7	1.8%
2026	0	1	1	231%	596	1,860	1,264	212%	0.8	0.8	0.0	-2.2%	38	39	0.5	1.2%
2027	0	1	1	221%	648	1,873	1,224	189%	0.8	0.8	0.0	-2.7%	38	39	0.4	0.9%
2028	0	1	1	227%	626	1,835	1,209	193%	0.8	0.8	0.0	-2.8%	38	38	0.3	0.9%
2029	0	1	1	225%	603	1,756	1,152	191%	0.8	0.8	0.0	-2.8%	38	38	0.3	0.8%

Table B-21-12 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (JLR) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	96	96	0	0%	0.1	0.1	0.0	0.0%	2	2	0.0	0.0%
2021	0	0	0	0%	78	78	0	0%	0.2	0.2	0.0	0.0%	3	3	0.0	0.0%
2022	0	0	0	0%	401	401	0	0%	0.2	0.2	0.0	0.0%	3	3	0.0	0.0%
2023	0	0	0	0%	811	811	0	0%	0.2	0.2	0.0	-0.2%	3	3	0.0	-0.2%
2024	0	0	0	20%	1,001	1,330	329	33%	0.2	0.2	0.0	-0.2%	3	3	0.0	0.0%
2025	0	0	0	30%	1,076	1,768	693	64%	0.2	0.2	0.0	0.4%	3	3	0.0	0.8%
2026	0	0	0	46%	1,158	2,427	1,269	110%	0.2	0.2	0.0	0.7%	3	3	0.0	1.4%
2027	0	0	0	45%	1,210	2,361	1,151	95%	0.2	0.2	0.0	1.4%	3	3	0.1	2.1%
2028	0	0	0	44%	1,186	2,341	1,155	97%	0.1	0.2	0.0	1.7%	3	3	0.1	2.4%
2029	0	0	0	136%	1,193	2,440	1,247	104%	0.1	0.2	0.0	1.9%	3	3	0.1	3.8%

Table B-21-13 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Mazda) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	329	329	0	0%	0.3	0.3	0.0	0.0%	4	4	0.0	0.0%
2021	0	0	0	0%	981	981	0	0%	0.3	0.3	0.0	0.0%	4	4	0.0	0.0%
2022	0	0	0	0%	1,114	1,114	0	0%	0.3	0.3	0.0	0.0%	5	5	0.0	0.0%
2023	0	0	0	1%	1,344	1,356	12	1%	0.3	0.3	0.0	-0.2%	4	4	0.0	-0.1%
2024	0	0	0	11%	1,402	1,555	153	11%	0.3	0.3	0.0	-0.4%	4	4	0.0	-0.3%
2025	0	1	0	61%	1,537	2,286	750	49%	0.3	0.3	0.0	-0.4%	4	4	0.0	-0.3%
2026	0	1	0	88%	1,577	2,659	1,082	69%	0.3	0.3	0.0	-0.6%	4	4	0.0	-0.4%
2027	0	1	0	89%	1,548	2,595	1,047	68%	0.3	0.3	0.0	-0.4%	4	4	0.0	-0.3%
2028	0	1	0	89%	1,514	2,536	1,021	67%	0.3	0.3	0.0	-0.3%	4	4	0.0	-0.2%
2029	0	1	0	91%	1,474	2,471	997	68%	0.3	0.3	0.0	-0.2%	4	4	0.0	-0.1%

Table B-21-14 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Mitsubishi) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	141	141	0	0%	0.1	0.1	0.0	0.0%	2	2	0.0	0.0%
2021	0	0	0	0%	43	43	0	0%	0.1	0.1	0.0	0.0%	2	2	0.0	0.0%
2022	0	0	0	0%	104	104	0	0%	0.1	0.1	0.0	0.0%	2	2	0.0	0.0%
2023	0	0	0	0%	417	417	0	0%	0.1	0.1	0.0	-0.2%	2	2	0.0	-0.2%
2024	0	0	0	-1%	520	972	453	87%	0.1	0.1	0.0	-0.3%	2	2	0.0	-0.3%
2025	0	0	0	296%	421	1,577	1,156	275%	0.1	0.1	0.0	-0.1%	2	2	0.0	-0.1%
2026	0	0	0	299%	414	1,539	1,124	271%	0.1	0.1	0.0	-0.1%	2	2	0.0	0.0%
2027	0	0	0	304%	400	1,496	1,096	274%	0.1	0.1	0.0	0.3%	2	2	0.0	0.4%
2028	0	0	0	305%	389	1,456	1,067	275%	0.1	0.1	0.0	0.5%	2	2	0.0	0.5%
2029	0	0	0	308%	376	1,415	1,039	276%	0.1	0.1	0.0	0.6%	2	2	0.0	0.7%

Table B-21-15 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Nissan) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	87	87	0	0%	1.0	1.0	0.0	0.0%	60	60	0.0	0.0%
2021	0	0	0	0%	265	265	0	0%	1.2	1.2	0.0	0.0%	73	73	0.0	0.0%
2022	0	0	0	0%	349	349	0	0%	1.3	1.3	0.0	0.0%	79	79	0.0	0.0%
2023	0	2	1	345%	409	1,345	936	229%	1.3	1.3	0.0	-0.2%	78	78	0.0	0.0%
2024	1	3	2	413%	586	2,231	1,645	281%	1.3	1.3	0.0	-0.5%	78	79	0.7	0.9%
2025	1	3	2	477%	682	2,626	1,944	285%	1.3	1.3	0.0	-1.0%	77	77	0.4	0.5%
2026	1	3	3	498%	724	2,736	2,012	278%	1.3	1.3	0.0	-1.6%	77	77	0.2	0.3%
2027	1	3	2	492%	717	2,674	1,957	273%	1.3	1.3	0.0	-1.8%	77	77	0.0	-0.1%
2028	1	3	2	481%	716	2,658	1,942	271%	1.3	1.3	0.0	-1.8%	77	77	0.0	0.0%
2029	0	3	2	472%	704	2,575	1,872	266%	1.3	1.3	0.0	-1.8%	77	77	-0.1	-0.1%

Table B-21-16 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Subaru) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	28	28	0	0%	0.8	0.8	0.0	0.0%	42	42	0.0	0.0%
2021	0	0	0	0%	61	61	0	0%	0.9	0.9	0.0	0.0%	50	50	0.0	0.0%
2022	0	0	0	0%	360	360	0	0%	0.9	0.9	0.0	0.0%	54	54	0.0	0.0%
2023	1	1	0	30%	674	857	184	27%	0.9	0.9	0.0	-0.2%	53	53	0.0	-0.1%
2024	1	1	0	48%	785	1,094	309	39%	0.9	0.9	0.0	-0.3%	52	52	0.1	0.1%
2025	1	1	0	45%	903	1,237	334	37%	0.9	0.9	0.0	-0.3%	52	51	-0.1	-0.1%
2026	1	1	0	61%	969	1,374	406	42%	0.9	0.9	0.0	-0.5%	51	51	-0.2	-0.4%
2027	1	1	0	61%	997	1,385	389	39%	0.9	0.9	0.0	-0.2%	51	51	-0.2	-0.3%
2028	1	1	0	61%	973	1,350	377	39%	0.9	0.9	0.0	-0.1%	51	51	-0.1	-0.3%
2029	1	1	0	61%	950	1,315	364	38%	0.9	0.9	0.0	0.0%	51	51	-0.1	-0.2%

Table B-21-17 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Tesla) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	0	0	0	0%	0.2	0.2	0.0	0.0%	23	23	0.0	0.0%
2021	0	0	0	0%	8	8	0	0%	0.2	0.2	0.0	0.0%	29	29	0.0	0.0%
2022	0	0	0	0%	26	26	0	0%	0.3	0.3	0.0	0.0%	32	32	0.0	0.0%
2023	0	0	0	0%	28	28	0	0%	0.3	0.3	0.0	-0.2%	32	32	-0.1	-0.2%
2024	0	0	0	0%	29	29	0	0%	0.3	0.3	0.0	-0.8%	33	32	-0.3	-0.8%
2025	0	0	0	0%	33	34	0	1%	0.3	0.3	0.0	-2.6%	33	32	-0.9	-2.6%
2026	0	0	0	0%	33	33	0	1%	0.3	0.3	0.0	-4.1%	33	32	-1.3	-4.1%
2027	0	0	0	0%	32	32	1	2%	0.3	0.3	0.0	-5.3%	33	32	-1.8	-5.3%
2028	0	0	0	0%	31	32	1	2%	0.3	0.3	0.0	-5.5%	34	32	-1.9	-5.5%
2029	0	0	0	0%	31	31	1	2%	0.3	0.3	0.0	-5.7%	34	32	-1.9	-5.7%

Table B-21-18 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Toyota) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	49	49	0	0%	1.8	1.8	0.0	0.0%	97	97	0.0	0.0%
2021	0	0	0	0%	116	116	0	0%	2.1	2.1	0.0	0.0%	118	118	0.0	0.0%
2022	1	1	0	0%	356	356	0	0%	2.3	2.3	0.0	0.0%	129	129	0.0	0.0%
2023	1	1	0	61%	433	588	155	36%	2.3	2.3	0.0	-0.2%	129	129	-0.2	-0.2%
2024	1	2	2	199%	656	1,339	682	104%	2.3	2.2	0.0	-0.5%	128	130	1.6	1.2%
2025	1	2	2	204%	714	1,427	713	100%	2.2	2.2	0.0	-1.1%	127	128	0.7	0.6%
2026	1	3	2	173%	895	1,641	746	83%	2.2	2.2	0.0	-1.6%	128	128	-0.2	-0.2%
2027	1	2	2	182%	871	1,620	749	86%	2.2	2.2	0.0	-1.9%	128	128	-0.8	-0.7%
2028	1	2	2	182%	858	1,595	738	86%	2.2	2.2	0.0	-1.9%	129	128	-1.0	-0.7%
2029	1	2	1	159%	867	1,544	676	78%	2.2	2.2	0.0	-1.9%	128	127	-1.2	-1.0%

Table B-21-19 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (Volvo) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	171	171	0	0%	0.1	0.1	0.0	0.0%	2	2	0.0	0.0%
2021	0	0	0	0%	336	336	0	0%	0.1	0.1	0.0	0.0%	3	3	0.0	0.0%
2022	0	0	0	0%	397	397	0	0%	0.1	0.1	0.0	0.0%	3	3	0.0	0.0%
2023	0	0	0	4%	1,549	1,604	55	4%	0.1	0.1	0.0	-0.2%	3	3	0.0	-0.1%
2024	0	0	0	4%	1,546	1,723	176	11%	0.1	0.1	0.0	-0.3%	3	3	0.0	-0.6%
2025	0	0	0	3%	1,676	1,981	305	18%	0.1	0.1	0.0	-0.4%	3	3	0.0	-1.5%
2026	0	0	0	2%	1,833	2,212	379	21%	0.1	0.1	0.0	-0.5%	3	3	-0.1	-2.4%
2027	0	0	0	18%	1,987	2,300	313	16%	0.1	0.1	0.0	-0.3%	3	3	-0.1	-2.4%
2028	0	0	0	18%	1,898	2,198	300	16%	0.1	0.1	0.0	-0.2%	3	3	-0.1	-2.5%
2029	0	0	0	19%	1,802	2,088	286	16%	0.1	0.1	0.0	-0.1%	3	3	-0.1	-2.6%

Table B-21-20 - Comparison of Technology Costs, Average Price Increase, Sales, and Labor Utilization for Manufacturer (VWA) Total Fleet Between Alternative 0 (Baseline) and Alternative 2.5

Model Year	Technology Costs Increase (\$b)				Avg. Vehicle Price Increase (\$)				Annual Sales (million vehicles)				Labor (person years)			
	Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative		Standards		Change from Alternative	
	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent	Alternative 0 (Baseline)	Alternative 2.5	Absolute	Percent
2020	0	0	0	0%	363	363	0	0%	0.4	0.4	0.0	0.0%	10	10	0.0	0.0%
2021	0	0	0	0%	253	253	0	0%	0.5	0.5	0.0	0.0%	13	13	0.0	0.0%
2022	0	0	0	0%	673	673	0	0%	0.6	0.6	0.0	0.0%	14	14	0.0	0.0%
2023	0	0	0	0%	906	906	0	0%	0.6	0.5	0.0	-0.2%	14	14	0.0	-0.2%
2024	0	1	0	21%	1,072	1,445	373	35%	0.5	0.5	0.0	-0.5%	13	13	0.0	-0.3%
2025	1	1	0	1%	1,857	1,965	108	6%	0.5	0.5	0.0	-1.1%	13	13	-0.1	-1.0%
2026	1	1	0	11%	1,905	2,460	555	29%	0.5	0.5	0.0	-1.6%	13	13	-0.2	-1.3%
2027	1	1	0	16%	1,854	2,361	508	27%	0.5	0.5	0.0	-1.9%	13	13	-0.2	-1.6%
2028	1	1	0	19%	1,792	2,201	409	23%	0.5	0.5	0.0	-1.9%	13	13	-0.2	-1.2%
2029	1	1	0	19%	1,720	2,100	380	22%	0.5	0.5	0.0	-1.9%	13	13	-0.2	-1.2%

22. CAFE Compliance Credits

Table B-22-1 - CAFE Compliance Credits (in millions) Earned by Manufacturers, Total Fleet by Model Year for Alternative 0 (Baseline)

Manufacturer	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BMW	-11	-6	2	8	8	23	27	28	28	29
Daimler	-16	-13	-12	-7	-2	2	3	5	5	6
FCA	-50	-48	-25	7	3	-5	6	12	21	22
Ford	-16	-1	41	88	86	75	89	89	90	90
GM	-48	-36	-4	6	12	21	16	18	18	31
Honda	20	28	68	71	70	88	105	106	107	108
Hyundai Kia-H	-27	-27	-4	3	19	14	12	15	16	18
Hyundai Kia-K	-13	7	9	5	20	20	16	20	20	20
JLR	-5	-5	-4	-1	1	1	0	1	1	2
Mazda	-7	-5	-5	9	9	10	10	10	10	10
Mitsubishi	-2	-2	-3	-4	-4	2	1	2	2	2
Nissan	-12	1	20	19	33	32	27	27	29	30
Subaru	14	18	40	62	74	81	80	81	80	79
Tesla	1,339	1,724	1,946	1,982	1,995	2,007	2,031	2,050	2,076	2,092
Toyota	5	19	55	64	70	62	87	101	107	129
Volvo	-2	-2	-3	5	5	6	7	9	9	9
VWA	-17	-17	-12	-4	1	24	28	31	31	31

Table B-22-2 - CAFE Compliance Credits (in millions) Earned by Manufacturers, Total Fleet by Model Year for Alternative 1

Manufacturer	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BMW	-11	-6	2	8	-3	3	8	10	11	11
Daimler	-16	-13	-12	-7	-21	-19	-22	-12	-4	-4
FCA	-50	-48	-25	9	-57	-76	-64	-49	-30	-25
Ford	-16	-1	41	98	28	12	7	13	15	15
GM	-48	-36	-4	6	-9	1	3	11	12	13
Honda	20	28	68	71	8	11	10	11	12	13
Hyundai Kia-H	-27	-27	-4	3	0	-2	3	7	8	9
Hyundai Kia-K	-13	7	9	5	3	3	-4	1	3	3
JLR	-5	-5	-4	-1	-4	-4	-4	-3	-3	0
Mazda	-7	-5	-5	9	-2	3	2	2	2	2
Mitsubishi	-2	-2	-3	-4	-10	3	1	1	1	1
Nissan	-12	1	20	33	17	15	0	1	13	13
Subaru	14	18	40	68	48	48	42	43	42	42
Tesla	1,339	1,724	1,946	1,981	1,978	1,964	1,979	1,993	2,016	2,028
Toyota	5	19	55	76	37	12	26	37	47	69
Volvo	-2	-2	-3	6	0	0	0	4	4	4
VWA	-17	-17	-12	-4	-13	2	2	3	5	6

Table B-22-3 - CAFE Compliance Credits (in millions) Earned by Manufacturers, Total Fleet by Model Year for Alternative 2

Manufacturer	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BMW	-11	-6	2	8	0	-2	-10	0	1	2
Daimler	-16	-13	-12	-7	-16	-24	-38	-29	-11	-10
FCA	-50	-48	-25	7	-37	-88	-103	-87	-66	-59
Ford	-16	-1	41	134	86	33	-4	5	6	10
GM	-48	-36	-4	6	-5	-3	0	21	25	25
Honda	20	28	68	77	39	11	-28	-6	3	3
Hyundai Kia-H	-27	-27	-4	3	4	-3	1	5	7	8
Hyundai Kia-K	-13	7	9	5	18	6	-6	1	3	4
JLR	-5	-5	-4	-1	-2	-5	-8	-7	-7	0
Mazda	-7	-5	-5	9	3	8	5	4	4	4
Mitsubishi	-2	-2	-3	-4	-9	6	0	0	0	0
Nissan	-12	1	20	44	45	42	-3	2	18	20
Subaru	14	18	40	68	60	39	23	24	24	24
Tesla	1,339	1,724	1,946	1,980	1,976	1,944	1,929	1,923	1,944	1,954
Toyota	5	19	55	79	111	44	14	27	35	36
Volvo	-2	-2	-3	6	2	0	-3	1	1	1
VWA	-17	-17	-12	-4	-8	-3	-10	-5	0	1

Table B-22-4 - CAFE Compliance Credits (in millions) Earned by Manufacturers, Total Fleet by Model Year for Alternative 2.5

Manufacturer	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BMW	-11	-6	2	8	0	-2	-13	-1	1	2
Daimler	-16	-13	-12	-7	-16	-24	-43	-33	-16	-11
FCA	-50	-48	-25	7	-37	-88	-114	-97	-79	-72
Ford	-16	-1	41	134	86	33	-3	14	15	14
GM	-48	-36	-4	6	-5	1	-1	21	25	25
Honda	20	28	68	87	61	34	-23	-7	1	1
Hyundai Kia-H	-27	-27	-4	3	4	-3	0	4	7	8
Hyundai Kia-K	-13	7	9	5	25	13	-6	1	4	4
JLR	-5	-5	-4	-1	-2	-5	-10	-9	-8	-2
Mazda	-7	-5	-5	9	3	10	5	5	5	5
Mitsubishi	-2	-2	-3	-4	-9	8	1	1	1	1
Nissan	-12	1	20	48	55	53	-4	1	19	21
Subaru	14	18	40	68	60	39	16	17	17	17
Tesla	1,339	1,724	1,946	1,979	1,971	1,936	1,915	1,907	1,926	1,938
Toyota	5	19	55	80	117	49	-7	6	15	16
Volvo	-2	-2	-3	6	2	-1	-5	0	0	0
VWA	-17	-17	-12	-4	-8	-3	-13	-8	-2	-2
Total	1,153	1,635	2,111	2,425	2,306	2,048	1,695	1,823	1,931	1,966

Table B-22-5 - CAFE Compliance Credits (in millions) Earned by Manufacturers, Total Fleet by Model Year for Alternative 3

Manufacturer	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BMW	-11	-6	2	8	-4	-4	-12	-4	1	2
Daimler	-16	-13	-12	-7	-20	-24	-40	-30	-4	-2
FCA	-50	-48	-25	7	-50	-118	-146	-129	-107	-99
Ford	-16	-1	41	137	87	20	-8	9	9	9
GM	-48	-36	-4	6	-10	-6	-8	23	26	27
Honda	20	28	68	99	67	31	-27	-9	7	12
Hyundai Kia-H	-27	-27	-4	4	6	-5	0	4	7	7
Hyundai Kia-K	-13	7	9	5	24	14	-5	0	3	3
JLR	-5	-5	-4	-1	-3	-8	-13	-12	-11	0
Mazda	-7	-5	-5	9	0	7	1	1	1	1
Mitsubishi	-2	-2	-3	-4	-10	8	0	0	0	0
Nissan	-12	1	20	49	52	44	-16	-2	17	23
Subaru	14	18	40	68	51	21	2	3	3	4
Tesla	1,339	1,724	1,946	1,978	1,962	1,910	1,881	1,869	1,887	1,892
Toyota	5	19	55	88	127	41	-16	2	15	15
Volvo	-2	-2	-3	6	1	-3	-7	0	0	0
VWA	-17	-17	-12	-4	-11	-6	-16	-7	0	1

23. Consumer Impacts

Table B-23-1 - Average Impacts to Consumers Relative to Alternative 0 (Baseline) for the Total Fleet, Alternative 2.5 at a 3% Discount Rate (dollars), per Vehicle Model Year

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Price Increase	0	0	0	184	485	757	1,113	1,102	1,067	999
Implicit Opportunity Cost	0	0	0	0	0	0	0	0	0	0
Increase in Financing Cost	0	0	0	19	52	86	127	130	128	122
Increase in Insurance Cost	0	0	0	17	47	77	114	117	115	109
Increase in Taxes/Fees	0	0	0	10	27	45	66	68	66	63
Lost Consumer Surplus	0	0	0	0	1	2	4	4	3	3
Total Consumer Cost	0	0	0	211	560	880	1,298	1,291	1,251	1,175
Fuel Savings	23	23	23	-125	-507	-774	-1,149	-1,274	-1,358	-1,320
Mobility Benefit	0	0	0	9	38	58	76	89	98	100
Refueling Benefit	18	20	22	24	26	28	30	33	37	39
Total Consumer Benefit	1	1	1	5	30	46	78	75	74	61
Net Consumer Benefit	-5	-4	-2	153	541	814	1,178	1,322	1,419	1,398
Payback	-5	-4	-2	-58	-19	-66	-120	31	168	223

Table B-23-2 - Average Impacts to Consumers Relative to Alternative 0 (Baseline) for the Passenger Car Fleet, Alternative 2.5 at a 3% Discount Rate (dollars), per Vehicle Model Year

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Price Increase	0	0	0	295	585	857	1,165	1,139	1,106	1,030
Implicit Opportunity Cost	0	0	0	0	0	0	0	0	0	0
Increase in Financing Cost	0	0	0	31	61	89	120	117	113	105
Increase in Insurance Cost	0	0	0	28	55	80	108	105	102	94
Increase in Taxes/Fees	0	0	0	16	32	46	63	61	59	55
Lost Consumer Surplus	0	0	0	0	1	2	4	4	3	3
Total Consumer Cost	0	0	0	339	673	984	1,339	1,309	1,270	1,181
Fuel Savings	19	18	18	-169	-577	-903	-1,227	-1,319	-1,417	-1,384
Mobility Benefit	0	0	0	8	40	61	74	80	87	84
Refueling Benefit	14	15	17	19	20	21	23	26	28	30
Total Consumer Benefit	1	1	1	10	30	70	112	112	112	114
Net Consumer Benefit	-6	-4	-2	186	606	915	1,212	1,313	1,421	1,385
Payback	-6	-4	-2	-153	-66	-69	-128	4	151	203

Table B-23-3 - Average Impacts to Consumers Relative to Alternative 0 (Baseline) for the Light Truck Fleet, Alternative 2.5 at a 3% Discount Rate (dollars), per Vehicle Model Year

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Price Increase	0	0	0	85	394	662	1,061	1,061	1,022	961
Implicit Opportunity Cost	0	0	0	0	0	0	0	0	0	0
Increase in Financing Cost	0	0	0	9	41	69	111	111	107	101
Increase in Insurance Cost	0	0	0	8	37	62	100	100	96	91
Increase in Taxes/Fees	0	0	0	5	22	36	58	58	56	52
Lost Consumer Surplus	0	0	0	0	1	2	4	4	3	3
Total Consumer Cost	0	0	0	97	453	763	1,223	1,223	1,177	1,106
Fuel Savings	26	27	28	-85	-458	-733	-1,202	-1,408	-1,496	-1,467
Mobility Benefit	0	0	0	10	37	55	78	97	107	115
Refueling Benefit	22	25	27	30	32	35	37	41	44	48
Total Consumer Benefit	1	1	1	0	30	23	45	39	36	8
Net Consumer Benefit	-4	-3	-2	125	497	801	1,272	1,508	1,611	1,621
Payback	-4	-3	-2	27	43	38	49	285	434	515

Table B-23-4 - Average Impacts to Consumers Relative to Alternative 0 (Baseline) for the Total Fleet, Alternative 2.5 at a 7% Discount Rate (dollars), per Vehicle Model Year

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Price Increase	0	0	0	184	485	757	1,113	1,102	1,067	999
Implicit Opportunity Cost	0	0	0	0	0	0	0	0	0	0
Increase in Financing Cost	0	0	0	18	48	79	117	120	117	112
Increase in Insurance Cost	0	0	0	14	39	64	95	97	95	91
Increase in Taxes/Fees	0	0	0	10	27	45	66	68	66	63
Lost Consumer Surplus	0	0	0	0	1	2	4	4	3	3
Total Consumer Cost	0	0	0	208	552	867	1,279	1,271	1,232	1,156
Fuel Savings	14	15	16	-98	-392	-600	-890	-987	-1,053	-1,025
Mobility Benefit	0	0	0	7	29	44	58	68	75	77
Refueling Benefit	11	12	14	16	18	20	22	25	28	31
Total Consumer Benefit	1	1	1	4	24	36	61	58	58	48
Net Consumer Benefit	-4	-3	-2	117	415	628	908	1,021	1,099	1,085
Payback	-4	-3	-2	-91	-137	-240	-370	-250	-133	-71

Table B-23-5 - Average Impacts to Consumers Relative to Alternative 0 (Baseline) for the Passenger Car Fleet, Alternative 2.5 at a 7% Discount Rate (dollars), per Vehicle Model Year

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Price Increase	0	0	0	295	585	857	1,165	1,139	1,106	1,030
Implicit Opportunity Cost	0	0	0	0	0	0	0	0	0	0
Increase in Financing Cost	0	0	0	28	56	81	110	107	104	96
Increase in Insurance Cost	0	0	0	23	46	66	90	87	85	79
Increase in Taxes/Fees	0	0	0	16	32	46	63	61	59	55
Lost Consumer Surplus	0	0	0	0	1	2	4	4	3	3
Total Consumer Cost	0	0	0	334	663	971	1,321	1,291	1,253	1,166
Fuel Savings	12	13	13	-131	-449	-703	-954	-1,027	-1,105	-1,080
Mobility Benefit	0	0	0	6	30	47	57	62	67	65
Refueling Benefit	8	9	11	12	13	15	17	19	22	24
Total Consumer Benefit	1	1	1	8	24	55	88	88	88	90
Net Consumer Benefit	-5	-4	-2	142	469	709	940	1,020	1,106	1,080
Payback	-5	-4	-2	-193	-194	-262	-382	-271	-147	-86

Table B-23-6 - Average Impacts to Consumers Relative to Alternative 0 (Baseline) for the Light Truck Fleet, Alternative 2.5 at a 7% Discount Rate (dollars), per Vehicle Model Year

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Price Increase	0	0	0	85	394	662	1,061	1,061	1,022	961
Implicit Opportunity Cost	0	0	0	0	0	0	0	0	0	0
Increase in Financing Cost	0	0	0	8	38	64	102	102	98	92
Increase in Insurance Cost	0	0	0	7	31	52	83	83	80	75
Increase in Taxes/Fees	0	0	0	5	22	36	58	58	56	52
Lost Consumer Surplus	0	0	0	0	1	2	4	4	3	3
Total Consumer Cost	0	0	0	96	447	752	1,206	1,206	1,161	1,091
Fuel Savings	16	17	19	-68	-351	-563	-922	-1,080	-1,149	-1,129
Mobility Benefit	0	0	0	7	28	42	59	74	81	88
Refueling Benefit	13	15	17	19	21	24	27	30	34	37
Total Consumer Benefit	1	1	1	0	24	18	35	30	29	7
Net Consumer Benefit	-4	-3	-2	95	377	611	972	1,154	1,235	1,246
Payback	-4	-3	-2	-1	-70	-141	-234	-51	75	156

24. Environmental Impacts

Table B-24-1 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Total Fleet in Calendar Year 2030, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.20	-0.21	-0.18	-0.21
VOC Upstream	-1.19	-2.17	-2.49	-3.17
NOx Upstream	-0.36	-0.40	-0.35	-0.41
SO2 Upstream	0.01	0.25	0.38	0.52
PM Upstream	-0.03	-0.03	-0.03	-0.03
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-0.62	-2.20	-2.92	-3.95
VOC Tailpipe	-0.01	-0.05	-0.06	-0.08
NOx Tailpipe	-0.02	-0.05	-0.07	-0.09
SO2 Tailpipe	-0.02	-0.04	-0.05	-0.07
PM Tailpipe	0.00	-0.01	-0.01	-0.01
Fleetwide Change in Total Emissions				
CO Total	-0.82	-2.42	-3.11	-4.16
VOC Total	-1.20	-2.21	-2.55	-3.25
NOx Total	-0.38	-0.45	-0.42	-0.50

Table B-24-2 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Passenger Car Fleet in Calendar Year 2030, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.07	-0.13	-0.15	-0.20
VOC Upstream	-0.65	-1.42	-1.56	-1.93
NO _x Upstream	-0.13	-0.24	-0.28	-0.37
SO ₂ Upstream	0.06	0.18	0.19	0.22
PM Upstream	-0.01	-0.02	-0.02	-0.03
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-1.03	-2.67	-2.91	-3.64
VOC Tailpipe	-0.02	-0.06	-0.06	-0.08
NO _x Tailpipe	-0.02	-0.06	-0.07	-0.09
SO ₂ Tailpipe	-0.01	-0.03	-0.03	-0.04
PM Tailpipe	0.00	-0.01	-0.01	-0.01
Fleetwide Change in Total Emissions				
CO Total	-1.11	-2.80	-3.06	-3.84
VOC Total	-0.68	-1.48	-1.62	-2.01
NO _x Total	-0.16	-0.30	-0.34	-0.45

Table B-24-3 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Light Truck Fleet in Calendar Year 2030, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.13	-0.08	-0.04	-0.01
VOC Upstream	-0.53	-0.75	-0.93	-1.24
NOx Upstream	-0.23	-0.16	-0.08	-0.04
SO2 Upstream	-0.06	0.07	0.19	0.31
PM Upstream	-0.02	-0.01	-0.01	0.00
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	0.41	0.46	-0.01	-0.30
VOC Tailpipe	0.01	0.01	0.00	0.00
NOx Tailpipe	0.01	0.01	0.00	-0.01
SO2 Tailpipe	-0.01	-0.01	-0.02	-0.03
PM Tailpipe	0.00	0.00	0.00	0.00
Fleetwide Change in Total Emissions				
CO Total	0.29	0.38	-0.05	-0.32
VOC Total	-0.52	-0.73	-0.93	-1.24
NOx Total	-0.22	-0.15	-0.08	-0.05

Table B-24-4 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Total Fleet in Calendar Year 2035, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.16	-0.18	-0.16	-0.18
VOC Upstream	-0.94	-1.73	-1.99	-2.53
NO _x Upstream	-0.29	-0.34	-0.31	-0.36
SO ₂ Upstream	0.00	0.17	0.27	0.37
PM Upstream	-0.02	-0.03	-0.03	-0.03
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-0.73	-2.58	-3.41	-4.63
VOC Tailpipe	-0.02	-0.09	-0.13	-0.17
NO _x Tailpipe	-0.02	-0.06	-0.08	-0.10
SO ₂ Tailpipe	-0.02	-0.04	-0.04	-0.05
PM Tailpipe	0.00	-0.01	-0.01	-0.01
Fleetwide Change in Total Emissions				
CO Total	-0.89	-2.76	-3.57	-4.81
VOC Total	-0.96	-1.82	-2.11	-2.70
NO _x Total	-0.30	-0.40	-0.38	-0.46

Table B-24-5 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Passenger Car Fleet in Calendar Year 2035, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.06	-0.11	-0.13	-0.17
VOC Upstream	-0.52	-1.13	-1.24	-1.54
NO _x Upstream	-0.11	-0.21	-0.24	-0.31
SO ₂ Upstream	0.04	0.13	0.13	0.15
PM Upstream	-0.01	-0.02	-0.02	-0.03
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-1.22	-3.14	-3.42	-4.28
VOC Tailpipe	-0.05	-0.12	-0.13	-0.16
NO _x Tailpipe	-0.03	-0.07	-0.08	-0.09
SO ₂ Tailpipe	-0.01	-0.02	-0.03	-0.03
PM Tailpipe	0.00	-0.01	-0.01	-0.01
Fleetwide Change in Total Emissions				
CO Total	-1.28	-3.25	-3.55	-4.45
VOC Total	-0.57	-1.25	-1.37	-1.70
NO _x Total	-0.14	-0.28	-0.31	-0.41

Table B-24-6 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Light Truck Fleet in Calendar Year 2035, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.10	-0.07	-0.03	-0.02
VOC Upstream	-0.42	-0.60	-0.75	-0.99
NOx Upstream	-0.17	-0.13	-0.07	-0.05
SO2 Upstream	-0.04	0.05	0.14	0.23
PM Upstream	-0.01	-0.01	-0.01	0.00
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	0.49	0.56	0.01	-0.34
VOC Tailpipe	0.02	0.03	0.00	-0.01
NOx Tailpipe	0.01	0.01	0.00	-0.01
SO2 Tailpipe	-0.01	-0.01	-0.02	-0.02
PM Tailpipe	0.00	0.00	0.00	0.00
Fleetwide Change in Total Emissions				
CO Total	0.39	0.49	-0.02	-0.36
VOC Total	-0.39	-0.57	-0.74	-1.00
NOx Total	-0.16	-0.12	-0.07	-0.06

Table B-24-7 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Total Fleet in Calendar Year 2040, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.11	-0.13	-0.12	-0.14
VOC Upstream	-0.66	-1.20	-1.39	-1.77
NO _x Upstream	-0.21	-0.25	-0.23	-0.28
SO ₂ Upstream	-0.01	0.10	0.16	0.22
PM Upstream	-0.02	-0.02	-0.02	-0.02
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-0.75	-2.64	-3.49	-4.74
VOC Tailpipe	-0.02	-0.09	-0.12	-0.16
NO _x Tailpipe	-0.01	-0.04	-0.06	-0.08
SO ₂ Tailpipe	-0.01	-0.02	-0.03	-0.04
PM Tailpipe	0.00	-0.01	-0.01	-0.01
Fleetwide Change in Total Emissions				
CO Total	-0.86	-2.77	-3.61	-4.88
VOC Total	-0.68	-1.29	-1.50	-1.92
NO _x Total	-0.22	-0.29	-0.29	-0.36

Table B-24-8 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Passenger Car Fleet in Calendar Year 2040, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.04	-0.08	-0.09	-0.12
VOC Upstream	-0.36	-0.77	-0.85	-1.05
NOx Upstream	-0.08	-0.15	-0.17	-0.23
SO2 Upstream	0.02	0.07	0.08	0.08
PM Upstream	-0.01	-0.01	-0.01	-0.02
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-1.23	-3.18	-3.47	-4.34
VOC Tailpipe	-0.04	-0.11	-0.12	-0.14
NOx Tailpipe	-0.02	-0.05	-0.06	-0.07
SO2 Tailpipe	-0.01	-0.02	-0.02	-0.02
PM Tailpipe	0.00	-0.01	-0.01	-0.01
Fleetwide Change in Total Emissions				
CO Total	-1.28	-3.26	-3.55	-4.46
VOC Total	-0.40	-0.88	-0.96	-1.20
NOx Total	-0.10	-0.20	-0.23	-0.30

Table B-24-9 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) from the MY 2029 Light Truck Fleet in Calendar Year 2040, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-0.07	-0.05	-0.03	-0.02
VOC Upstream	-0.30	-0.43	-0.54	-0.72
NO _x Upstream	-0.13	-0.10	-0.06	-0.05
SO ₂ Upstream	-0.03	0.03	0.08	0.14
PM Upstream	-0.01	-0.01	-0.01	0.00
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	0.49	0.53	-0.03	-0.40
VOC Tailpipe	0.02	0.02	0.00	-0.01
NO _x Tailpipe	0.01	0.01	0.00	-0.01
SO ₂ Tailpipe	-0.01	-0.01	-0.01	-0.01
PM Tailpipe	0.00	0.00	0.00	0.00
Fleetwide Change in Total Emissions				
CO Total	0.42	0.48	-0.06	-0.42
VOC Total	-0.28	-0.41	-0.54	-0.73
NO _x Total	-0.12	-0.09	-0.06	-0.06

Table B-24-10 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) Over Lifetimes of Vehicles Through 2029 for the Total Fleet, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-12.25	-12.58	-11.43	-14.39
VOC Upstream	-81.47	-138.48	-157.94	-204.50
NOx Upstream	-22.62	-24.20	-22.58	-28.57
SO2 Upstream	2.56	16.79	23.49	30.82
PM Upstream	-1.91	-2.03	-1.90	-2.40
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	54.13	48.89	76.09	85.80
VOC Tailpipe	10.13	18.49	24.48	31.32
NOx Tailpipe	7.68	14.78	19.54	25.08
SO2 Tailpipe	-1.73	-3.00	-3.43	-4.39
PM Tailpipe	0.02	-0.14	-0.17	-0.26
Fleetwide Change in Total Emissions				
CO Total	41.88	36.32	64.67	71.41
VOC Total	-71.34	-119.98	-133.46	-173.18
NOx Total	-14.93	-9.42	-3.04	-3.49

Table B-24-11 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) Over Lifetimes of Vehicles Through 2029 for the Light Truck Fleet, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-7.56	-5.03	-2.34	-2.59
VOC Upstream	-40.10	-50.92	-61.83	-86.25
NOx Upstream	-13.77	-9.60	-5.16	-6.09
SO2 Upstream	-1.01	5.62	12.44	18.15
PM Upstream	-1.16	-0.81	-0.43	-0.51
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	80.80	146.98	145.33	162.14
VOC Tailpipe	7.06	13.69	16.08	19.87
NOx Tailpipe	5.55	11.12	13.70	17.21
SO2 Tailpipe	-0.85	-1.12	-1.38	-1.87
PM Tailpipe	0.16	0.27	0.20	0.18
Fleetwide Change in Total Emissions				
CO Total	73.24	141.95	143.00	159.55
VOC Total	-33.04	-37.23	-45.75	-66.38
NOx Total	-8.22	1.52	8.53	11.12

Table B-24-12 - Incremental Change in Criteria Emissions Relative to Alternative 0 (Baseline) Over Lifetimes of Vehicles Through 2029 for the Passenger Car Fleet, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	-4.69	-7.54	-9.09	-11.80
VOC Upstream	-41.38	-87.56	-96.11	-118.25
NOx Upstream	-8.85	-14.60	-17.42	-22.48
SO2 Upstream	3.57	11.16	11.04	12.67
PM Upstream	-0.75	-1.23	-1.47	-1.89
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	-26.67	-98.09	-69.24	-76.34
VOC Tailpipe	3.07	4.80	8.40	11.45
NOx Tailpipe	2.13	3.66	5.84	7.87
SO2 Tailpipe	-0.88	-1.87	-2.05	-2.52
PM Tailpipe	-0.14	-0.41	-0.37	-0.44
Fleetwide Change in Total Emissions				
CO Total	-31.36	-105.63	-78.33	-88.14
VOC Total	-38.30	-82.76	-87.72	-106.80
NOx Total	-6.71	-10.94	-11.57	-14.61

Table B-24-13 - Total Criteria Emissions from the MY 2029 Total Fleet in Calendar Year 2030, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	6.4	6.4	6.5	6.4
VOC Upstream	21.9	20.9	20.6	19.9
NOx Upstream	11.5	11.5	11.5	11.5
SO2 Upstream	4.1	4.4	4.5	4.6
PM Upstream	1.0	1.0	1.0	1.0
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	63.4	61.8	61.1	60.0
VOC Tailpipe	1.3	1.3	1.3	1.3
NOx Tailpipe	1.4	1.4	1.4	1.3
SO2 Tailpipe	0.4	0.4	0.4	0.4
PM Tailpipe	0.2	0.2	0.2	0.2
Fleetwide Change in Total Emissions				
CO Total	69.8	68.2	67.5	66.5
VOC Total	23.3	22.2	21.9	21.2
NOx Total	12.9	12.9	12.9	12.8

Table B-24-14 - Total Criteria Emissions from the MY 2029 Passenger Car Fleet in Calendar Year 2030, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	2.8	2.7	2.7	2.6
VOC Upstream	8.6	7.9	7.7	7.4
NOx Upstream	4.9	4.8	4.8	4.7
SO2 Upstream	2.0	2.1	2.1	2.1
PM Upstream	0.4	0.4	0.4	0.4
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	29.1	27.5	27.2	26.5
VOC Tailpipe	0.6	0.6	0.6	0.6
NOx Tailpipe	0.7	0.6	0.6	0.6
SO2 Tailpipe	0.2	0.2	0.2	0.1
PM Tailpipe	0.1	0.1	0.1	0.1
Fleetwide Change in Total Emissions				
CO Total	31.9	30.2	29.9	29.1
VOC Total	9.3	8.5	8.3	7.9
NOx Total	5.6	5.5	5.4	5.3

Table B-24-15 - Total Criteria Emissions from the MY 2029 Light Truck Fleet in Calendar Year 2030, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	3.7	3.7	3.8	3.8
VOC Upstream	13.3	13.0	12.9	12.6
NOx Upstream	6.6	6.7	6.7	6.8
SO2 Upstream	2.1	2.3	2.4	2.5
PM Upstream	0.6	0.6	0.6	0.6
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	34.3	34.3	33.8	33.6
VOC Tailpipe	0.7	0.7	0.7	0.7
NOx Tailpipe	0.7	0.7	0.7	0.7
SO2 Tailpipe	0.3	0.3	0.3	0.3
PM Tailpipe	0.1	0.1	0.1	0.1
Fleetwide Change in Total Emissions				
CO Total	38.0	38.0	37.6	37.3
VOC Total	14.0	13.8	13.6	13.3
NOx Total	7.3	7.4	7.5	7.5

Table B-24-16 - Total Criteria Emissions from the MY 2029 Total Fleet in Calendar Year 2035, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	5.1	5.1	5.1	5.1
VOC Upstream	17.4	16.6	16.4	15.8
NOx Upstream	9.1	9.0	9.1	9.0
SO2 Upstream	3.2	3.4	3.4	3.6
PM Upstream	0.8	0.8	0.8	0.8
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	74.3	72.5	71.7	70.4
VOC Tailpipe	3.1	3.0	2.9	2.9
NOx Tailpipe	1.7	1.7	1.7	1.6
SO2 Tailpipe	0.4	0.3	0.3	0.3
PM Tailpipe	0.2	0.2	0.2	0.2
Fleetwide Change in Total Emissions				
CO Total	79.4	77.5	76.7	75.5
VOC Total	20.5	19.6	19.3	18.7
NOx Total	10.8	10.7	10.7	10.6

Table B-24-17 - Total Criteria Emissions from the MY 2029 Passenger Car Fleet in Calendar Year 2035, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	2.2	2.1	2.1	2.1
VOC Upstream	6.9	6.3	6.2	5.9
NOx Upstream	3.9	3.8	3.8	3.7
SO2 Upstream	1.5	1.6	1.6	1.6
PM Upstream	0.3	0.3	0.3	0.3
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	34.5	32.6	32.3	31.5
VOC Tailpipe	1.4	1.3	1.3	1.2
NOx Tailpipe	0.8	0.7	0.7	0.7
SO2 Tailpipe	0.1	0.1	0.1	0.1
PM Tailpipe	0.1	0.1	0.1	0.1
Fleetwide Change in Total Emissions				
CO Total	36.7	34.7	34.4	33.5
VOC Total	8.3	7.6	7.5	7.1
NOx Total	4.7	4.5	4.5	4.4

Table B-24-18 - Total Criteria Emissions from the MY 2029 Light Truck Fleet in Calendar Year 2035, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	2.9	2.9	3.0	3.0
VOC Upstream	10.5	10.3	10.2	9.9
NOx Upstream	5.2	5.2	5.3	5.3
SO2 Upstream	1.7	1.8	1.8	1.9
PM Upstream	0.4	0.4	0.4	0.4
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	39.8	39.9	39.3	39.0
VOC Tailpipe	1.7	1.7	1.7	1.7
NOx Tailpipe	1.0	1.0	0.9	0.9
SO2 Tailpipe	0.2	0.2	0.2	0.2
PM Tailpipe	0.1	0.1	0.1	0.1
Fleetwide Change in Total Emissions				
CO Total	42.7	42.8	42.3	42.0
VOC Total	12.2	12.0	11.9	11.6
NOx Total	6.1	6.2	6.2	6.3

Table B-24-19 - Total Criteria Emissions from the MY 2029 Total Fleet in Calendar Year 2040, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	3.5	3.5	3.5	3.5
VOC Upstream	12.1	11.6	11.4	11.0
NOx Upstream	6.3	6.2	6.3	6.2
SO2 Upstream	2.2	2.3	2.3	2.4
PM Upstream	0.5	0.5	0.5	0.5
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	74.6	72.7	71.9	70.6
VOC Tailpipe	2.6	2.6	2.5	2.5
NOx Tailpipe	1.4	1.3	1.3	1.3
SO2 Tailpipe	0.2	0.2	0.2	0.2
PM Tailpipe	0.2	0.2	0.2	0.2
Fleetwide Change in Total Emissions				
CO Total	78.2	76.2	75.4	74.1
VOC Total	14.8	14.2	14.0	13.5
NOx Total	7.7	7.6	7.6	7.5

Table B-24-20 - Total Criteria Emissions from the MY 2029 Passenger Car Fleet in Calendar Year 2040, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	1.5	1.4	1.4	1.4
VOC Upstream	4.7	4.3	4.2	4.0
NOx Upstream	2.6	2.6	2.5	2.5
SO2 Upstream	1.0	1.0	1.0	1.1
PM Upstream	0.2	0.2	0.2	0.2
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	34.5	32.5	32.2	31.3
VOC Tailpipe	1.2	1.1	1.1	1.1
NOx Tailpipe	0.6	0.6	0.5	0.5
SO2 Tailpipe	0.1	0.1	0.1	0.1
PM Tailpipe	0.1	0.1	0.1	0.1
Fleetwide Change in Total Emissions				
CO Total	35.9	34.0	33.7	32.7
VOC Total	5.9	5.4	5.3	5.1
NOx Total	3.2	3.1	3.1	3.0

Table B-24-21 - Total Criteria Emissions from the MY 2029 Light Truck Fleet in Calendar Year 2040, by Alternative (1,000 metric tons)

Alternative	1	2	2.5	3
Fleetwide Change in Upstream Emissions				
CO Upstream	2.0	2.1	2.1	2.1
VOC Upstream	7.4	7.3	7.2	7.0
NOx Upstream	3.7	3.7	3.7	3.7
SO2 Upstream	1.2	1.2	1.3	1.3
PM Upstream	0.3	0.3	0.3	0.3
Fleetwide Change in Tailpipe Emissions				
CO Tailpipe	40.2	40.2	39.7	39.3
VOC Tailpipe	1.5	1.5	1.4	1.4
NOx Tailpipe	0.8	0.8	0.8	0.8
SO2 Tailpipe	0.2	0.1	0.1	0.1
PM Tailpipe	0.1	0.1	0.1	0.1
Fleetwide Change in Total Emissions				
CO Total	42.2	42.3	41.7	41.4
VOC Total	8.9	8.8	8.7	8.5
NOx Total	4.4	4.5	4.5	4.5

25. Electrification Costs

Table B-25-1 - Incremental Electrification Costs for Manufacturer (Total), MY 2029 Total Fleet

	Alternative			
	1	2	2.5	3
Retrievable Electrification Costs (\$b)	-0.5	-0.4	-0.3	-0.3
Electrification Tax Credits (\$b)	0.0	0.0	0.0	0.0
Irretrievable Electrification Costs (\$b)	-0.1	-0.1	-0.1	-0.1
Total Electrification Costs (\$b)	-0.4	-0.3	-0.2	-0.2

Table B-25-2 - Incremental Electrification Costs for Manufacturer (Total), MY 2029 Passenger Car Fleet

	Alternative			
	1	2	2.5	3
Retrievable Electrification Costs (\$b)	-0.3	-0.2	-0.2	-0.2
Electrification Tax Credits (\$b)	0.0	0.0	0.0	0.0
Irretrievable Electrification Costs (\$b)	-0.1	0.0	0.0	0.0
Total Electrification Costs (\$b)	-0.2	-0.2	-0.2	-0.2

Table B-25-3 - Incremental Electrification Costs for Manufacturer (Total), MY 2029 Light Truck Fleet

	Alternative			
	1	2	2.5	3
Retrievable Electrification Costs (\$b)	-0.2	-0.1	-0.1	-0.1
Electrification Tax Credits (\$b)	0.0	0.0	0.0	0.0
Irretrievable Electrification Costs (\$b)	0.0	0.0	0.0	0.0
Total Electrification Costs (\$b)	-0.2	-0.1	-0.1	-0.1

Table B-25-4 - Total Electrification Costs for Manufacturer (Total), MY 2029 Total Fleet

	Alternative			
	1	2	2.5	3
Retrievable Electrification Costs (\$b)	0.1	0.2	0.3	0.3
Electrification Tax Credits (\$b)	0.0	0.0	0.0	0.0
Irretrievable Electrification Costs (\$b)	0.0	0.0	0.0	0.1
Total Electrification Costs (\$b)	0.1	0.2	0.2	0.3

Table B-25-5 - Total Electrification Costs for Manufacturer (Total), MY 2029 Passenger Car Fleet

	Alternative			
	1	2	2.5	3
Retrievable Electrification Costs (\$b)	0.1	0.1	0.1	0.1
Electrification Tax Credits (\$b)	0.0	0.0	0.0	0.0
Irretrievable Electrification Costs (\$b)	0.0	0.0	0.0	0.0
Total Electrification Costs (\$b)	0.1	0.1	0.1	0.1

Table B-25-6 - Total Electrification Costs for Manufacturer (Total), MY 2029 Light Truck Fleet

	Alternative			
	1	2	2.5	3
Retrievable Electrification Costs (\$b)	0.0	0.1	0.2	0.2
Electrification Tax Credits (\$b)	0.0	0.0	0.0	0.0
Irretrievable Electrification Costs (\$b)	0.0	0.0	0.0	0.0
Total Electrification Costs (\$b)	0.0	0.1	0.1	0.1

26. Fleet Characteristics

Table B-26-1 - Changes in Fleet Characteristics for Model Years 2020-2029 for Alternative 1

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	Avg.
Changes in Fleet Size, Usage and Fuel Consumption												
Changes in Fleet Size (m)	0.0	0.0	0.0	-0.1	-0.7	-0.7	-0.7	-0.7	-0.6	-0.5	-3.9	-0.4
Light Truck Share (%)	59%	58%	56%	55%	55%	54%	54%	54%	53%	53%	N/A	55%
Pass. Car Share (%)	41%	42%	44%	45%	45%	46%	46%	46%	47%	47%	N/A	45%
VMT from Rebound (b)	0.0	0.0	0.0	1.5	6.9	8.5	10.2	11.2	12.2	12.7	63.2	6.3
Fuel Volume - Total (b gallons)	0.1	0.1	0.1	-0.6	-3.6	-4.0	-4.9	-5.2	-5.5	-5.1	-28.8	-2.9
Fuel Volume - Lt. Truck (b gallons)	0.0	0.0	0.0	-0.4	-2.2	-2.0	-2.4	-2.6	-2.7	-2.3	-14.4	-1.4
Fuel Volume - Pass. Car (b gallons)	0.0	0.0	0.0	-0.2	-1.4	-2.0	-2.5	-2.6	-2.8	-2.8	-14.4	-1.4
Changes in Fatalities by Source												
Fatalities from Rebound Miles	0	0	0	7	36	43	52	57	62	64	321	32
Fatalities from Curb Weight Change	0	0	0	0	9	9	13	16	16	17	80	8
Total Changes in Fatalities	10	11	12	13	14	28	38	52	65	74	316	32
Changes in Non-Fatal Safety Impacts												
Injuries from Rebound Miles (thousands)	0.0	0.0	0.0	0.6	2.9	3.5	4.2	4.7	5.1	5.3	26	3
Injuries from Curb Weight (thousands)	0.0	0.0	0.0	0.0	0.8	0.8	1.2	1.3	1.4	1.4	6.9	0.7
Total Change in Injuries (thousands)	0.7	0.8	0.9	1.0	1.0	1.9	2.8	4.0	5.1	5.8	24.0	2.4
Property Damage from Rebound Miles (thousands)	0.0	0.0	0.0	2.3	11.0	13.4	16.2	17.8	19.5	20.1	100.4	10.0
Property Damage from Curb Weight (thousands)	0.0	0.0	0.0	0.1	3.0	2.9	4.4	5.2	5.4	5.4	26.4	2.6
Total Property Damaged Vehicles (thousands)	2.6	3.2	3.5	3.8	3.8	7.3	10.7	15.1	19.3	21.9	91.1	9.1

Table B-26-2 - Changes in Fleet Characteristics for Model Years 2020-2029 for Alternative 2

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	Avg.
Changes in Fleet Size, Usage and Fuel Consumption												
Changes in Fleet Size (m)	0.0	0.0	0.0	-0.4	-0.9	-1.3	-1.8	-1.6	-1.4	-1.2	-8.4	-0.8
Light Truck Share (%)	59%	58%	56%	55%	55%	55%	54%	55%	54%	54%	N/A	55%
Pass. Car Share (%)	41%	42%	44%	45%	45%	45%	46%	45%	46%	46%	N/A	45%
VMT from Rebound (b)	0.0	0.0	0.0	1.7	7.8	12.2	15.8	18.0	19.5	19.7	94.8	9.5
Fuel Volume - Total (b gallons)	0.1	0.1	0.1	-1.1	-4.1	-6.3	-8.7	-9.4	-9.8	-9.3	-48.4	-4.8
Fuel Volume - Lt. Truck (b gallons)	0.1	0.1	0.1	-0.5	-1.9	-2.5	-3.4	-3.5	-3.6	-3.2	-18.3	-1.8
Fuel Volume - Pass. Car (b gallons)	0.0	0.1	0.1	-0.7	-2.2	-3.9	-5.3	-5.9	-6.2	-6.1	-30.2	-3.0
Changes in Fatalities by Source												
Fatalities from Rebound Miles	0	0	0	9	39	60	79	89	97	97	471	47
Fatalities from Curb Weight Change	0	0	0	4	16	13	17	19	20	20	107	11
Total Changes in Fatalities	20	23	24	14	27	22	21	53	75	89	367	37
Changes in Non-Fatal Safety Impacts												
Injuries from Rebound Miles (thousands)	0.0	0.0	0.0	0.7	3.3	5.1	6.6	7.5	8.1	8.2	39	4
Injuries from Curb Weight (thousands)	0.0	0.0	0.0	0.3	1.4	1.1	1.5	1.6	1.7	1.7	9.3	0.9
Total Change in Injuries (thousands)	1.5	1.8	1.9	1.2	2.3	1.6	1.4	3.8	5.7	6.9	28.0	2.8
Property Damage from Rebound Miles (thousands)	0.0	0.0	0.1	2.8	12.5	19.3	25.3	28.6	31.0	31.2	150.8	15.1
Property Damage from Curb Weight (thousands)	0.0	0.0	0.0	1.2	5.2	4.2	5.6	6.3	6.5	6.5	35.5	3.5
Total Property Damaged Vehicles (thousands)	5.5	6.6	7.2	4.4	8.8	6.0	5.3	14.4	21.6	26.1	105.9	10.6

Table B-26-3 - Changes in Fleet Characteristics for Model Years 2020-2029 for Alternative 2.5

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	Avg.
Changes in Fleet Size, Usage and Fuel Consumption												
Changes in Fleet Size (m)	0.0	0.0	0.0	-0.5	-1.2	-1.6	-2.4	-2.1	-1.9	-1.6	-11.4	-1.1
Light Truck Share (%)	59%	58%	56%	55%	55%	55%	55%	55%	54%	54%	N/A	55%
Pass. Car Share (%)	41%	42%	44%	45%	45%	45%	45%	45%	46%	46%	N/A	45%
VMT from Rebound (b)	0.0	0.0	0.1	2.1	8.7	13.3	16.9	19.2	20.6	20.6	101.4	10.1
Fuel Volume - Total (b gallons)	0.2	0.2	0.2	-1.3	-4.7	-6.9	-10.1	-10.9	-11.2	-10.7	-55.2	-5.5
Fuel Volume - Lt. Truck (b gallons)	0.1	0.1	0.1	-0.5	-2.1	-2.6	-4.2	-4.4	-4.4	-4.0	-21.8	-2.2
Fuel Volume - Pass. Car (b gallons)	0.1	0.1	0.1	-0.8	-2.6	-4.3	-5.9	-6.5	-6.9	-6.7	-33.4	-3.3
Changes in Fatalities by Source												
Fatalities from Rebound Miles	0	0	0	11	44	66	84	95	102	102	504	50
Fatalities from Curb Weight Change	0	0	0	4	16	13	16	18	19	19	105	11
Total Changes in Fatalities	27	31	33	15	21	19	-1	35	60	77	318	32
Changes in Non-Fatal Safety Impacts												
Injuries from Rebound Miles (thousands)	0.0	0.0	0.0	0.9	3.6	5.5	7.0	8.0	8.6	8.5	42	4
Injuries from Curb Weight (thousands)	0.0	0.0	0.0	0.4	1.4	1.1	1.4	1.6	1.6	1.7	9.1	0.9
Total Change in Injuries (thousands)	1.9	2.3	2.6	1.3	1.8	1.3	-0.4	2.3	4.5	5.9	23.6	2.4
Property Damage from Rebound Miles (thousands)	0.0	0.1	0.1	3.4	13.9	21.1	26.9	30.5	32.7	32.6	161.4	16.1
Property Damage from Curb Weight (thousands)	0.0	0.0	0.0	1.4	5.3	4.2	5.4	6.0	6.2	6.4	35.0	3.5
Total Property Damaged Vehicles (thousands)	7.3	8.8	9.7	4.7	6.7	4.8	-1.7	8.7	16.9	22.6	88.6	8.9

Table B-26-4 - Changes in Fleet Characteristics for Model Years 2020-2029 for Alternative 3

Model Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total	Avg.
Changes in Fleet Size, Usage and Fuel Consumption												
Changes in Fleet Size (m)	0.0	0.0	-0.1	-0.6	-1.6	-2.4	-3.0	-2.7	-2.4	-2.1	-14.9	-1.5
Light Truck Share (%)	59%	58%	56%	55%	55%	55%	55%	55%	55%	54%	N/A	56%
Pass. Car Share (%)	41%	42%	44%	45%	45%	45%	45%	45%	45%	46%	N/A	44%
VMT from Rebound (b)	0.0	0.0	0.1	3.0	12.1	17.2	21.1	23.6	25.4	25.5	128.0	12.8
Fuel Volume - Total (b gallons)	0.2	0.2	0.3	-1.6	-6.4	-9.5	-12.8	-13.6	-14.1	-13.5	-70.8	-7.1
Fuel Volume - Lt. Truck (b gallons)	0.1	0.2	0.2	-0.7	-3.1	-4.0	-5.5	-5.7	-5.7	-5.2	-29.5	-2.9
Fuel Volume - Pass. Car (b gallons)	0.1	0.1	0.1	-0.9	-3.2	-5.4	-7.2	-7.9	-8.4	-8.3	-41.3	-4.1
Changes in Fatalities by Source												
Fatalities from Rebound Miles	0	0	0	15	61	85	105	118	126	126	637	64
Fatalities from Curb Weight Change	0	0	0	4	17	14	18	18	18	17	106	11
Total Changes in Fatalities	34	39	41	23	20	5	-7	33	63	86	337	34
Changes in Non-Fatal Safety Impacts												
Injuries from Rebound Miles (thousands)	0.0	0.0	0.0	1.3	5.0	7.1	8.8	9.8	10.5	10.6	53	5
Injuries from Curb Weight (thousands)	0.0	0.0	0.0	0.4	1.5	1.2	1.6	1.6	1.6	1.5	9.3	0.9
Total Change in Injuries (thousands)	2.5	3.0	3.3	1.9	1.7	0.1	-1.1	2.0	4.7	6.5	24.6	2.5
Property Damage from Rebound Miles (thousands)	0.0	0.1	0.1	4.8	19.3	27.2	33.7	37.6	40.3	40.3	203.4	20.3
Property Damage from Curb Weight (thousands)	0.0	0.0	0.0	1.4	5.7	4.7	6.0	6.1	6.0	5.8	35.6	3.6
Total Property Damaged Vehicles (thousands)	9.3	11.2	12.3	7.2	6.5	0.3	-4.3	7.5	17.7	24.9	92.5	9.2

27. Liquid Fuel and Electricity Consumption

Table B-27-1 - Change in Liquid Fuel Consumed (b Gallons), Total Fleet, Undiscounted Over the Lifetime of the Model Year

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	1199.9	0.1	0.1	-0.6	-3.6	-4.0	-4.9	-5.2	-5.5	-5.1	1171.0
Alternative 2	1201.0	0.1	0.1	-1.1	-4.1	-6.3	-8.7	-9.4	-9.8	-9.3	1152.4
Alternative 2.5	1201.7	0.2	0.2	-1.3	-4.7	-6.9	-10.1	-10.9	-11.2	-10.7	1146.3
Alternative 3	1202.5	0.2	0.3	-1.6	-6.4	-9.5	-12.8	-13.6	-14.1	-13.5	1131.5

Table B-27-2 - Change in Liquid Fuel Consumed (b Gallons), Passenger Car Fleet, Undiscounted Over the Lifetime of the Model Year

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	474.0	0.0	0.0	-0.2	-1.4	-2.0	-2.5	-2.6	-2.8	-2.8	459.6
Alternative 2	474.6	0.1	0.1	-0.7	-2.2	-3.9	-5.3	-5.9	-6.2	-6.1	444.5
Alternative 2.5	475.0	0.1	0.1	-0.8	-2.6	-4.3	-5.9	-6.5	-6.9	-6.7	441.5
Alternative 3	475.4	0.1	0.1	-0.9	-3.2	-5.4	-7.2	-7.9	-8.4	-8.3	434.1

Table B-27-3 - Change in Liquid Fuel Consumed (b Gallons), Light Truck Fleet, Undiscounted Over the Lifetime of the Model Year

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	725.8	0.0	0.0	-0.4	-2.2	-2.0	-2.4	-2.6	-2.7	-2.3	711.4
Alternative 2	726.4	0.1	0.1	-0.5	-1.9	-2.5	-3.4	-3.5	-3.6	-3.2	708.0
Alternative 2.5	726.7	0.1	0.1	-0.5	-2.1	-2.6	-4.2	-4.4	-4.4	-4.0	704.8
Alternative 3	727.1	0.2	0.2	-0.7	-3.1	-4.0	-5.5	-5.7	-5.7	-5.2	697.4

Table B-27-4 - Change in Electricity (G-Wh) Consumed, Total Fleet, Undiscounted Over the Lifetime of the Model Year

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	39.0	0.0	0.0	1.0	8.2	9.8	13.5	14.2	14.7	10.6	111.0
Alternative 2	39.1	0.0	0.0	6.3	14.2	21.3	34.9	37.1	38.4	34.8	226.1
Alternative 2.5	39.1	0.0	0.0	6.7	15.8	22.9	45.6	48.7	49.9	46.5	275.3
Alternative 3	39.1	0.0	0.1	6.8	19.6	35.6	58.1	61.6	64.1	61.5	346.6

Table B-27-5 - Change in Electricity (G-Wh) Consumed, Passenger Car Fleet, Undiscounted Over the Lifetime of the Model Year

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	34.0	0.0	0.0	0.4	4.3	5.7	8.7	9.5	9.9	9.8	82.3
Alternative 2	34.0	0.0	0.0	5.5	9.4	13.4	21.5	22.7	24.2	24.0	154.7
Alternative 2.5	34.0	0.0	0.0	5.5	9.3	13.3	22.4	24.3	25.7	25.8	160.3
Alternative 3	34.1	0.0	0.0	5.5	11.1	17.3	26.7	28.5	30.8	30.5	184.5

Table B-27-6 - Change in Electricity (G-Wh) Consumed, Light Truck Fleet, Undiscounted Over the Lifetime of the Model Year

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Alternative 1	5.1	0.0	0.0	0.6	3.9	4.1	4.7	4.8	4.7	0.8	28.7
Alternative 2	5.1	0.0	0.0	0.8	4.8	7.9	13.4	14.4	14.2	10.8	71.4
Alternative 2.5	5.1	0.0	0.0	1.3	6.5	9.6	23.2	24.4	24.2	20.7	115.0
Alternative 3	5.1	0.0	0.0	1.3	8.5	18.3	31.4	33.2	33.3	31.0	162.1

28. Vehicle-Mass-Related Fatality Impacts

Table B-28-1 - Vehicle-Mass-Related Fatality Impacts over the Lifetime of MY 1981-2029 for Total Fleet, Compared to Alternative 0 (Baseline) - Fatalities Undiscounted, Dollars Discounted at 3% and 7%

Category	Regulatory Alternative			
	1	2	2.5	3
Fatalities	615	999	1,143	1,401
Fatality Costs (\$ Billion, 3% Discount Rate)	4.5	7.6	8.8	10.9
Fatality Costs (\$ Billion, 7% Discount Rate)	2.9	5.0	6.0	7.5
Non-Fatal Crash Costs (\$ Billion, 3% Discount Rate)	3.4	5.3	5.8	7.0
Non-Fatal Crash Costs (\$ Billion, 7% Discount Rate)	2.2	3.5	3.9	4.8
Total Crash Costs (\$ Billion, 3% Discount Rate)	7.9	12.9	14.6	18.0
Total Crash Costs (\$ Billion, 7% Discount Rate)	5.1	8.6	9.9	12.3

Table B-28-2 - Vehicle-Mass-Related Fatality Impacts over the Lifetime of MY 1981-2029 for Passenger Car Fleet, Compared to Alternative 0 (Baseline) - Fatalities Undiscounted, Dollars Discounted at 3% and 7%

Category	Regulatory Alternative			
	1	2	2.5	3
Fatalities	-100	-321	-336	-499
Fatality Costs (\$ Billion, 3% Discount Rate)	-0.4	-1.5	-1.4	-2.2
Fatality Costs (\$ Billion, 7% Discount Rate)	0.0	-0.3	-0.2	-0.4
Non-Fatal Crash Costs (\$ Billion, 3% Discount Rate)	-1.2	-3.2	-3.6	-5.1
Non-Fatal Crash Costs (\$ Billion, 7% Discount Rate)	-0.6	-1.7	-1.9	-2.7
Total Crash Costs (\$ Billion, 3% Discount Rate)	-1.5	-4.7	-5.0	-7.3
Total Crash Costs (\$ Billion, 7% Discount Rate)	-0.6	-2.1	-2.1	-3.2

Table B-28-3 - Vehicle-Mass-Related Fatality Impacts over the Lifetime of MY 1981-2029 for Light Truck Fleet, Compared to Alternative 0 (Baseline) - Fatalities Undiscounted, Dollars Discounted at 3% and 7%

Category	Regulatory Alternative			
	1	2	2.5	3
Fatalities	715	1,320	1,479	1,900
Fatality Costs (\$ Billion, 3% Discount Rate)	4.9	9.0	10.2	13.2
Fatality Costs (\$ Billion, 7% Discount Rate)	2.9	5.4	6.1	7.9
Non-Fatal Crash Costs (\$ Billion, 3% Discount Rate)	4.6	8.5	9.4	12.1
Non-Fatal Crash Costs (\$ Billion, 7% Discount Rate)	2.9	5.3	5.8	7.6
Total Crash Costs (\$ Billion, 3% Discount Rate)	9.5	17.6	19.6	25.3
Total Crash Costs (\$ Billion, 7% Discount Rate)	5.7	10.6	12.0	15.4

Table B-28-4 - Vehicle-Mass-Related Fatality Impacts for CY 2039-2048 for Total Fleet, Compared to Alternative 0 (Baseline) - Fatalities Undiscounted, Dollars Discounted at 3% and 7%

Category	Regulatory Alternative			
	1	2	2.5	3
Fatalities	564	799	803	926
Fatality Costs (\$ Billion, 3% Discount Rate)	3.1	4.5	4.5	5.2
Fatality Costs (\$ Billion, 7% Discount Rate)	1.4	1.9	1.9	2.2
Non-Fatal Crash Costs (\$ Billion, 3% Discount Rate)	3.5	5.1	5.2	6.1
Non-Fatal Crash Costs (\$ Billion, 7% Discount Rate)	1.5	2.2	2.3	2.6
Total Crash Costs (\$ Billion, 3% Discount Rate)	6.6	9.6	9.7	11.3
Total Crash Costs (\$ Billion, 7% Discount Rate)	2.9	4.2	4.2	4.9

Table B-28-5 - Vehicle-Mass-Related Fatality Impacts for CY 2039-2048 for Passenger Car Fleet, Compared to Alternative 0 (Baseline) - Fatalities Undiscounted, Dollars Discounted at 3% and 7%

Category	Regulatory Alternative			
	1	2	2.5	3
Fatalities	-468	-1,418	-1,503	-2,214
Fatality Costs (\$ Billion, 3% Discount Rate)	-2.6	-7.8	-8.3	-12.2
Fatality Costs (\$ Billion, 7% Discount Rate)	-1.1	-3.3	-3.5	-5.2
Non-Fatal Crash Costs (\$ Billion, 3% Discount Rate)	-3.0	-9.1	-9.5	-14.1
Non-Fatal Crash Costs (\$ Billion, 7% Discount Rate)	-1.3	-3.9	-4.1	-6.0
Total Crash Costs (\$ Billion, 3% Discount Rate)	-5.6	-16.9	-17.8	-26.3
Total Crash Costs (\$ Billion, 7% Discount Rate)	-2.4	-7.2	-7.6	-11.2

Table B-28-6 - Vehicle-Mass-Related Fatality Impacts for CY 2039-2048 for Light Truck Fleet, Compared to Alternative 0 (Baseline) - Fatalities Undiscounted, Dollars Discounted at 3% and 7%

Category	Regulatory Alternative			
	1	2	2.5	3
Fatalities	1,032	2,218	2,306	3,140
Fatality Costs (\$ Billion, 3% Discount Rate)	5.7	12.3	12.8	17.4
Fatality Costs (\$ Billion, 7% Discount Rate)	2.4	5.2	5.5	7.4
Non-Fatal Crash Costs (\$ Billion, 3% Discount Rate)	6.5	14.2	14.7	20.2
Non-Fatal Crash Costs (\$ Billion, 7% Discount Rate)	2.8	6.1	6.3	8.7
Total Crash Costs (\$ Billion, 3% Discount Rate)	12.2	26.5	27.5	37.6
Total Crash Costs (\$ Billion, 7% Discount Rate)	5.2	11.3	11.8	16.1

Table B-28-7 - Incremental Vehicle-Mass-Related Fatality Impacts by Model Year and Fleet, Alternative 1 Compared to Alternative 0 (Baseline), Undiscounted

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	167	5	5	5	4	-46	-53	-59	-60	-68	-100
Light Trucks	141	7	7	8	10	74	91	111	125	141	715
Total	308	11	12	13	14	28	38	52	65	74	615

Table B-28-8 - Incremental Vehicle-Mass-Related Fatality Impacts by Model Year and Fleet, Alternative 2 Compared to Alternative 0 (Baseline), Undiscounted

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	357	9	10	6	10	-64	-123	-169	-172	-186	-321
Light Trucks	295	14	14	8	17	85	144	222	247	274	1320
Total	652	23	24	14	27	22	21	53	75	89	999

Table B-28-9 - Incremental Vehicle-Mass-Related Fatality Impacts by Model Year and Fleet, Alternative 2.5 Compared to Alternative 0 (Baseline), Undiscounted

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	463	13	13	8	3	-78	-145	-198	-202	-211	-336
Light Trucks	390	19	20	8	19	97	145	233	262	288	1479
Total	852	31	33	15	21	19	-1	35	60	77	1143

Table B-28-10 - Incremental Vehicle-Mass-Related Fatality Impacts by Model Year and Fleet, Alternative 3 Compared to Alternative 0 (Baseline), Undiscounted

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	598	16	16	10	-5	-119	-201	-258	-266	-289	-499
Light Trucks	501	23	25	12	25	125	193	291	329	375	1900
Total	1098	39	41	23	20	5	-7	33	63	86	1401

Table B-28-11 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 1 Compared to Alternative 0 (Baseline), 3% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	1.4	0.0	0.0	0.0	0.0	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Light Trucks	1.1	0.1	0.1	0.1	0.1	0.5	0.6	0.7	0.8	0.9	4.9
Total	2.5	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.4	4.5

Table B-28-12 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 2 Compared to Alternative 0 (Baseline), 3% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	3.0	0.1	0.1	0.1	0.1	-0.5	-0.8	-1.1	-1.1	-1.2	-1.5
Light Trucks	2.4	0.1	0.1	0.1	0.1	0.6	1.0	1.5	1.6	1.7	9.0
Total	5.3	0.2	0.2	0.1	0.2	0.1	0.1	0.3	0.5	0.5	7.6

Table B-28-13 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 2.5 Compared to Alternative 0 (Baseline), 3% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	3.8	0.1	0.1	0.1	0.0	-0.6	-1.0	-1.3	-1.3	-1.3	-1.4
Light Trucks	3.1	0.1	0.1	0.1	0.1	0.7	1.0	1.5	1.7	1.8	10.2
Total	6.9	0.2	0.2	0.1	0.2	0.1	0.0	0.2	0.4	0.5	8.8

Table B-28-14 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 3 Compared to Alternative 0 (Baseline), 3% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	5.0	0.1	0.1	0.1	0.0	-0.8	-1.4	-1.7	-1.7	-1.8	-2.2
Light Trucks	4.0	0.2	0.2	0.1	0.2	0.9	1.3	1.9	2.1	2.3	13.2
Total	9.0	0.3	0.3	0.2	0.2	0.0	-0.1	0.2	0.4	0.5	10.9

Table B-28-15 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 1 Compared to Alternative 0 (Baseline), 7% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	1.0	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	-0.2	-0.2	0.0
Light Trucks	0.8	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.4	0.5	2.9
Total	1.8	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2.9

Table B-28-16 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 2 Compared to Alternative 0 (Baseline), 7% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	2.1	0.1	0.1	0.0	0.1	-0.3	-0.5	-0.6	-0.6	-0.6	-0.3
Light Trucks	1.6	0.1	0.1	0.0	0.1	0.4	0.6	0.8	0.9	0.9	5.4
Total	3.8	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	5.0

Table B-28-17 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 2.5 Compared to Alternative 0 (Baseline), 7% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	2.8	0.1	0.1	0.0	0.0	-0.3	-0.6	-0.8	-0.7	-0.7	-0.2
Light Trucks	2.1	0.1	0.1	0.0	0.1	0.4	0.6	0.9	0.9	0.9	6.1
Total	4.9	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.2	6.0

Table B-28-18 - Incremental Vehicle-Mass-Related Fatality Costs (\$ billion) by Model Year and Fleet, Alternative 3 Compared to Alternative 0 (Baseline), 7% Discount Rate

Model Year	1981-2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Passenger Cars	3.6	0.1	0.1	0.1	0.0	-0.5	-0.8	-1.0	-0.9	-1.0	-0.4
Light Trucks	2.8	0.1	0.1	0.1	0.1	0.5	0.8	1.1	1.1	1.2	7.9
Total	6.4	0.2	0.2	0.1	0.1	0.0	-0.1	0.1	0.2	0.3	7.5

29. Sales Impacts

Table B-29-1 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	13,592,551	0	0	0	0
2021	16,204,667	0	0	0	0
2022	17,350,796	0	0	0	0
2023	17,061,667	-6,527	-18,542	-27,587	-32,059
2024	16,741,737	-41,392	-47,473	-66,592	-92,224
2025	16,455,925	-45,577	-83,842	-102,115	-145,245
2026	16,372,034	-50,988	-115,645	-149,997	-192,431
2027	16,334,169	-47,773	-111,170	-143,473	-183,342
2028	16,248,038	-43,536	-102,923	-133,238	-169,767
2029	16,147,493	-39,881	-94,224	-121,727	-155,825

Table B-29-2 - Estimated Sales Impacts by Alternative, Passenger Car Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	5,929,602	0	0	0	0
2021	7,268,761	0	0	0	0
2022	8,018,954	0	0	0	0
2023	8,031,357	-3,070	-8,704	-12,990	-15,096
2024	7,997,157	-24,383	-34,807	-50,929	-70,604
2025	7,965,946	-82,494	-125,855	-149,413	-206,534
2026	8,010,303	-97,718	-201,638	-233,637	-308,498
2027	8,047,167	-107,153	-258,648	-296,816	-377,674
2028	8,092,263	-112,637	-268,454	-308,328	-394,497
2029	8,112,494	-122,617	-283,122	-318,687	-420,133

Table B-29-3 - Estimated Sales Impacts by Alternative, Light Truck Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	7,662,949	0	0	0	0
2021	8,935,906	0	0	0	0
2022	9,331,842	0	0	0	0
2023	9,030,310	-3,457	-9,838	-14,597	-16,963
2024	8,744,580	-17,009	-12,666	-15,663	-21,620
2025	8,489,979	36,917	42,013	47,298	61,289
2026	8,361,731	46,730	85,993	83,640	116,067
2027	8,287,002	59,380	147,478	153,343	194,332
2028	8,155,775	69,101	165,531	175,090	224,730
2029	8,034,999	82,736	188,898	196,960	264,308

Table B-29-4 - Estimated Sales Impacts by Alternative, Domestic Car Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	2,780,461	0	0	0	0
2021	3,423,965	0	0	0	0
2022	3,795,241	0	0	0	0
2023	3,811,873	-1,448	-4,140	-6,179	-7,172
2024	3,804,054	-11,926	-17,425	-25,595	-35,488
2025	3,796,730	-43,605	-66,007	-78,267	-108,056
2026	3,823,841	-51,738	-106,388	-122,724	-162,210
2027	3,845,304	-56,996	-137,736	-157,513	-200,383
2028	3,872,898	-60,144	-143,377	-164,165	-210,030
2029	3,887,400	-65,726	-151,695	-170,217	-224,551

Table B-29-5 - Estimated Sales Impacts by Alternative, Imported Car Fleet for Manufacturer (Total)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	3,149,141	0	0	0	0
2021	3,844,796	0	0	0	0
2022	4,223,713	0	0	0	0
2023	4,219,484	-1,622	-4,564	-6,811	-7,924
2024	4,193,103	-12,457	-17,382	-25,334	-35,116
2025	4,169,216	-38,889	-59,848	-71,146	-98,478
2026	4,186,462	-45,980	-95,250	-110,913	-146,288
2027	4,201,863	-50,157	-120,912	-139,303	-177,291
2028	4,219,365	-52,493	-125,077	-144,163	-184,467
2029	4,225,094	-56,891	-131,427	-148,470	-195,582

Table B-29-6 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (BMW)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	296,063	0	0	0	0
2021	358,952	0	0	0	0
2022	391,421	0	0	0	0
2023	389,273	-151	-412	-628	-727
2024	385,457	-1,096	-1,450	-2,112	-2,896
2025	382,039	-2,862	-4,502	-5,377	-7,437
2026	382,632	-3,357	-7,026	-8,299	-10,899
2027	383,396	-3,608	-8,672	-10,112	-12,877
2028	383,986	-3,725	-8,880	-10,350	-13,255
2029	383,713	-3,995	-9,249	-10,566	-13,910

Table B-29-7 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Daimler)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	363,906	0	0	0	0
2021	436,221	0	0	0	0
2022	469,890	0	0	0	0
2023	463,803	-179	-499	-750	-873
2024	456,502	-1,190	-1,443	-2,052	-2,843
2025	449,963	-1,966	-3,308	-3,990	-5,603
2026	448,680	-2,262	-4,901	-6,024	-7,835
2027	448,299	-2,296	-5,484	-6,635	-8,452
2028	446,979	-2,271	-5,422	-6,553	-8,358
2029	445,050	-2,312	-5,410	-6,424	-8,360

Table B-29-8 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (FCA)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	1,504,790	0	0	0	0
2021	1,765,156	0	0	0	0
2022	1,855,937	0	0	0	0
2023	1,803,946	-693	-1,974	-2,903	-3,414
2024	1,753,320	-3,668	-3,227	-4,204	-5,845
2025	1,708,211	3,942	3,563	3,823	4,582
2026	1,687,259	5,213	8,984	7,642	11,090
2027	1,675,378	7,131	17,970	17,879	22,600
2028	1,653,940	8,654	20,805	21,304	27,364
2029	1,633,582	10,728	24,411	24,767	33,480

Table B-29-9 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Ford)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	1,686,149	0	0	0	0
2021	1,988,109	0	0	0	0
2022	2,102,624	0	0	0	0
2023	2,051,473	-787	-2,245	-3,319	-3,850
2024	2,000,165	-4,454	-4,347	-5,851	-8,101
2025	1,954,375	1,255	-532	-1,076	-2,212
2026	1,935,033	1,985	2,355	-21	909
2027	1,924,420	3,613	9,467	8,116	10,147
2028	1,904,616	4,925	11,939	11,154	14,344
2029	1,885,054	6,679	15,070	14,280	19,570

Table B-29-10 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (GM)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	2,315,296	0	0	0	0
2021	2,728,261	0	0	0	0
2022	2,883,421	0	0	0	0
2023	2,811,995	-1,075	-3,062	-4,565	-5,277
2024	2,740,621	-6,034	-5,817	-7,852	-10,820
2025	2,676,965	2,286	29	-610	-1,808
2026	2,649,706	3,428	4,509	1,359	3,205
2027	2,634,706	5,731	14,721	13,040	16,456
2028	2,606,797	7,608	18,253	17,302	22,425
2029	2,579,404	10,076	22,690	21,756	29,873

Table B-29-11 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Honda)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	1,293,078	0	0	0	0
2021	1,560,103	0	0	0	0
2022	1,692,355	0	0	0	0
2023	1,677,702	-632	-1,810	-2,712	-3,148
2024	1,657,044	-4,514	-5,817	-8,360	-11,595
2025	1,638,536	-10,155	-16,266	-19,456	-27,123
2026	1,638,067	-11,861	-25,045	-29,883	-39,160
2027	1,639,417	-12,561	-30,102	-35,391	-45,075
2028	1,638,887	-12,829	-30,550	-35,892	-45,892
2029	1,635,276	-13,559	-31,448	-36,228	-47,516

Table B-29-12 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Hyundai Kia-H)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	741,548	0	0	0	0
2021	893,059	0	0	0	0
2022	966,862	0	0	0	0
2023	957,329	-361	-1,032	-1,535	-1,790
2024	944,627	-2,540	-3,221	-4,607	-6,392
2025	933,237	-5,299	-8,583	-10,272	-14,359
2026	932,308	-6,178	-13,114	-15,742	-20,608
2027	932,645	-6,494	-15,523	-18,358	-23,397
2028	931,669	-6,595	-15,668	-18,513	-23,682
2029	929,074	-6,931	-16,037	-18,580	-24,354

Table B-29-13 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Hyundai Kia-K)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	596,735	0	0	0	0
2021	723,798	0	0	0	0
2022	789,640	0	0	0	0
2023	785,526	-287	-841	-1,250	-1,460
2024	778,021	-2,198	-2,945	-4,265	-5,922
2025	771,267	-5,875	-9,195	-10,972	-15,243
2026	772,599	-6,906	-14,421	-16,997	-22,353
2027	774,249	-7,447	-17,885	-20,806	-26,492
2028	775,600	-7,713	-18,340	-21,342	-27,323
2029	775,163	-8,266	-19,095	-21,795	-28,674

Table B-29-14 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (JLR)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	138,251	0	0	0	0
2021	161,741	0	0	0	0
2022	169,544	0	0	0	0
2023	164,458	-61	-172	-267	-306
2024	159,579	-319	-259	-340	-465
2025	155,230	516	533	584	736
2026	153,129	655	1,167	1,071	1,518
2027	151,919	853	2,120	2,155	2,739
2028	149,764	1,016	2,411	2,508	3,231
2029	147,746	1,232	2,795	2,872	3,873

Table B-29-15 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Mazda)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	260,417	0	0	0	0
2021	309,262	0	0	0	0
2022	329,711	0	0	0	0
2023	323,333	-123	-350	-522	-608
2024	316,572	-756	-830	-1,145	-1,589
2025	310,531	-493	-1,068	-1,320	-1,929
2026	308,436	-527	-1,307	-1,857	-2,343
2027	307,393	-409	-872	-1,342	-1,736
2028	305,243	-281	-632	-1,047	-1,337
2029	302,931	-145	-348	-735	-883

Table B-29-16 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Mitsubishi)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	112,715	0	0	0	0
2021	133,020	0	0	0	0
2022	140,828	0	0	0	0
2023	137,490	-48	-151	-232	-259
2024	134,127	-301	-302	-421	-569
2025	131,119	52	-86	-140	-246
2026	129,868	99	78	-103	-76
2027	129,193	197	508	393	493
2028	127,920	276	666	583	758
2029	126,651	390	864	786	1,096

Table B-29-17 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Nissan)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	1,030,570	0	0	0	0
2021	1,238,975	0	0	0	0
2022	1,338,852	0	0	0	0
2023	1,324,125	-520	-1,454	-2,152	-2,496
2024	1,305,339	-3,489	-4,354	-6,189	-8,575
2025	1,288,522	-6,735	-11,018	-13,184	-18,442
2026	1,286,363	-7,809	-16,643	-20,105	-26,244
2027	1,286,267	-8,136	-19,379	-23,046	-29,349
2028	1,284,034	-8,199	-19,458	-23,119	-29,510
2029	1,279,739	-8,530	-19,765	-23,045	-30,102

Table B-29-18 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Subaru)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	751,468	0	0	0	0
2021	890,819	0	0	0	0
2022	947,833	0	0	0	0
2023	928,338	-356	-1,013	-1,502	-1,749
2024	907,980	-2,127	-2,280	-3,129	-4,341
2025	889,806	-924	-2,379	-2,986	-4,415
2026	883,112	-895	-2,566	-4,024	-4,960
2027	879,666	-447	-828	-1,996	-2,603
2028	872,807	-27	-34	-1,027	-1,283
2029	865,619	472	918	4	297

Table B-29-19 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Tesla)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	196,000	0	0	0	0
2021	244,803	0	0	0	0
2022	275,289	0	0	0	0
2023	278,850	-109	-304	-453	-527
2024	280,114	-949	-1,470	-2,180	-3,030
2025	281,209	-4,152	-6,192	-7,323	-10,086
2026	284,517	-4,949	-10,107	-11,550	-15,309
2027	286,951	-5,507	-13,335	-15,142	-19,265
2028	290,319	-5,853	-13,960	-15,878	-20,335
2029	292,450	-6,449	-14,869	-16,574	-21,908

Table B-29-20 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Toyota)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	1,774,456	0	0	0	0
2021	2,135,077	0	0	0	0
2022	2,309,284	0	0	0	0
2023	2,285,150	-876	-2,482	-3,696	-4,296
2024	2,253,727	-6,027	-7,576	-10,841	-15,029
2025	2,225,596	-12,111	-19,712	-23,642	-33,031
2026	2,222,597	-14,075	-29,951	-36,117	-47,196
2027	2,222,899	-14,719	-35,170	-41,763	-53,182
2028	2,219,763	-14,872	-35,401	-41,982	-53,635
2029	2,212,944	-15,548	-36,083	-42,004	-54,939

Table B-29-21 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (Volvo)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	103,970	0	0	0	0
2021	123,390	0	0	0	0
2022	131,455	0	0	0	0
2023	128,847	-54	-139	-202	-244
2024	126,097	-292	-324	-439	-614
2025	123,656	-174	-402	-490	-710
2026	122,790	-183	-461	-672	-840
2027	122,352	-131	-258	-428	-571
2028	121,456	-70	-152	-295	-401
2029	120,500	-2	-24	-154	-195

Table B-29-22 - Estimated Sales Impacts by Alternative, Total Fleet for Manufacturer (VWA)

Model Year	Regulatory Alternative				
	0 (Baseline)	1	2	2.5	3
2020	427,139	0	0	0	0
2021	513,921	0	0	0	0
2022	555,850	0	0	0	0
2023	550,029	-215	-602	-899	-1,035
2024	542,445	-1,438	-1,811	-2,605	-3,598
2025	535,663	-2,882	-4,724	-5,684	-7,919
2026	534,938	-3,366	-7,196	-8,675	-11,330
2027	535,019	-3,543	-8,448	-10,037	-12,778
2028	534,258	-3,580	-8,500	-10,091	-12,878
2029	532,597	-3,721	-8,644	-10,087	-13,173

30. Regulatory Costs per Vehicle, by Vehicle Type

Table B-30-1 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Total)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	870	1,180	1,024
Alternative 1	1,208	1,591	1,401
Alternative 2	1,708	1,948	1,831
Alternative 2.5	1,900	2,141	2,024
Alternative 3	2,122	2,461	2,298

Table B-30-2 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (BMW)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,837	1,126	1,623
Alternative 1	1,943	1,461	1,795
Alternative 2	2,023	1,802	1,953
Alternative 2.5	2,135	1,913	2,064
Alternative 3	2,380	2,197	2,321

Table B-30-3 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Daimler)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,450	1,315	1,389
Alternative 1	2,180	1,611	1,918
Alternative 2	2,982	1,797	2,425
Alternative 2.5	3,116	1,861	2,524
Alternative 3	3,065	2,741	2,910

Table B-30-4 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (FCA)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,819	1,340	1,420
Alternative 1	2,852	1,823	1,992
Alternative 2	3,609	2,105	2,346
Alternative 2.5	3,993	2,210	2,495
Alternative 3	4,392	2,438	2,745

Table B-30-5 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Ford)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,353	1,319	1,330
Alternative 1	1,685	1,409	1,493
Alternative 2	2,479	1,633	1,887
Alternative 2.5	2,400	2,060	2,162
Alternative 3	2,490	2,389	2,419

Table B-30-6 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (GM)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	877	972	937
Alternative 1	1,384	1,808	1,655
Alternative 2	1,918	2,470	2,274
Alternative 2.5	2,011	2,633	2,412
Alternative 3	2,211	3,027	2,740

Table B-30-7 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Honda)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	827	1,011	891
Alternative 1	861	936	888
Alternative 2	1,347	1,404	1,368
Alternative 2.5	1,456	1,649	1,527
Alternative 3	1,801	2,009	1,878

Table B-30-8 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Hyundai Kia-H)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	678	1,235	728
Alternative 1	1,137	1,998	1,215
Alternative 2	1,847	2,598	1,917
Alternative 2.5	2,009	2,757	2,079
Alternative 3	2,201	3,175	2,293

Table B-30-9 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Hyundai Kia-K)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	463	914	603
Alternative 1	805	1,308	964
Alternative 2	1,483	1,866	1,608
Alternative 2.5	1,606	2,062	1,756
Alternative 3	1,936	2,341	2,071

Table B-30-10 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (JLR)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,176	1,194	1,193
Alternative 1	1,445	1,824	1,802
Alternative 2	1,815	2,327	2,298
Alternative 2.5	2,122	2,459	2,440
Alternative 3	2,029	2,797	2,756

Table B-30-11 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Mazda)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	2,160	689	1,474
Alternative 1	2,536	898	1,765
Alternative 2	2,973	1,568	2,302
Alternative 2.5	3,043	1,848	2,471
Alternative 3	3,356	1,814	2,611

Table B-30-12 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Mitsubishi)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	484	272	376
Alternative 1	888	971	930
Alternative 2	1,245	1,264	1,255
Alternative 2.5	1,413	1,418	1,415
Alternative 3	1,614	1,805	1,713

Table B-30-13 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Nissan)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	565	1,096	704
Alternative 1	938	1,454	1,075
Alternative 2	1,560	1,945	1,664
Alternative 2.5	2,464	2,872	2,575
Alternative 3	2,731	3,074	2,826

Table B-30-14 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Subaru)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,185	858	950
Alternative 1	1,744	1,073	1,257
Alternative 2	1,918	1,073	1,297
Alternative 2.5	1,990	1,073	1,315
Alternative 3	2,069	1,073	1,329

Table B-30-15 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Tesla)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	24	346	31
Alternative 1	24	346	31
Alternative 2	24	346	31
Alternative 2.5	24	346	31
Alternative 3	24	346	31

Table B-30-16 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Toyota)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	616	1,254	867
Alternative 1	810	1,945	1,265
Alternative 2	1,074	2,167	1,523
Alternative 2.5	1,128	2,138	1,544
Alternative 3	1,356	2,640	1,892

Table B-30-17 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (Volvo)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,759	1,820	1,802
Alternative 1	2,033	1,881	1,926
Alternative 2	2,359	1,984	2,093
Alternative 2.5	2,513	1,915	2,088
Alternative 3	2,627	2,106	2,254

Table B-30-18 - Estimated Average Per Vehicle Regulatory Costs (\$) for MY 2029, by Alternative for Manufacturer (VWA)

	Passenger Cars	Light Trucks	Total Fleet
Alternative 0 (Baseline)	1,061	2,413	1,720
Alternative 1	1,506	2,115	1,808
Alternative 2	1,769	2,217	1,996
Alternative 2.5	1,922	2,271	2,100
Alternative 3	2,054	2,602	2,337

Table B-30-19 - Estimated Average Per Vehicle Fuel Costs (\$) for MY 2029 Total Fleet, by Alternative

	Lifetime Fuel Expenditures		Lifetime Increase	
	7% Discount Rate	3% Discount Rate	7% Discount Rate	3% Discount Rate
Alternative 0 (Baseline)	12,162	15,699	0	0
Alternative 1	11,646	15,033	-516	-666
Alternative 2	11,250	14,526	-912	-1,173
Alternative 2.5	11,137	14,379	-1,025	-1,320
Alternative 3	10,864	14,028	-1,298	-1,671

Table B-30-20 - Estimated Average Per Vehicle Fuel Costs (\$) for MY 2029 Passenger Car Fleet, by Alternative

	Lifetime Fuel Expenditures		Lifetime Increase	
	7% Discount Rate	3% Discount Rate	7% Discount Rate	3% Discount Rate
Alternative 0 (Baseline)	9,691	12,377	0	0
Alternative 1	9,228	11,784	-463	-593
Alternative 2	8,705	11,113	-986	-1,264
Alternative 2.5	8,611	10,993	-1,080	-1,384
Alternative 3	8,358	10,669	-1,334	-1,709

Table B-30-21 - Estimated Average Per Vehicle Fuel Costs (\$) for MY 2029 Light Truck Fleet, by Alternative

	Lifetime Fuel Expenditures		Lifetime Increase	
	7% Discount Rate	3% Discount Rate	7% Discount Rate	3% Discount Rate
Alternative 0 (Baseline)	14,656	19,053	0	0
Alternative 1	14,025	18,231	-632	-822
Alternative 2	13,672	17,775	-984	-1,278
Alternative 2.5	13,528	17,586	-1,129	-1,467
Alternative 3	13,187	17,142	-1,469	-1,912

31. Change in Safety Parameters

Table B-31-1 - Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Total Fleet, 3% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	80	107	105	106
Fatalities from Rebound Effect	322	473	506	640
Fatalities from Sales/Scrappage	213	419	532	655
Total Changes in Fatalities	615	999	1,143	1,401
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.5	0.7	0.7	0.7
Fatality Costs From Rebound Effect	2.1	3.2	3.4	4.3
Fatality Costs from Sales/Scrappage	1.8	3.7	4.7	5.9
Total - Fatality Costs (\$b)	4.5	7.6	8.8	10.9
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.6	0.8	0.8	0.8
Non-Fatal Crash Costs From Rebound Effect	2.3	3.5	3.7	4.7
Non-Fatal Crash Costs from Sales/Scrappage	0.5	1.0	1.2	1.5
Total - Non-Fatal Crash Costs (\$b)	3.4	5.3	5.8	7.0
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.2	0.2	0.2
Property Damage Costs From Rebound Effect	0.5	0.7	0.8	1.0
Property Damage Costs From Sales/Scrappage	0.1	0.2	0.2	0.2
Total - Property Damage Costs (\$b)	0.7	1.1	1.1	1.4
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	1.3	1.7	1.7	1.8
Crash Costs from Rebound Effect	4.9	7.4	7.9	10.0
Crash Costs from Sales/Scrappage	2.4	4.8	6.2	7.6
Total - Societal Crash Costs (\$b)	8.6	13.9	15.8	19.3

Table B-31-2 - Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Passenger Car Fleet, 3% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	80	124	123	142
Fatalities from Rebound Effect	116	217	245	297
Fatalities from Sales/Scrappage	-296	-662	-704	-937
Total Changes in Fatalities	-100	-321	-336	-499
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.5	0.8	0.8	1.0
Fatality Costs From Rebound Effect	0.8	1.5	1.7	2.0
Fatality Costs from Sales/Scrappage	-1.7	-3.8	-3.9	-5.2
Total - Fatality Costs (\$b)	-0.4	-1.5	-1.4	-2.2
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.6	1.0	1.0	1.1
Non-Fatal Crash Costs From Rebound Effect	0.9	1.7	1.9	2.3
Non-Fatal Crash Costs from Sales/Scrappage	-2.7	-5.8	-6.4	-8.5
Total - Non-Fatal Crash Costs (\$b)	-1.2	-3.2	-3.6	-5.1
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.2	0.2	0.2
Property Damage Costs From Rebound Effect	0.2	0.3	0.4	0.5
Property Damage Costs From Sales/Scrappage	-0.6	-1.2	-1.4	-1.8
Total - Property Damage Costs (\$b)	-0.3	-0.7	-0.8	-1.1
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	1.3	2.0	2.0	2.3
Crash Costs from Rebound Effect	1.9	3.5	3.9	4.8
Crash Costs from Sales/Scrappage	-4.9	-10.9	-11.7	-15.5
Total - Societal Crash Costs (\$b)	-1.8	-5.4	-5.8	-8.4

Table B-31-3 - Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Light Truck Fleet, 3% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	0	-17	-18	-36
Fatalities from Rebound Effect	206	256	261	344
Fatalities from Sales/Scrappage	509	1,081	1,236	1,592
Total Changes in Fatalities	715	1,320	1,479	1,900
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.0	-0.1	-0.1	-0.2
Fatality Costs From Rebound Effect	1.3	1.7	1.7	2.3
Fatality Costs from Sales/Scrappage	3.5	7.5	8.6	11.1
Total - Fatality Costs (\$b)	4.9	9.0	10.2	13.2
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.0	-0.1	-0.1	-0.3
Non-Fatal Crash Costs From Rebound Effect	1.4	1.8	1.9	2.4
Non-Fatal Crash Costs from Sales/Scrappage	3.2	6.8	7.7	9.9
Total - Non-Fatal Crash Costs (\$b)	4.6	8.5	9.4	12.1
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.0	0.0	0.0	-0.1
Property Damage Costs From Rebound Effect	0.3	0.4	0.4	0.5
Property Damage Costs From Sales/Scrappage	0.6	1.4	1.6	2.0
Total - Property Damage Costs (\$b)	0.9	1.7	1.9	2.5
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.0	-0.3	-0.3	-0.5
Crash Costs from Rebound Effect	3.1	3.9	4.0	5.2
Crash Costs from Sales/Scrappage	7.3	15.7	17.8	23.1
Total - Societal Crash Costs (\$b)	10.4	19.3	21.5	27.7

Table B-31-4 - Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Total Fleet, 7% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	80	107	105	106
Fatalities from Rebound Effect	322	473	506	640
Fatalities from Sales/Scrappage	213	419	532	655
Total Changes in Fatalities	615	999	1,143	1,401
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.3	0.4	0.4	0.4
Fatality Costs From Rebound Effect	1.2	1.8	1.9	2.5
Fatality Costs from Sales/Scrappage	1.3	2.8	3.6	4.6
Total - Fatality Costs (\$b)	2.9	5.0	6.0	7.5
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.4	0.5	0.5	0.5
Non-Fatal Crash Costs From Rebound Effect	1.4	2.2	2.3	3.0
Non-Fatal Crash Costs from Sales/Scrappage	0.4	0.8	1.1	1.3
Total - Non-Fatal Crash Costs (\$b)	2.2	3.5	3.9	4.8
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.1	0.1	0.1
Property Damage Costs From Rebound Effect	0.3	0.5	0.5	0.6
Property Damage Costs From Sales/Scrappage	0.1	0.1	0.2	0.2
Total - Property Damage Costs (\$b)	0.5	0.7	0.8	0.9
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.8	1.1	1.1	1.1
Crash Costs from Rebound Effect	3.0	4.4	4.8	6.0
Crash Costs from Sales/Scrappage	1.8	3.7	4.8	6.1
Total - Societal Crash Costs (\$b)	5.6	9.3	10.7	13.2

Table B-31-5 - Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Passenger Car Fleet, 7% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	80	124	123	142
Fatalities from Rebound Effect	116	217	245	297
Fatalities from Sales/Scrappage	-296	-662	-704	-937
Total Changes in Fatalities	-100	-321	-336	-499
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.3	0.5	0.5	0.6
Fatality Costs From Rebound Effect	0.5	0.9	1.0	1.2
Fatality Costs from Sales/Scrappage	-0.8	-1.7	-1.6	-2.2
Total - Fatality Costs (\$b)	0.0	-0.3	-0.2	-0.4
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.4	0.6	0.6	0.7
Non-Fatal Crash Costs From Rebound Effect	0.6	1.0	1.2	1.4
Non-Fatal Crash Costs from Sales/Scrappage	-1.6	-3.4	-3.7	-4.9
Total - Non-Fatal Crash Costs (\$b)	-0.6	-1.7	-1.9	-2.7
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.1	0.1	0.1
Property Damage Costs From Rebound Effect	0.1	0.2	0.2	0.3
Property Damage Costs From Sales/Scrappage	-0.3	-0.7	-0.8	-1.0
Total - Property Damage Costs (\$b)	-0.1	-0.4	-0.4	-0.6
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.8	1.2	1.2	1.4
Crash Costs from Rebound Effect	1.1	2.1	2.4	2.9
Crash Costs from Sales/Scrappage	-2.7	-5.8	-6.1	-8.1
Total - Societal Crash Costs (\$b)	-0.7	-2.5	-2.5	-3.8

Table B-31-6 - Change in Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Light Truck Fleet, 7% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	0	-17	-18	-36
Fatalities from Rebound Effect	206	256	261	344
Fatalities from Sales/Scrappage	509	1,081	1,236	1,592
Total Changes in Fatalities	715	1,320	1,479	1,900
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.0	-0.1	-0.1	-0.1
Fatality Costs From Rebound Effect	0.8	1.0	1.0	1.3
Fatality Costs from Sales/Scrappage	2.1	4.5	5.2	6.7
Total - Fatality Costs (\$b)	2.9	5.4	6.1	7.9
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.0	-0.1	-0.1	-0.2
Non-Fatal Crash Costs From Rebound Effect	0.9	1.1	1.2	1.5
Non-Fatal Crash Costs from Sales/Scrappage	2.0	4.2	4.8	6.2
Total - Non-Fatal Crash Costs (\$b)	2.9	5.3	5.8	7.6
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.0	0.0	0.0	0.0
Property Damage Costs From Rebound Effect	0.2	0.2	0.2	0.3
Property Damage Costs From Sales/Scrappage	0.4	0.9	1.0	1.3
Total - Property Damage Costs (\$b)	0.6	1.1	1.2	1.5
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.0	-0.2	-0.2	-0.3
Crash Costs from Rebound Effect	1.8	2.3	2.4	3.1
Crash Costs from Sales/Scrappage	4.5	9.6	10.9	14.2
Total - Societal Crash Costs (\$b)	6.3	11.7	13.1	17.0

Table B-31-7 - Change in Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Total Fleet, 3% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	106	122	124	133
Fatalities from Rebound Effect	472	750	770	936
Fatalities from Sales/Scrappage	-14	-73	-91	-142
Total Changes in Fatalities	564	799	803	926
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.6	0.7	0.7	0.7
Fatality Costs From Rebound Effect	2.6	4.2	4.3	5.2
Fatality Costs from Sales/Scrappage	-0.1	-0.4	-0.5	-0.8
Total - Fatality Costs (\$b)	3.1	4.5	4.5	5.2
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.6	0.7	0.8	0.8
Non-Fatal Crash Costs From Rebound Effect	2.9	4.6	4.8	5.7
Non-Fatal Crash Costs from Sales/Scrappage	-0.1	-0.2	-0.3	-0.4
Total - Non-Fatal Crash Costs (\$b)	3.5	5.1	5.2	6.1
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.2	0.2	0.2
Property Damage Costs From Rebound Effect	0.6	1.0	1.0	1.2
Property Damage Costs From Sales/Scrappage	0.0	0.0	-0.1	-0.1
Total - Property Damage Costs (\$b)	0.7	1.1	1.1	1.3
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	1.4	1.6	1.6	1.7
Crash Costs from Rebound Effect	6.1	9.8	10.0	12.1
Crash Costs from Sales/Scrappage	-0.2	-0.7	-0.8	-1.3
Total - Societal Crash Costs (\$b)	7.3	10.7	10.8	12.6

Table B-31-8 - Change in Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Passenger Car Fleet, 3% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	102	171	175	219
Fatalities from Rebound Effect	159	293	328	395
Fatalities from Sales/Scrappage	-729	-1,882	-2,006	-2,828
Total Changes in Fatalities	-468	-1,418	-1,503	-2,214
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.6	1.0	1.0	1.2
Fatality Costs From Rebound Effect	0.9	1.6	1.8	2.2
Fatality Costs from Sales/Scrappage	-4.0	-10.4	-11.1	-15.6
Total - Fatality Costs (\$b)	-2.6	-7.8	-8.3	-12.2
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.6	1.1	1.1	1.4
Non-Fatal Crash Costs From Rebound Effect	1.0	1.8	2.0	2.4
Non-Fatal Crash Costs from Sales/Scrappage	-4.6	-11.9	-12.6	-17.9
Total - Non-Fatal Crash Costs (\$b)	-3.0	-9.1	-9.5	-14.1
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.2	0.2	0.3
Property Damage Costs From Rebound Effect	0.2	0.4	0.4	0.5
Property Damage Costs From Sales/Scrappage	-0.9	-2.5	-2.6	-3.7
Total - Property Damage Costs (\$b)	-0.6	-1.9	-2.0	-2.9
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	1.3	2.2	2.3	2.9
Crash Costs from Rebound Effect	2.1	3.8	4.2	5.1
Crash Costs from Sales/Scrappage	-9.5	-24.8	-26.3	-37.2
Total - Societal Crash Costs (\$b)	-6.2	-18.8	-19.8	-29.2

Table B-31-9 - Change in Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Light Truck Fleet, 3% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	5	-49	-51	-86
Fatalities from Rebound Effect	313	457	442	540
Fatalities from Sales/Scrappage	714	1,810	1,915	2,685
Total Changes in Fatalities	1,032	2,218	2,306	3,140
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.0	-0.3	-0.3	-0.5
Fatality Costs From Rebound Effect	1.7	2.5	2.5	3.0
Fatality Costs from Sales/Scrappage	4.0	10.0	10.6	14.9
Total - Fatality Costs (\$b)	5.7	12.3	12.8	17.4
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.0	-0.3	-0.3	-0.5
Non-Fatal Crash Costs From Rebound Effect	1.9	2.9	2.8	3.3
Non-Fatal Crash Costs from Sales/Scrappage	4.5	11.7	12.3	17.4
Total - Non-Fatal Crash Costs (\$b)	6.5	14.2	14.7	20.2
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.0	-0.1	-0.1	-0.1
Property Damage Costs From Rebound Effect	0.4	0.6	0.6	0.7
Property Damage Costs From Sales/Scrappage	0.9	2.4	2.5	3.6
Total - Property Damage Costs (\$b)	1.3	2.9	3.0	4.2
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.1	-0.7	-0.7	-1.1
Crash Costs from Rebound Effect	4.1	6.0	5.8	7.0
Crash Costs from Sales/Scrappage	9.4	24.1	25.4	35.9
Total - Societal Crash Costs (\$b)	13.5	29.4	30.5	41.8

Table B-31-10 - Change in Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Total Fleet, 7% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	106	122	124	133
Fatalities from Rebound Effect	472	750	770	936
Fatalities from Sales/Scrappage	-14	-73	-91	-142
Total Changes in Fatalities	564	799	803	926
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.3	0.3	0.3	0.3
Fatality Costs From Rebound Effect	1.1	1.8	1.8	2.2
Fatality Costs from Sales/Scrappage	0.0	-0.2	-0.2	-0.3
Total - Fatality Costs (\$b)	1.4	1.9	1.9	2.2
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.3	0.3	0.3	0.4
Non-Fatal Crash Costs From Rebound Effect	1.3	2.0	2.1	2.5
Non-Fatal Crash Costs from Sales/Scrappage	0.0	-0.1	-0.1	-0.2
Total - Non-Fatal Crash Costs (\$b)	1.5	2.2	2.3	2.6
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.1	0.1	0.1
Property Damage Costs From Rebound Effect	0.3	0.4	0.4	0.5
Property Damage Costs From Sales/Scrappage	0.0	0.0	0.0	0.0
Total - Property Damage Costs (\$b)	0.3	0.5	0.5	0.5
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.6	0.7	0.7	0.7
Crash Costs from Rebound Effect	2.6	4.2	4.3	5.2
Crash Costs from Sales/Scrappage	-0.1	-0.3	-0.3	-0.5
Total - Societal Crash Costs (\$b)	3.2	4.6	4.7	5.4

Table B-31-11 - Change in Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Passenger Car Fleet, 7% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	102	171	175	219
Fatalities from Rebound Effect	159	293	328	395
Fatalities from Sales/Scrappage	-729	-1,882	-2,006	-2,828
Total Changes in Fatalities	-468	-1,418	-1,503	-2,214
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.2	0.4	0.4	0.5
Fatality Costs From Rebound Effect	0.4	0.7	0.8	1.0
Fatality Costs from Sales/Scrappage	-1.7	-4.4	-4.7	-6.7
Total - Fatality Costs (\$b)	-1.1	-3.3	-3.5	-5.2
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.3	0.5	0.5	0.6
Non-Fatal Crash Costs From Rebound Effect	0.4	0.8	0.9	1.0
Non-Fatal Crash Costs from Sales/Scrappage	-2.0	-5.1	-5.4	-7.7
Total - Non-Fatal Crash Costs (\$b)	-1.3	-3.9	-4.1	-6.0
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.1	0.1	0.1	0.1
Property Damage Costs From Rebound Effect	0.1	0.2	0.2	0.2
Property Damage Costs From Sales/Scrappage	-0.4	-1.0	-1.1	-1.6
Total - Property Damage Costs (\$b)	-0.3	-0.8	-0.8	-1.2
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.6	1.0	1.0	1.2
Crash Costs from Rebound Effect	0.9	1.6	1.8	2.2
Crash Costs from Sales/Scrappage	-4.1	-10.6	-11.2	-15.9
Total - Societal Crash Costs (\$b)	-2.6	-8.0	-8.4	-12.4

Table B-31-12 - Change in Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Light Truck Fleet, 7% Percent Discount Rate, by Alternative

Alternative	1	2	2.5	3
Fatalities				
Fatalities From Mass Changes	5	-49	-51	-86
Fatalities from Rebound Effect	313	457	442	540
Fatalities from Sales/Scrappage	714	1,810	1,915	2,685
Total Changes in Fatalities	1,032	2,218	2,306	3,140
Fatality Costs (\$b)				
Fatality Costs From Mass Changes	0.0	-0.1	-0.1	-0.2
Fatality Costs From Rebound Effect	0.7	1.1	1.1	1.3
Fatality Costs from Sales/Scrappage	1.7	4.3	4.5	6.3
Total - Fatality Costs (\$b)	2.4	5.2	5.5	7.4
Non-Fatal Crash Costs (\$b)				
Non-Fatal Crash Costs From Mass Changes	0.0	-0.1	-0.1	-0.2
Non-Fatal Crash Costs From Rebound Effect	0.8	1.2	1.2	1.4
Non-Fatal Crash Costs from Sales/Scrappage	1.9	5.0	5.3	7.5
Total - Non-Fatal Crash Costs (\$b)	2.8	6.1	6.3	8.7
Property Damage Costs (\$b)				
Property Damage Costs From Mass Changes	0.0	0.0	0.0	0.0
Property Damage Costs From Rebound Effect	0.2	0.3	0.2	0.3
Property Damage Costs From Sales/Scrappage	0.4	1.0	1.1	1.5
Total - Property Damage Costs (\$b)	0.6	1.3	1.3	1.8
Societal Crash Costs (\$b)				
Crash Costs from Mass Changes	0.0	-0.3	-0.3	-0.5
Crash Costs from Rebound Effect	1.7	2.6	2.5	3.0
Crash Costs from Sales/Scrappage	4.0	10.3	10.9	15.3
Total - Societal Crash Costs (\$b)	5.8	12.6	13.1	17.9

Table B-31-13 - Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Total Fleet, by Alternative

Alternative	1	2	2.5	3
Non-Fatal Injuries				
Non-Fatal Injuries From Mass Changes	6,889	9,261	9,134	9,298
Non-Fatal Injuries from Rebound Effect	26,283	39,478	42,261	53,265
Non-Fatal Injuries from Sales/Scrappage	4,373	7,835	9,428	10,357
Total Changes in Non-Fatal Injuries	37,546	56,574	60,823	72,920
Property Damaged Vehicles				
Property Damaged Vehicles From Mass Changes	26,359	35,454	34,969	35,614
Property Damaged Vehicles from Rebound Effect	100,447	150,922	161,554	203,600
Property Damaged Vehicles from Sales/Scrappage	13,595	23,661	27,898	29,113
Total Changes in Property Damaged Vehicles	140,400	210,037	224,421	268,327

Table B-31-14 - Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Passenger Car Fleet, by Alternative

Alternative	1	2	2.5	3
Non-Fatal Injuries				
Non-Fatal Injuries From Mass Changes	6,904	10,706	10,642	12,273
Non-Fatal Injuries from Rebound Effect	9,900	18,524	20,924	25,395
Non-Fatal Injuries from Sales/Scrappage	-31,662	-69,598	-77,029	-101,604
Total Changes in Non-Fatal Injuries	-14,858	-40,367	-45,463	-63,935
Property Damaged Vehicles				
Property Damaged Vehicles From Mass Changes	26,419	40,975	40,732	46,976
Property Damaged Vehicles from Rebound Effect	37,872	70,858	80,041	97,146
Property Damaged Vehicles from Sales/Scrappage	-122,680	-269,329	-298,725	-393,914
Total Changes in Property Damaged Vehicles	-58,388	-157,495	-177,952	-249,792

Table B-31-15 - Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for MY 1981-2029 for Light Truck Fleet, by Alternative

Alternative	1	2	2.5	3
Non-Fatal Injuries				
Non-Fatal Injuries From Mass Changes	-15	-1,445	-1,509	-2,975
Non-Fatal Injuries from Rebound Effect	16,383	20,954	21,337	27,869
Non-Fatal Injuries from Sales/Scrappage	36,036	77,433	86,458	111,961
Total Changes in Non-Fatal Injuries	52,404	96,942	106,286	136,856
Property Damaged Vehicles				
Property Damaged Vehicles From Mass Changes	-60	-5,521	-5,763	-11,361
Property Damaged Vehicles from Rebound Effect	62,574	80,063	81,513	106,454
Property Damaged Vehicles from Sales/Scrappage	136,274	292,990	326,623	423,027
Total Changes in Property Damaged Vehicles	198,788	367,532	402,374	518,119

Table B-31-16 - Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Total Fleet, by Alternative

Alternative	1	2	2.5	3
Non-Fatal Injuries				
Non-Fatal Injuries From Mass Changes	9,418	10,787	11,073	12,071
Non-Fatal Injuries from Rebound Effect	42,626	68,002	69,464	83,858
Non-Fatal Injuries from Sales/Scrappage	-1,037	-3,604	-4,290	-6,553
Total Changes in Non-Fatal Injuries	51,007	75,184	76,247	89,375
Property Damaged Vehicles				
Property Damaged Vehicles From Mass Changes	35,815	41,043	42,142	46,015
Property Damaged Vehicles from Rebound Effect	162,426	259,009	264,479	319,131
Property Damaged Vehicles from Sales/Scrappage	-3,397	-11,834	-13,845	-21,565
Total Changes in Property Damaged Vehicles	194,843	288,219	292,777	343,581

Table B-31-17 - Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Passenger Car Fleet, by Alternative

Alternative	1	2	2.5	3
Non-Fatal Injuries				
Non-Fatal Injuries From Mass Changes	8,942	15,492	15,948	20,173
Non-Fatal Injuries from Rebound Effect	14,375	25,944	29,042	34,808
Non-Fatal Injuries from Sales/Scrappage	-67,405	-176,218	-185,736	-263,646
Total Changes in Non-Fatal Injuries	-44,088	-134,782	-140,746	-208,665
Property Damaged Vehicles				
Property Damaged Vehicles From Mass Changes	33,993	59,040	60,794	76,974
Property Damaged Vehicles from Rebound Effect	54,773	98,582	110,364	132,180
Property Damaged Vehicles from Sales/Scrappage	-257,160	-672,671	-708,277	-1,005,969
Total Changes in Property Damaged Vehicles	-168,394	-515,050	-537,119	-796,815

Table B-31-18 - Change in Non-Fatal Safety Parameters from Alternative 0 (Baseline) for CY 2039-2048 for Light Truck Fleet, by Alternative

Alternative	1	2	2.5	3
Non-Fatal Injuries				
Non-Fatal Injuries From Mass Changes	476	-4,706	-4,875	-8,102
Non-Fatal Injuries from Rebound Effect	28,251	42,058	40,422	49,050
Non-Fatal Injuries from Sales/Scrappage	66,368	172,614	181,446	257,093
Total Changes in Non-Fatal Injuries	95,095	209,966	216,993	298,041
Property Damaged Vehicles				
Property Damaged Vehicles From Mass Changes	1,822	-17,997	-18,652	-30,959
Property Damaged Vehicles from Rebound Effect	107,653	160,428	154,115	186,951
Property Damaged Vehicles from Sales/Scrappage	253,763	660,837	694,432	984,404
Total Changes in Property Damaged Vehicles	363,238	803,268	829,895	1,140,396