

Table L9. New light duty vehicle sales by technology, High Zero-carbon Technology Cost case

thousand vehicles

Region and technology	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
Americas								
Electric	812.1	1,159.6	2,087.0	2,432.7	2,684.9	2,969.6	3,192.0	5.0%
Hydrogen	2.4	2.0	3.0	3.6	3.7	3.8	3.7	1.6%
Liquefied petroleum gas	4.0	2.6	2.3	2.1	2.1	2.2	2.4	-1.8%
Natural gas	258.6	202.8	185.4	151.4	98.5	76.9	64.0	-4.9%
Diesel	436.5	516.5	625.3	598.1	578.9	600.9	651.7	1.4%
Motor gasoline	19,832.9	19,721.3	19,118.6	18,841.5	18,902.8	19,268.4	20,037.3	0.0%
Plug-in hybrid	207.6	436.6	759.1	1,214.8	1,533.5	1,819.5	1,852.4	8.1%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	21,554.2	22,041.5	22,780.7	23,244.3	23,804.4	24,741.3	25,803.5	0.6%
United States								
Electric	687.0	939.8	1,663.1	1,923.9	2,059.9	2,222.8	2,293.5	4.4%
Hydrogen	2.4	2.0	3.0	3.6	3.7	3.8	3.7	1.6%
Liquefied petroleum gas	0.4	0.9	0.9	1.0	1.2	1.5	1.8	5.1%
Natural gas	0.4	0.6	0.5	0.5	0.5	0.5	0.6	1.0%
Diesel	73.6	106.1	117.8	113.6	126.0	134.3	144.9	2.4%
Motor gasoline	13,314.3	13,809.0	12,780.0	12,422.2	12,859.4	12,951.7	13,303.7	0.0%
Plug-in hybrid	184.4	352.4	507.6	578.7	615.1	652.6	682.2	4.8%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	14,262.6	15,210.8	15,073.0	15,043.5	15,665.8	15,967.2	16,430.4	0.5%
Canada								
Electric	112.9	173.5	287.5	293.7	352.7	417.9	505.5	5.5%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5%
Liquefied petroleum gas	0.3	0.2	0.0	0.1	0.1	0.1	0.1	-4.9%
Natural gas	1.7	0.7	0.0	0.1	0.1	0.1	0.1	-9.3%
Diesel	117.3	110.0	143.2	152.7	152.3	150.1	143.5	0.7%
Motor gasoline	1,499.3	1,360.3	1,267.9	1,283.3	1,248.4	1,216.4	1,159.8	-0.9%
Plug-in hybrid	16.6	43.0	69.2	125.4	185.1	267.7	333.9	11.3%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	1,748.1	1,687.6	1,767.9	1,855.3	1,938.7	2,052.3	2,143.0	0.7%
Mexico								
Electric	7.4	23.4	56.2	84.5	104.6	126.3	147.5	11.3%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6%
Liquefied petroleum gas	3.2	1.6	1.3	1.1	0.8	0.6	0.5	-6.5%
Natural gas	4.5	1.9	2.2	2.4	2.0	1.6	1.4	-4.1%
Diesel	7.1	6.3	5.9	6.4	7.0	7.6	7.8	0.3%
Motor gasoline	1,823.1	1,474.0	1,386.5	1,495.4	1,613.1	1,739.2	1,811.2	0.0%
Plug-in hybrid	1.5	16.2	35.3	95.6	174.4	227.3	219.0	19.5%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	1,846.8	1,523.3	1,487.4	1,685.5	1,901.9	2,102.6	2,187.3	0.6%
Brazil								
Electric	2.7	6.8	31.9	59.4	75.2	91.1	124.1	14.7%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7%
Liquefied petroleum gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1%
Natural gas	125.8	79.8	84.1	82.9	52.6	40.4	34.2	-4.5%
Diesel	85.0	113.8	151.3	117.8	94.7	91.7	120.6	1.3%
Motor gasoline	2,230.0	1,994.5	2,425.0	2,427.0	2,030.1	2,086.0	2,348.7	0.2%
Plug-in hybrid	4.0	19.0	117.5	335.6	445.8	532.7	507.0	18.9%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	2,447.5	2,213.9	2,809.8	3,022.7	2,698.4	2,842.0	3,134.5	0.9%
Other Americas								

Total	34,421.0	35,938.0	41,476.0	46,325.9	48,209.9	49,559.1	51,129.1	1.4%
Japan								
Electric	66.1	106.1	251.4	230.6	339.1	462.2	647.4	8.5%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.8%
Liquefied petroleum gas	5.9	4.4	4.8	4.1	4.1	3.0	2.5	-3.1%
Natural gas	1.4	0.9	0.7	0.6	0.9	0.9	0.8	-2.1%
Diesel	141.1	136.8	127.3	127.4	113.7	112.9	105.6	-1.0%
Motor gasoline	3,144.2	3,031.7	2,838.1	2,556.0	2,232.0	2,035.0	1,740.3	-2.1%
Plug-in hybrid	44.8	122.7	136.4	184.9	194.2	191.8	167.1	4.8%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	3,403.6	3,402.5	3,358.7	3,103.7	2,884.2	2,805.7	2,663.7	-0.9%
South Korea								
Electric	75.3	74.5	290.9	506.1	739.6	879.6	946.7	9.5%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.3%
Liquefied petroleum gas	50.3	24.8	34.7	31.0	20.6	13.9	9.7	-5.7%
Natural gas	49.3	23.7	30.7	30.2	15.2	7.8	4.0	-8.6%
Diesel	191.0	168.4	155.8	131.1	105.4	104.9	126.3	-1.5%
Motor gasoline	1,069.6	1,126.3	938.5	732.5	517.1	405.5	313.0	-4.3%
Plug-in hybrid	14.5	81.3	163.9	210.8	164.8	121.2	87.7	6.7%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	1,449.9	1,499.0	1,614.5	1,641.7	1,562.7	1,532.8	1,487.5	0.1%
Australia and New Zealand								
Electric	34.4	37.6	65.8	78.5	116.8	152.5	202.1	6.5%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6%
Liquefied petroleum gas	0.4	0.0	2.5	1.8	1.5	1.3	1.1	3.6%
Natural gas	2.4	0.1	0.2	0.1	0.0	0.0	0.0	-18.7%
Diesel	110.9	125.0	109.5	99.7	85.7	74.4	63.0	-2.0%
Motor gasoline	873.1	922.4	861.9	800.0	714.8	649.0	572.5	-1.5%
Plug-in hybrid	8.3	19.6	75.3	169.2	274.4	370.9	422.1	15.1%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	1,029.5	1,104.7	1,115.2	1,149.3	1,193.2	1,248.1	1,260.8	0.7%
China								
Electric	4,681.9	5,240.5	6,580.5	8,490.9	8,977.6	9,250.3	9,546.7	2.6%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3%
Liquefied petroleum gas	66.6	63.4	28.2	29.4	21.4	12.5	6.5	-8.0%
Natural gas	990.8	672.2	309.7	556.2	661.5	619.7	405.1	-3.1%
Diesel	43.9	37.5	22.2	61.7	55.9	44.6	34.1	-0.9%
Motor gasoline	13,208.7	11,371.7	8,665.9	8,451.1	7,648.3	6,278.9	5,273.2	-3.2%
Plug-in hybrid	1,006.8	1,786.1	3,782.8	2,995.1	2,947.9	2,297.1	1,853.4	2.2%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	19,998.6	19,171.4	19,389.5	20,584.4	20,312.7	18,502.9	17,119.0	-0.6%
India								
Electric	17.1	36.2	67.6	153.9	408.8	847.1	1,234.7	16.5%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8%
Liquefied petroleum gas	132.2	72.2	126.3	160.3	180.5	200.6	225.1	1.9%
Natural gas	139.1	202.1	230.9	211.1	152.3	112.2	85.5	-1.7%
Diesel	1,855.3	2,495.2	3,871.9	4,787.2	4,966.9	5,159.0	5,401.5	3.9%
Motor gasoline	2,182.8	2,997.9	4,922.3	6,314.4	6,648.0	6,956.6	7,300.2	4.4%
Plug-in hybrid	4.0	19.9	248.9	483.5	1,046.4	1,549.4	1,982.1	24.9%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	4,330.4	5,823.5	9,467.8	12,110.3	13,403.0	14,824.8	16,229.1	4.8%
Other Asia								
Electric	24.5	143.4	233.7	435.0	635.3	830.8	895.2	13.7%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7%
Liquefied petroleum gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2%
Natural gas	120.8	17.0	43.1	37.4	32.0	30.0	29.0	-5.0%
Diesel	1,040.8	1,259.4	1,504.1	1,590.3	1,655.7	1,912.6	2,217.4	2.7%
Motor gasoline	3,018.6	3,445.0	4,568.2	5,256.5	5,863.1	6,984.6	8,442.6	3.7%

Plug-in hybrid	4.3	72.1	181.1	417.5	668.1	886.9	784.9	20.4%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	4,209.0	4,936.9	6,530.2	7,736.6	8,854.2	10,644.9	12,369.1	3.9%
Africa and Middle East								
Electric	31.1	105.6	141.7	213.3	273.5	355.0	436.2	9.9%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9%
Liquefied petroleum gas	8.9	7.8	1.3	0.3	0.1	0.1	0.0	-17.5%
Natural gas	102.3	41.6	50.4	35.5	23.9	19.4	16.4	-6.3%
Diesel	100.2	115.6	146.4	159.8	165.6	196.4	232.4	3.1%
Motor gasoline	3,294.1	3,846.8	4,454.9	4,641.4	4,653.0	5,322.9	6,162.5	2.3%
Plug-in hybrid	9.9	46.0	158.9	402.8	604.9	751.0	634.7	16.0%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	3,546.5	4,163.3	4,953.6	5,453.0	5,721.0	6,644.8	7,482.4	2.7%
Africa								
Electric	2.2	10.2	33.3	61.6	75.5	99.1	131.9	15.7%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7%
Liquefied petroleum gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1%
Natural gas	8.8	8.6	8.2	4.8	2.8	2.0	1.4	-6.3%
Diesel	73.5	84.7	114.1	133.4	145.6	179.8	218.7	4.0%
Motor gasoline	662.3	824.5	1,076.3	1,236.5	1,346.0	1,655.7	1,983.3	4.0%
Plug-in hybrid	1.0	5.0	20.0	40.8	64.7	79.0	74.7	16.7%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	747.8	932.9	1,251.9	1,477.1	1,634.6	2,015.6	2,410.0	4.3%
Middle East								
Electric	28.9	95.4	108.4	151.7	198.0	255.9	304.4	8.8%
Hydrogen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0%
Liquefied petroleum gas	8.9	7.8	1.3	0.3	0.1	0.1	0.0	-17.6%
Natural gas	93.5	33.0	42.2	30.6	21.1	17.4	14.9	-6.3%
Diesel	26.7	30.9	32.3	26.4	20.0	16.6	13.7	-2.3%
Motor gasoline	2,631.8	3,022.3	3,378.6	3,405.0	3,307.0	3,667.2	4,179.2	1.7%
Plug-in hybrid	9.0	41.0	138.9	362.0	540.2	672.0	560.1	15.9%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	2,798.8	3,230.4	3,701.7	3,975.9	4,086.4	4,629.2	5,072.4	2.1%
World								
Electric	7,759.6	9,142.7	14,649.6	21,438.1	23,979.2	27,150.0	29,787.7	4.9%
Hydrogen	2.4	2.0	3.0	3.6	3.7	3.8	3.7	1.6%
Liquefied petroleum gas	535.2	295.9	506.7	499.2	536.4	527.4	542.8	0.1%
Natural gas	2,149.9	1,543.0	1,074.6	1,184.2	1,124.3	1,004.0	753.2	-3.7%
Diesel	8,505.7	9,410.1	11,702.6	10,217.0	10,960.6	11,533.4	11,630.5	1.1%
Motor gasoline	58,769.0	57,904.0	54,366.5	53,498.2	53,766.1	53,566.9	55,326.0	-0.2%
Plug-in hybrid	2,321.6	4,860.3	7,760.8	9,166.3	9,112.3	9,646.9	9,085.2	5.0%
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Total	80,043.4	83,158.1	90,063.7	96,006.6	99,482.6	103,432.5	107,129.2	1.0%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hz_230821.151430 and Annual Energy Outlook 2023 (March 2023), www.eia.gov/aeo

Note: Totals may not equal sum of components due to independent rounding.