

DOCKETED

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Transportation Energy Demand Forecast

2021 IEPR Workshop on Electricity & Natural Gas Demand Forecast

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Transportation Energy Demand Cases

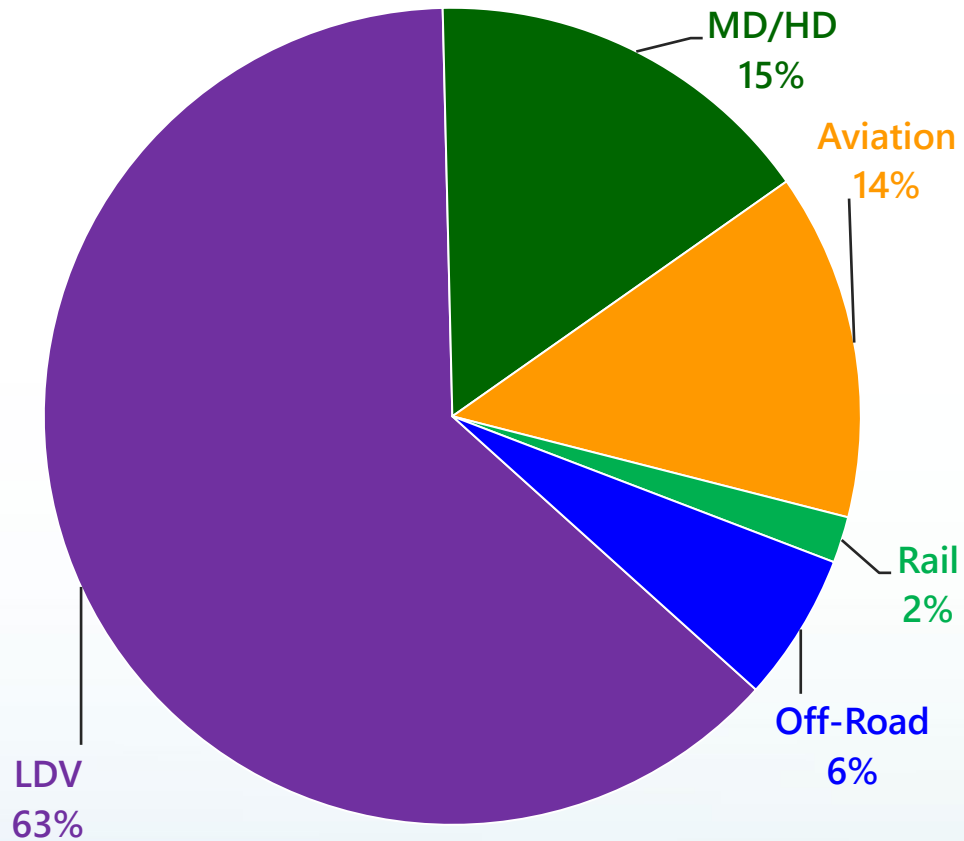
Demand cases represent different levels of transportation electricity demand

Demand Case	Population	Income	Petroleum Fuel Prices	Electricity, Natural Gas, and Hydrogen Prices
High Demand	High	High	High	Low
Mid	Mid	Mid	Mid	Mid
Low Demand	Low	Low	Low	High

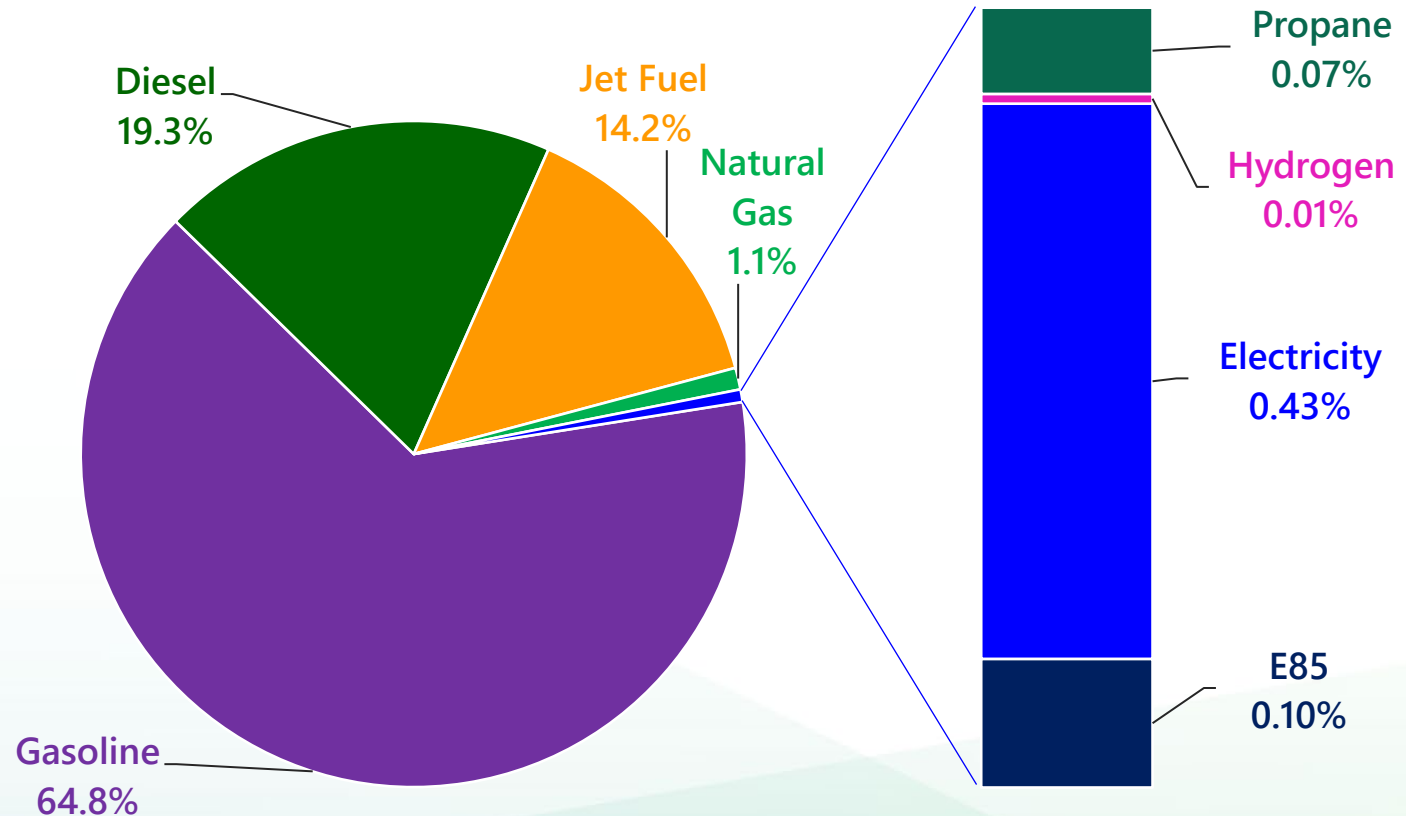


2020 Distribution of Transportation Energy (GGE) 65% Light-Duty Vehicles (LDV), 65% Gasoline

2020 Distribution by Sector



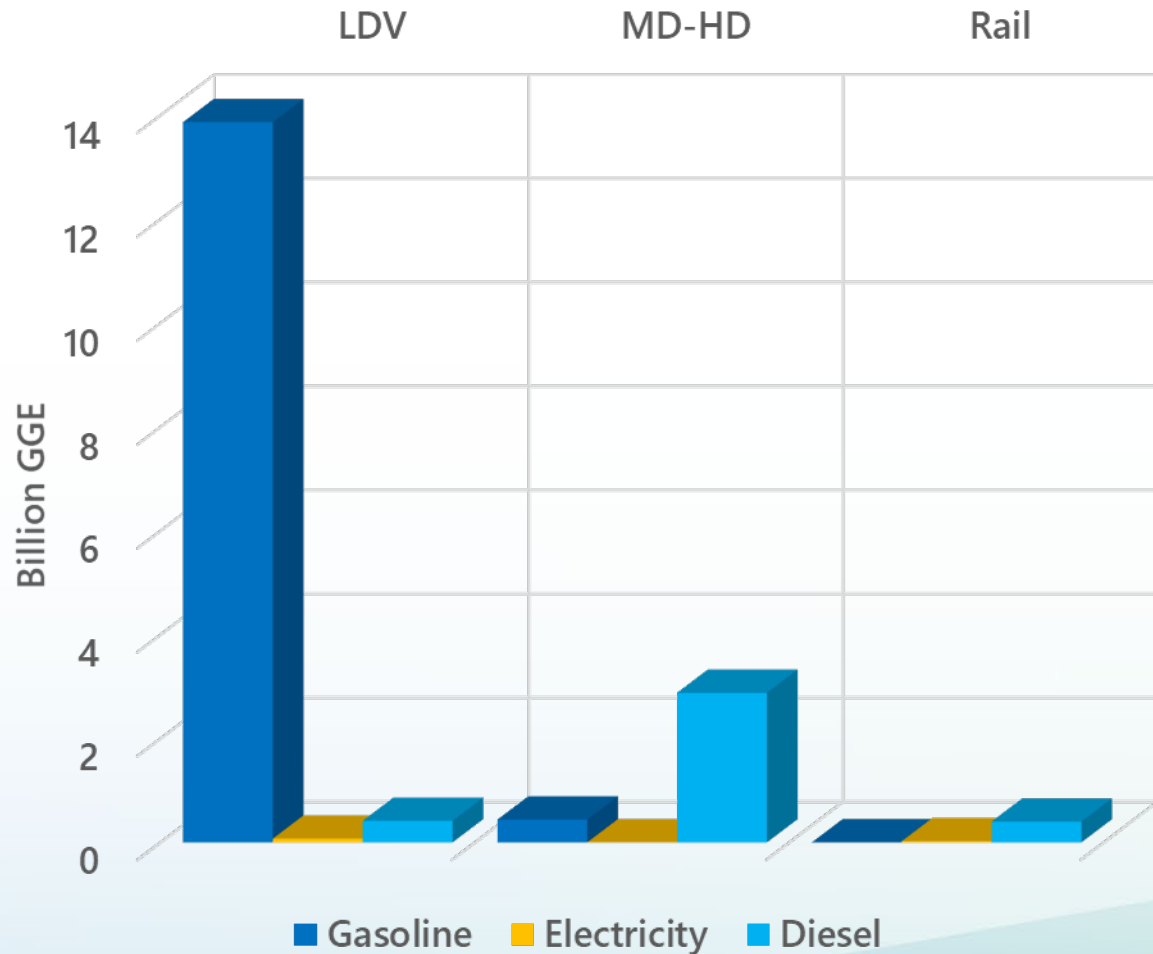
Distribution by Fuel Type



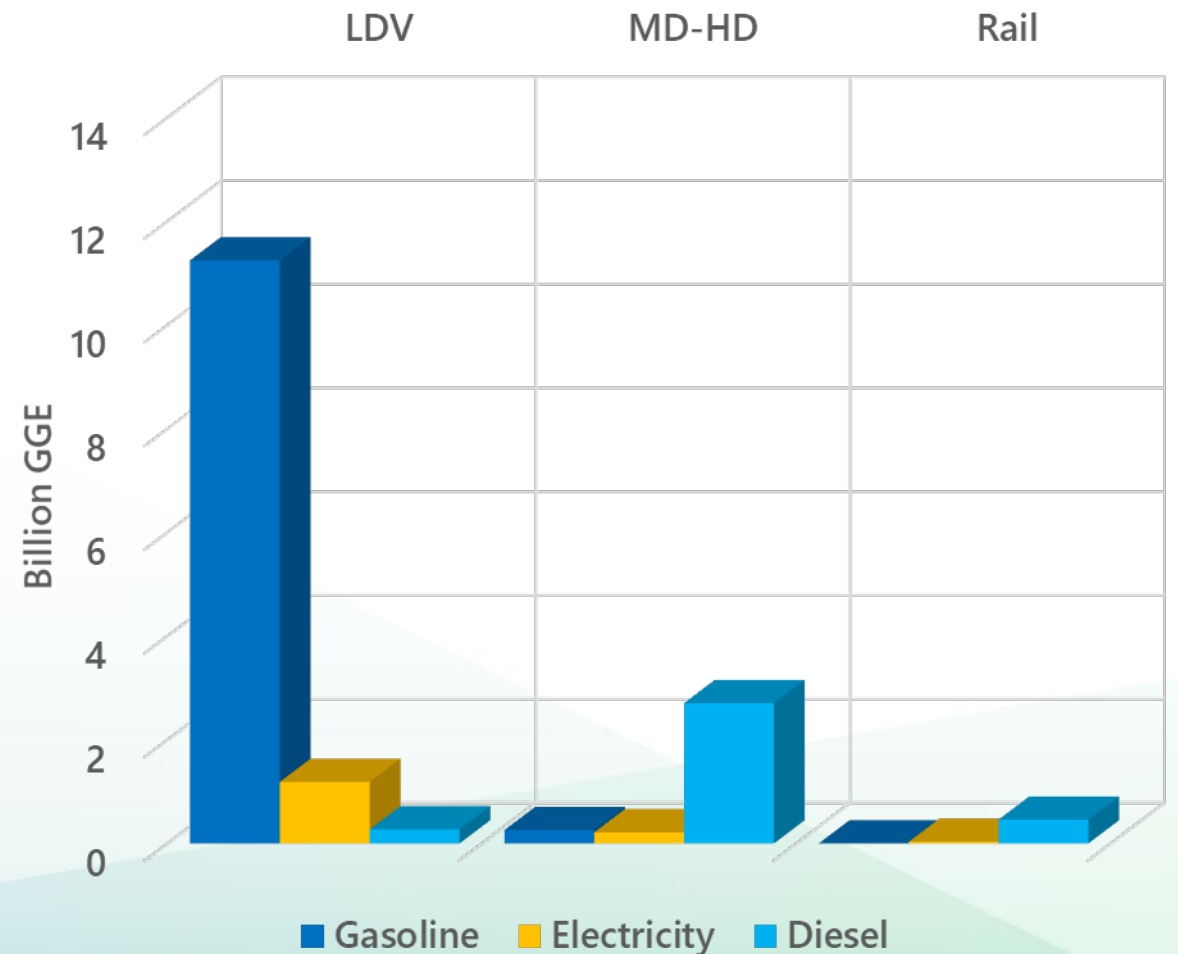


Diesel Dominates Medium- and Heavy-Duty (MD-HD) & Electricity Makes Inroads with Light-Duty Vehicles (LDV)

2020 Fuel Consumption, Billion Gasoline Gallon Equivalents



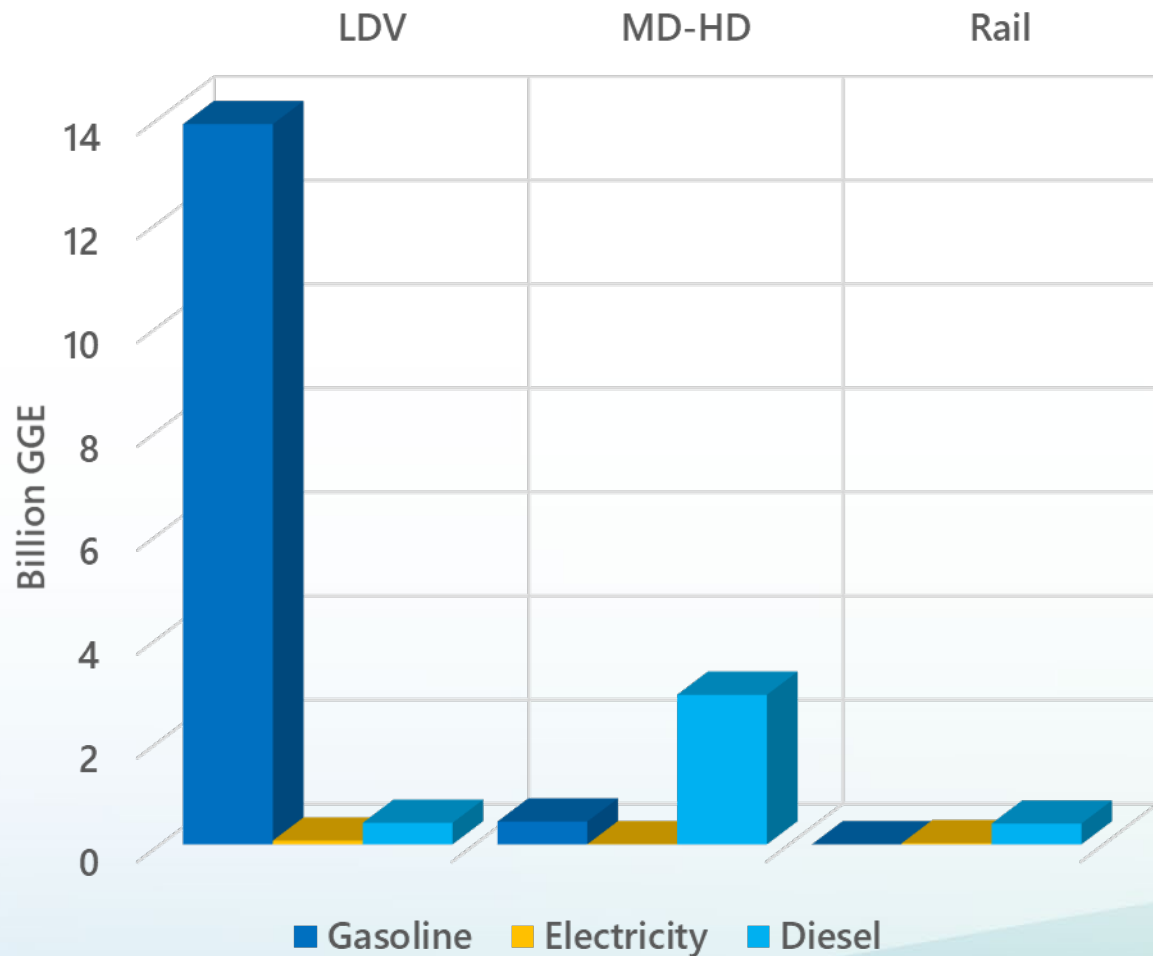
2035 Forecast High Case Fuel Consumption, Billion Gasoline Gallon Equivalents



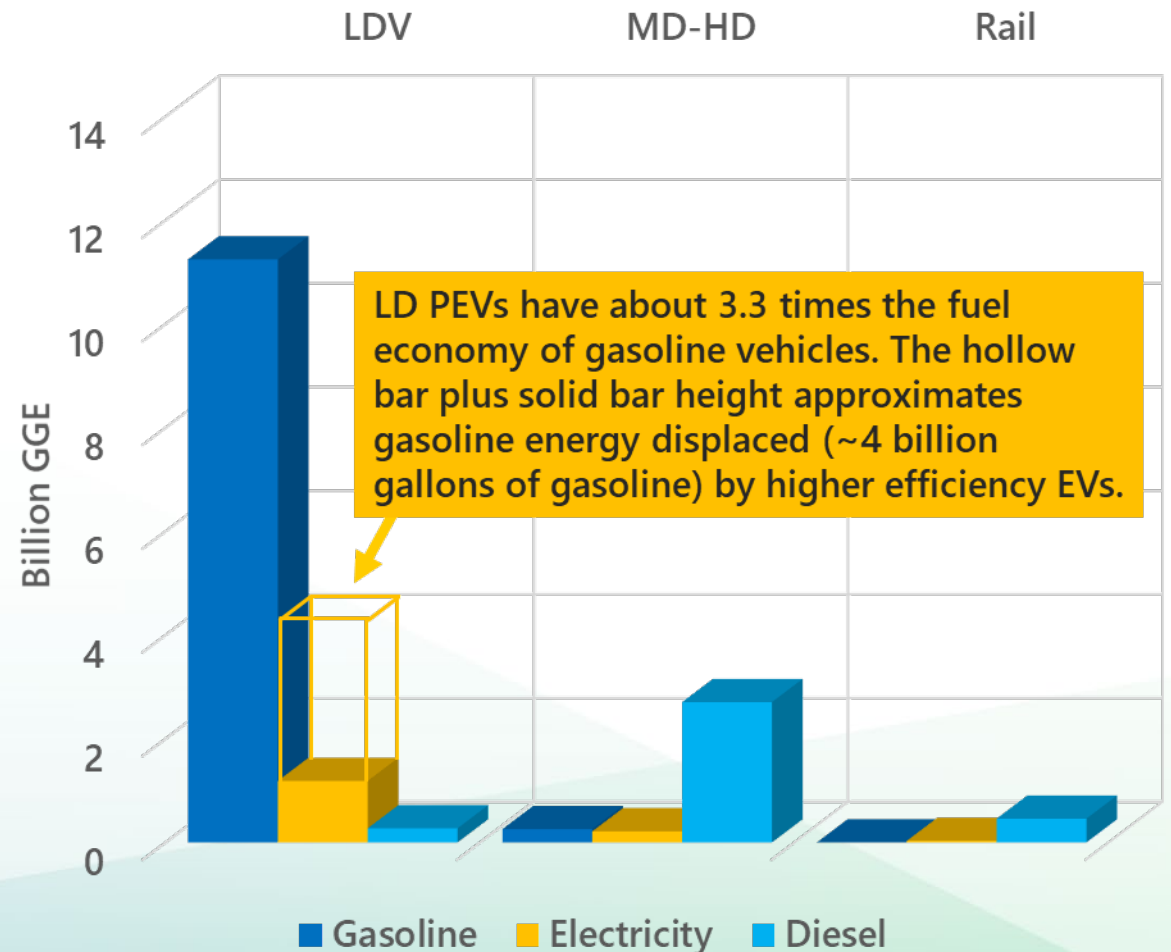


Light-Duty Electric Vehicle Efficiency Displaces More Gasoline Energy per Energy Unit Used

2020 Fuel Consumption, Billion Gasoline Gallon Equivalents



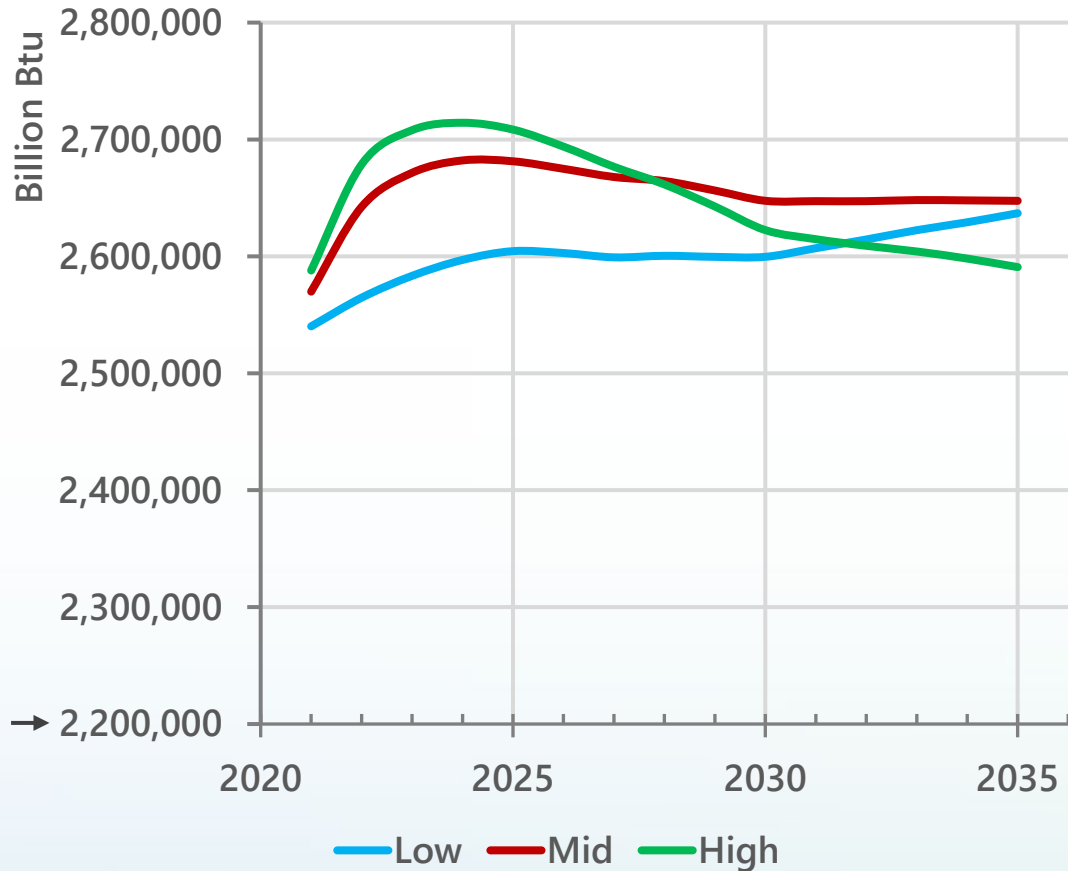
2035 Forecast High Case Fuel Consumption, Billion Gasoline Gallon Equivalents



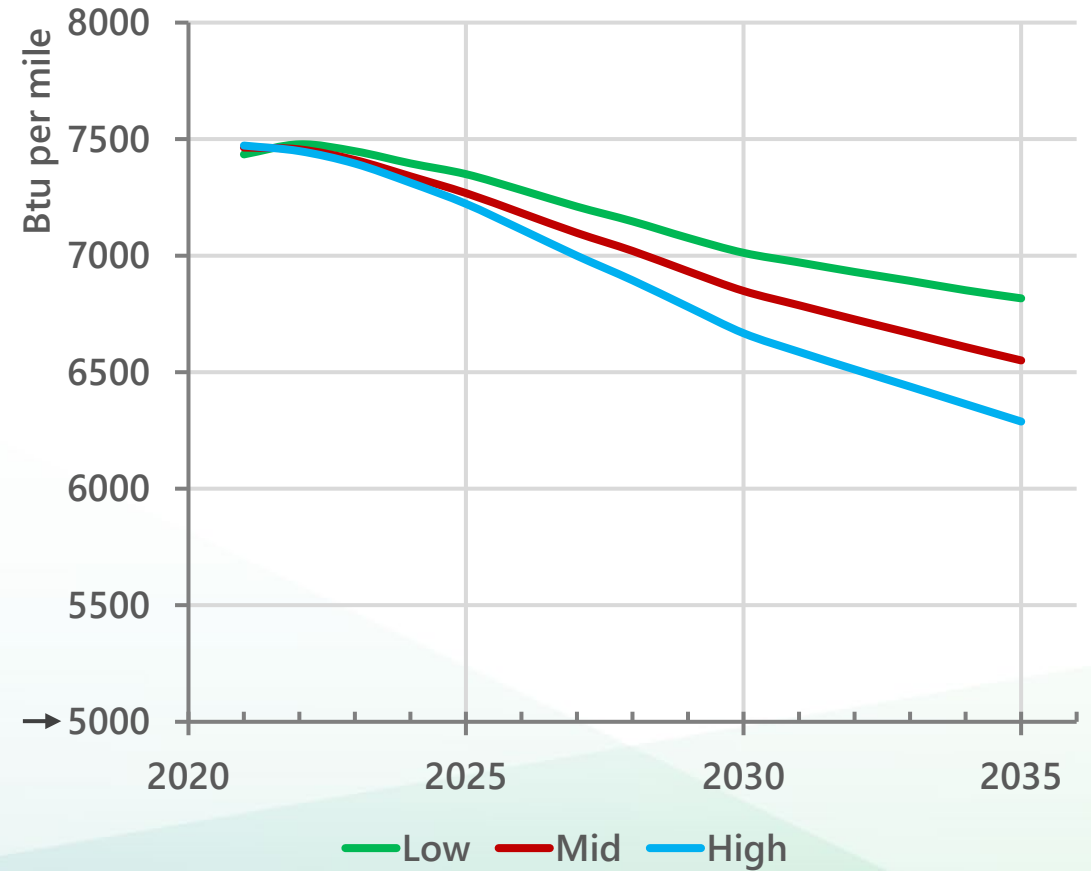


Higher Electrification and Improved Fuel Economy Lowers Energy Intensity

Transportation Energy Demand (Btu)

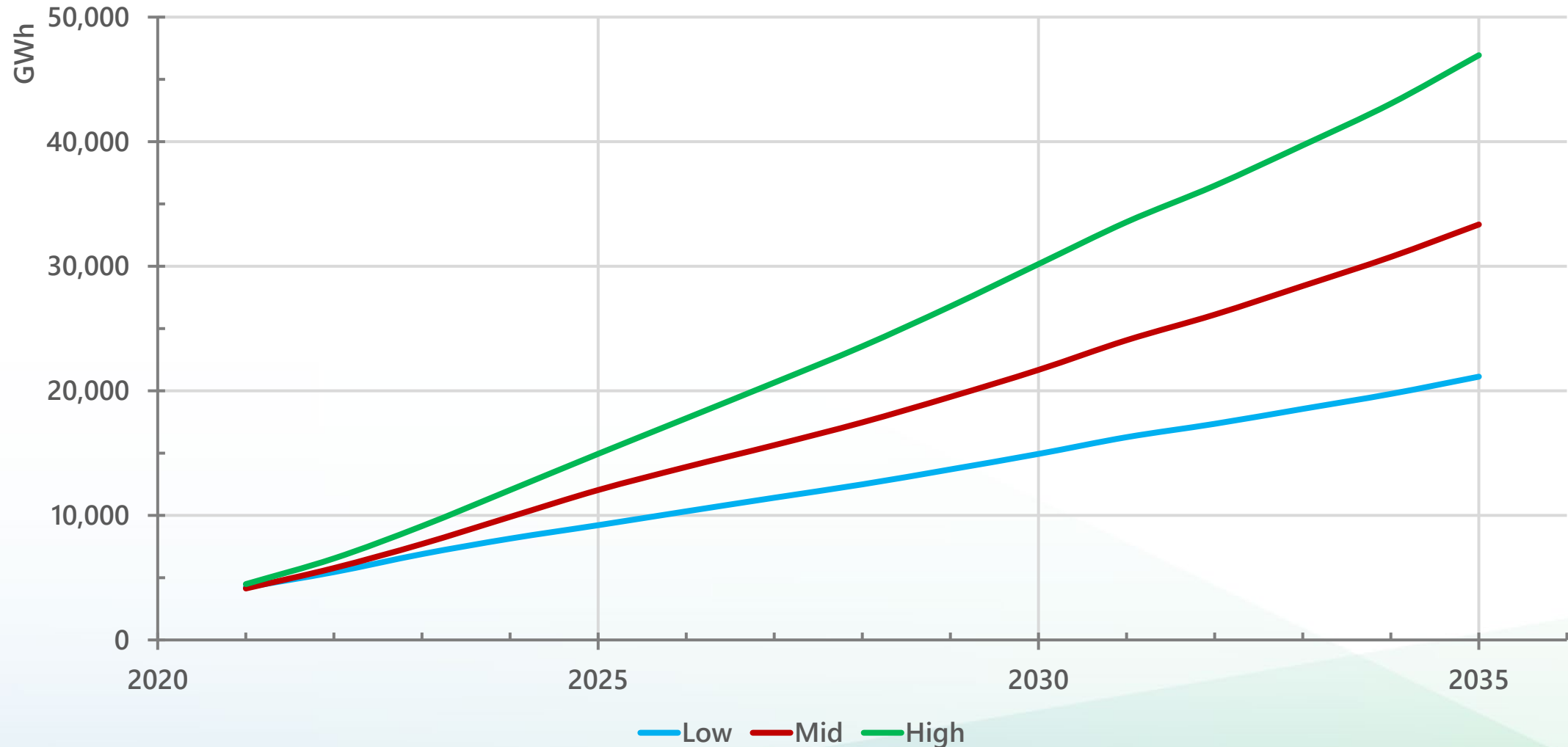


Transportation Energy (Btu) Per Mile



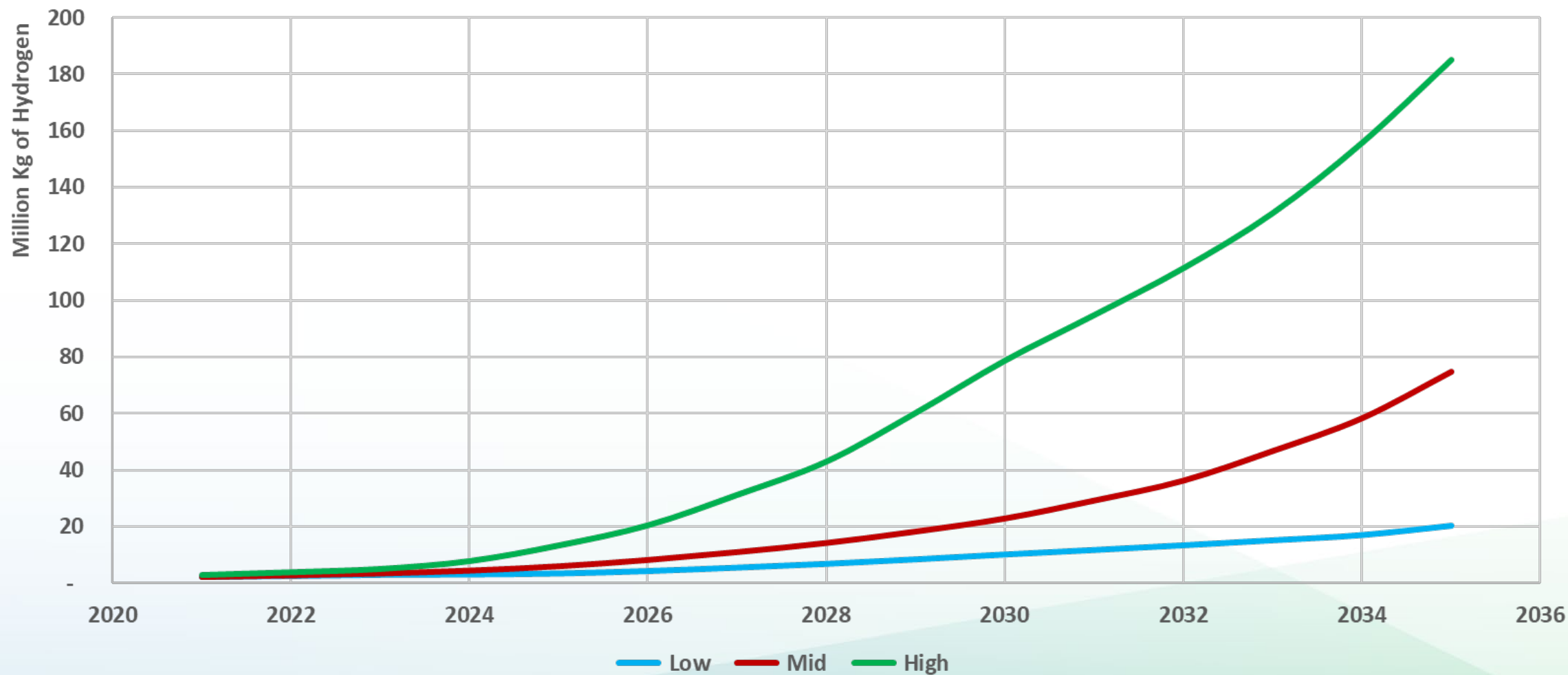


Transportation Electricity Demand Forecast



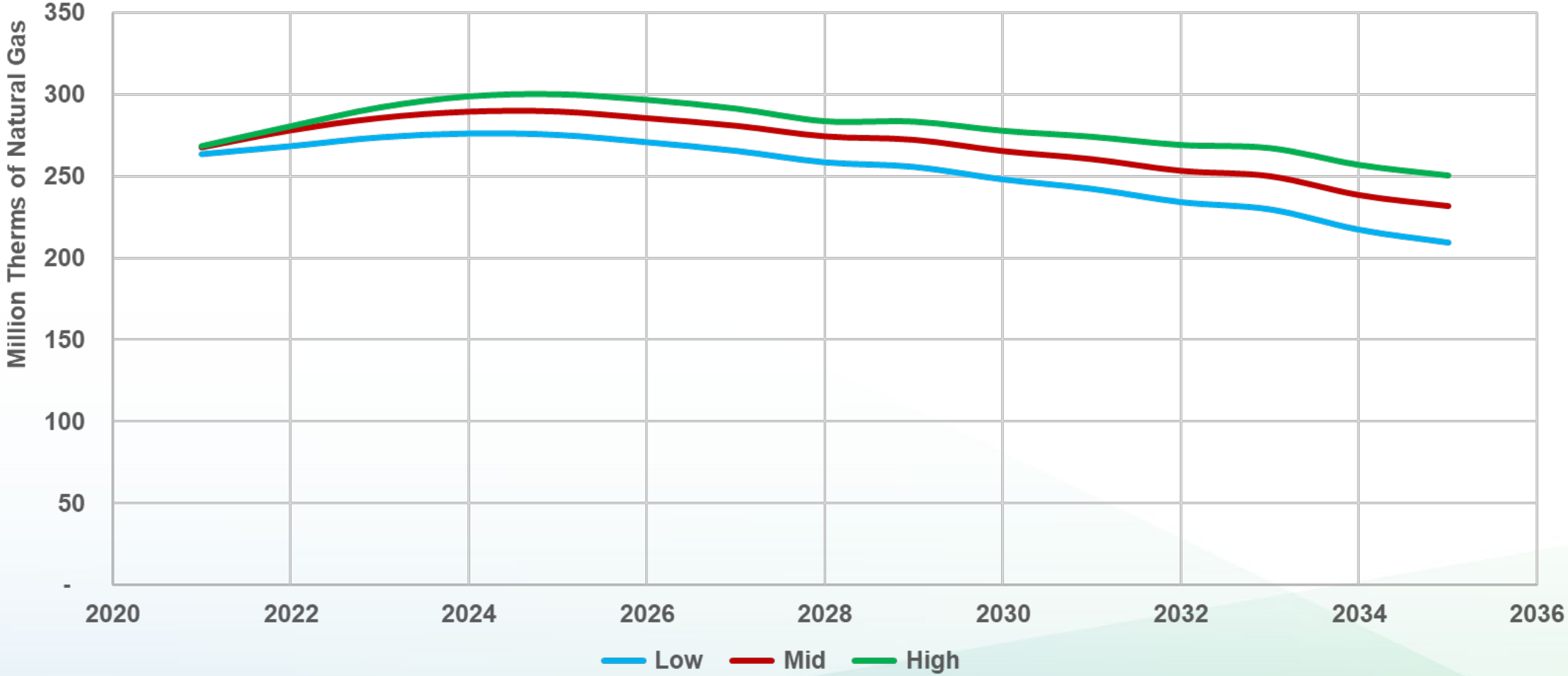


Transportation Hydrogen Demand Forecast





Transportation Natural Gas Demand Forecast



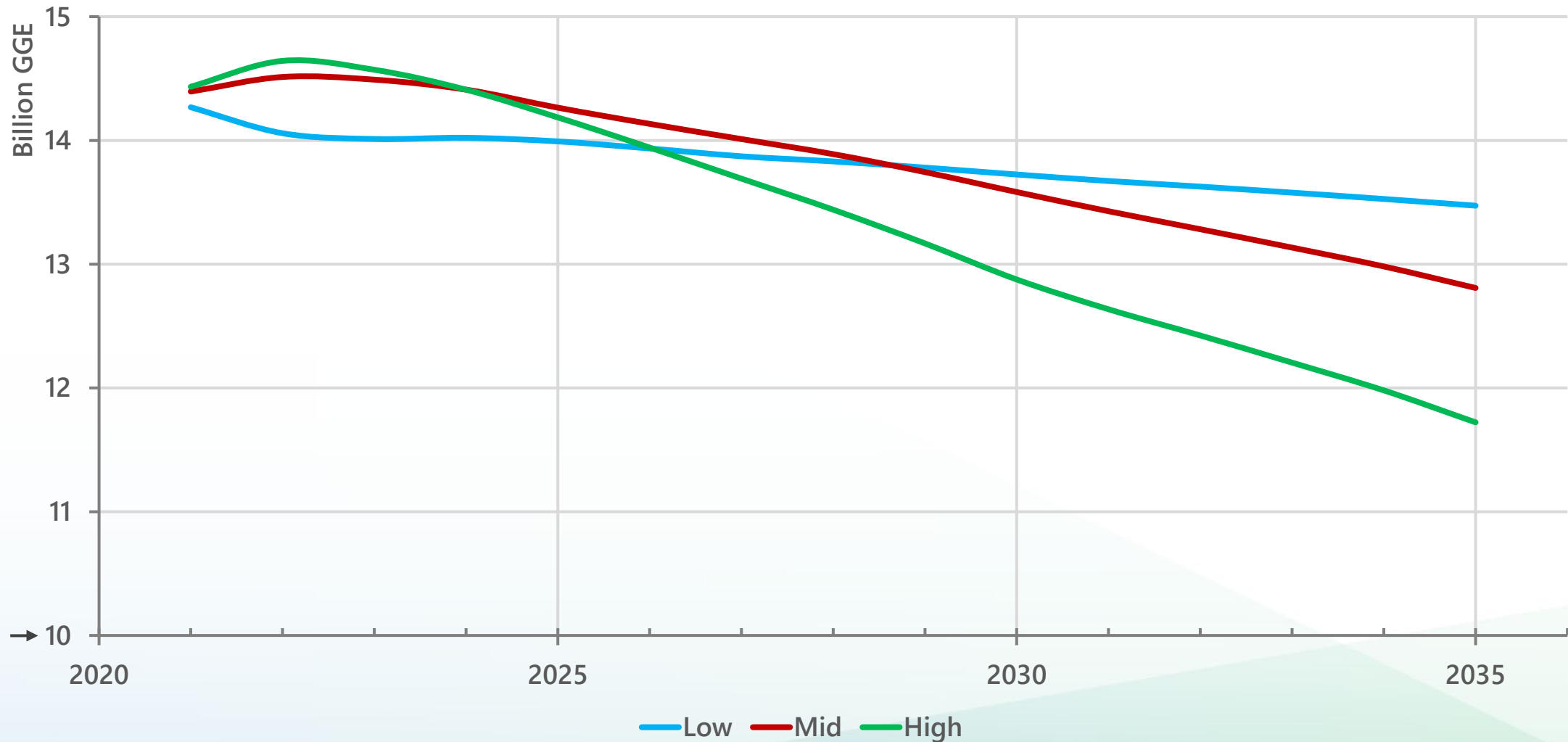
*Includes biomethane
Source: Energy Commission Staff



Appendix

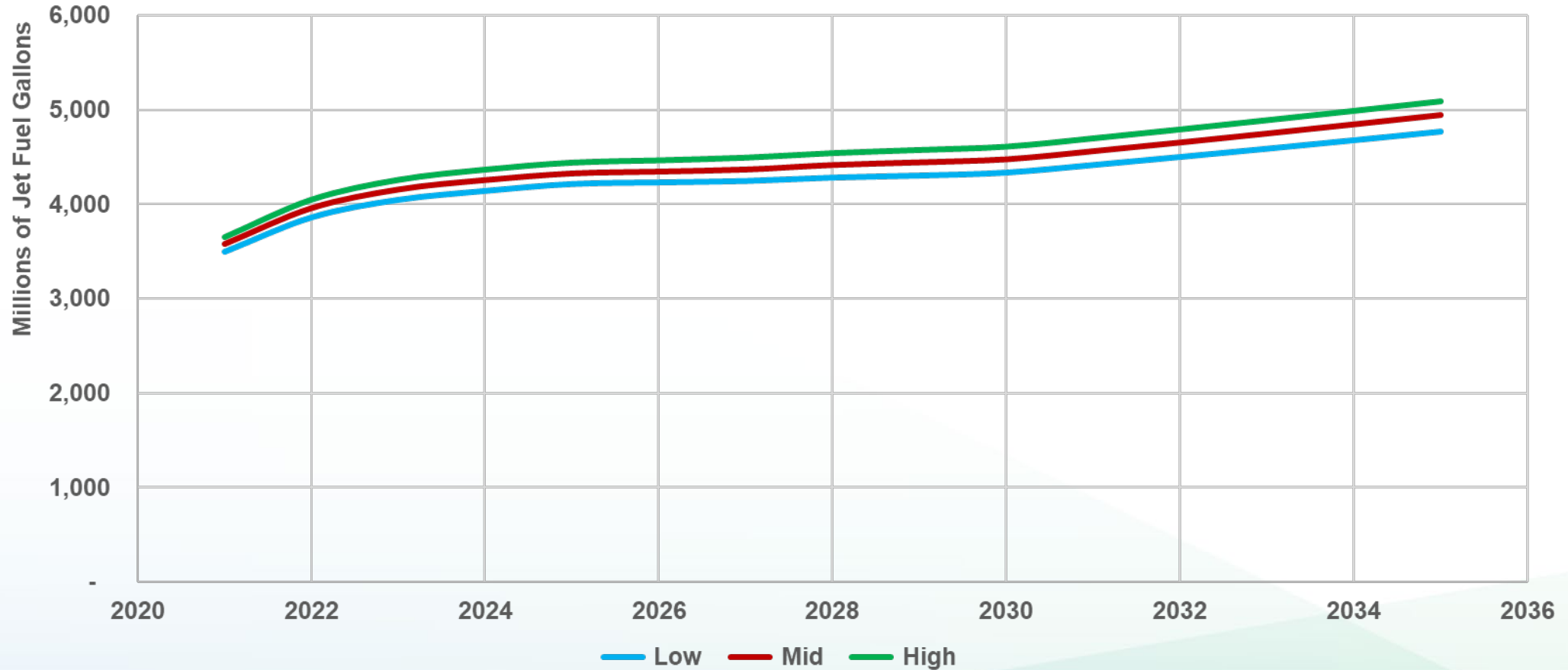


Gasoline Demand Forecast





Jet Fuel Demand Forecast





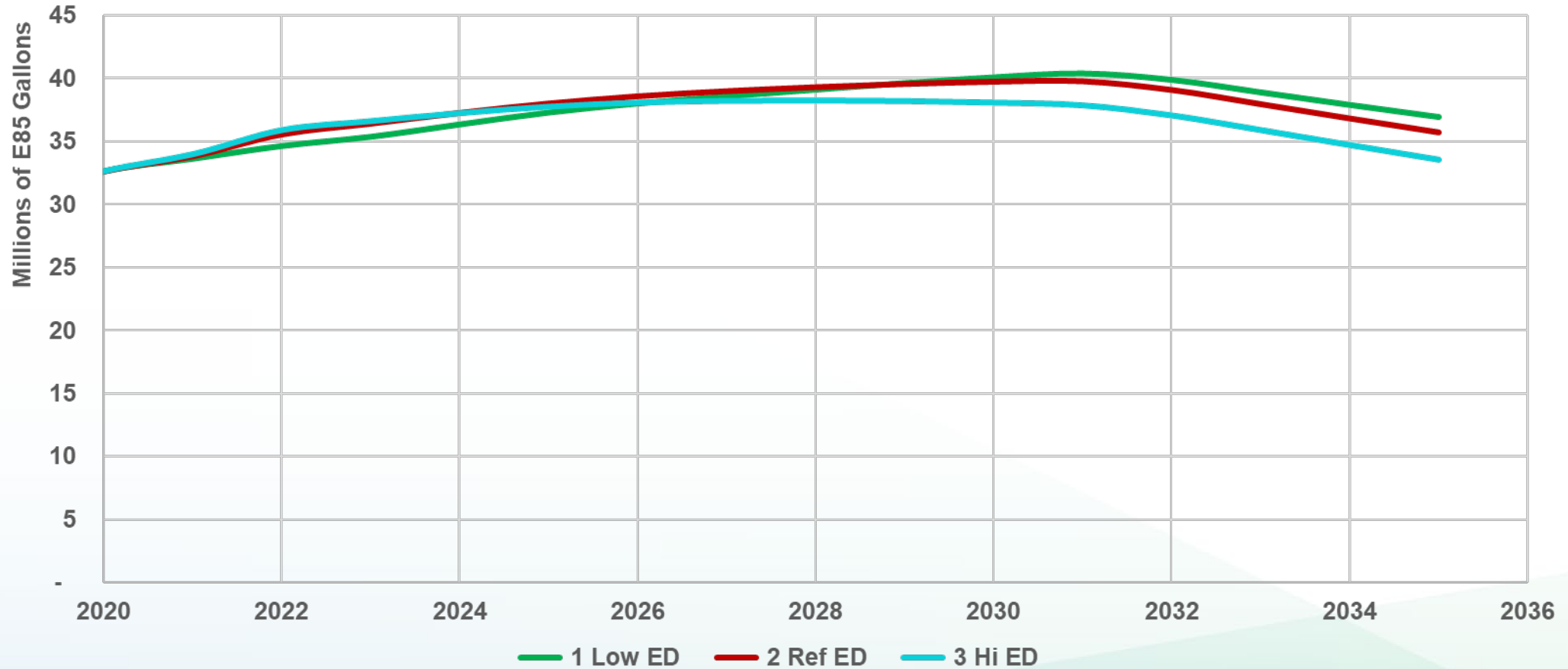
Diesel Demand Forecast



*Includes renewable diesel and biodiesel
Source: Energy Commission Staff

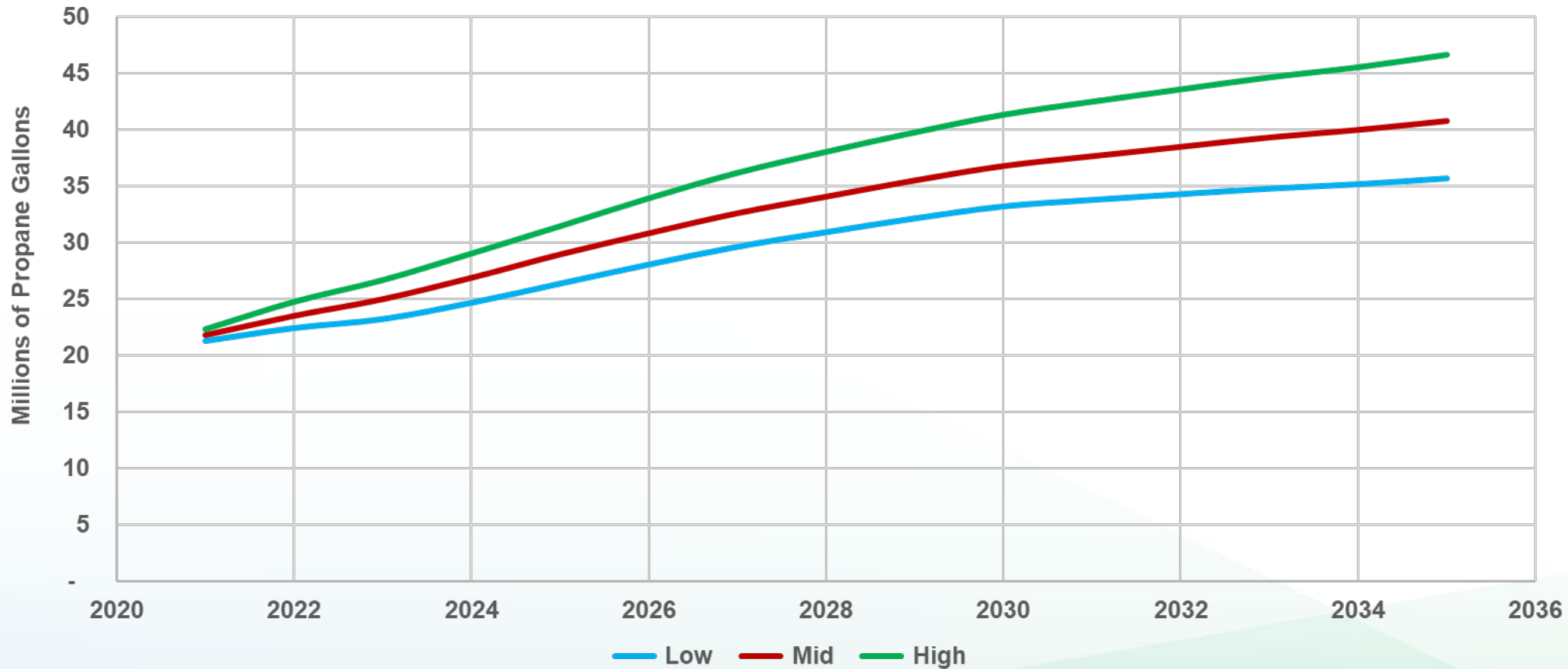


Ethanol E85 Demand Forecast





Propane Demand Forecast





Transportation Energy Price Forecasts



Gasoline and Diesel Price Forecasts

Gasoline, \$/GGE

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	3.66	3.66	3.66
2019	3.72	3.72	3.72
2020	3.13	3.13	3.13
2021	3.86	3.86	3.86
2022	3.86	4.07	3.78
2023	3.86	4.29	3.70
2024	3.86	4.41	3.62
2025	3.90	4.50	3.61
2026	3.92	4.58	3.60
2027	3.96	4.66	3.59
2028	4.00	4.78	3.58
2029	4.04	4.85	3.57
2030	4.11	4.94	3.56
2031	4.18	5.02	3.55
2032	4.25	5.10	3.54
2033	4.28	5.17	3.53
2034	4.31	5.24	3.52
2035	4.34	5.31	3.51

Diesel, \$/DGE

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	3.99	3.99	3.99
2019	3.97	3.97	3.97
2020	3.38	3.38	3.38
2021	3.91	3.91	3.91
2022	3.87	4.20	3.64
2023	4.00	4.52	3.70
2024	4.07	4.69	3.72
2025	4.12	4.81	3.73
2026	4.15	4.87	3.73
2027	4.18	4.97	3.72
2028	4.20	5.04	3.69
2029	4.21	5.11	3.67
2030	4.28	5.19	3.69
2031	4.30	5.19	3.68
2032	4.31	5.26	3.69
2033	4.31	5.31	3.67
2034	4.31	5.34	3.65
2035	4.31	5.38	3.64



Natural Gas and Hydrogen Price Forecasts

Natural Gas (\$/DGE)

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	2.91	2.91	2.91
2019	3.15	3.15	3.15
2020	2.77	2.77	2.77
2021	2.60	2.60	2.60
2022	2.65	2.40	2.92
2023	2.72	2.45	3.01
2024	2.78	2.51	3.09
2025	2.85	2.57	3.19
2026	2.92	2.63	3.27
2027	2.99	2.70	3.36
2028	3.08	2.78	3.45
2029	3.16	2.85	3.56
2030	3.23	2.91	3.65
2031	3.29	2.96	3.72
2032	3.36	3.03	3.81
2033	3.43	3.09	3.90
2034	3.50	3.15	3.99
2035	3.57	3.22	4.08

Hydrogen (\$/GGE)

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	16.73	16.73	16.73
2019	16.75	16.75	16.75
2020	16.52	16.52	16.52
2021	16.50	15.30	16.60
2022	16.40	14.60	16.50
2023	16.20	13.80	16.50
2024	16.10	12.70	16.40
2025	15.80	11.50	16.40
2026	15.50	10.30	16.30
2027	15.00	9.20	16.20
2028	14.30	8.40	16.10
2029	13.50	7.80	16.00
2030	12.60	7.40	15.80
2031	11.70	7.10	15.60
2032	11.00	7.00	15.20
2033	10.30	6.90	14.80
2034	9.90	6.80	14.30
2035	9.60	6.80	13.70



Electricity Price Forecasts

Commercial Electricity (\$/GGE)

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	\$5.56	\$5.56	\$5.56
2019	\$5.61	\$5.61	\$5.61
2020	\$6.04	\$6.04	\$6.04
2021	\$6.19	\$6.18	\$6.20
2022	\$6.23	\$6.17	\$6.26
2023	\$6.35	\$6.29	\$6.46
2024	\$6.45	\$6.37	\$6.58
2025	\$6.62	\$6.52	\$6.80
2026	\$6.71	\$6.56	\$6.93
2027	\$6.76	\$6.57	\$7.04
2028	\$6.88	\$6.63	\$7.19
2029	\$7.00	\$6.67	\$7.35
2030	\$7.08	\$6.63	\$7.43
2031	\$7.14	\$6.67	\$7.53
2032	\$7.21	\$6.71	\$7.65
2033	\$7.29	\$6.76	\$7.76
2034	\$7.36	\$6.80	\$7.88
2035	\$7.43	\$6.84	\$7.99

Residential Electricity (\$/GGE)

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	\$6.29	\$6.29	\$6.29
2019	\$6.32	\$6.31	\$6.32
2020	\$6.64	\$6.64	\$6.64
2021	\$7.36	\$7.35	\$7.36
2022	\$7.44	\$7.38	\$7.49
2023	\$7.62	\$7.52	\$7.80
2024	\$7.72	\$7.56	\$7.96
2025	\$7.93	\$7.69	\$8.26
2026	\$8.06	\$7.73	\$8.48
2027	\$8.10	\$7.72	\$8.66
2028	\$8.25	\$7.78	\$8.83
2029	\$8.38	\$7.80	\$9.03
2030	\$8.49	\$7.73	\$9.16
2031	\$8.57	\$7.76	\$9.31
2032	\$8.67	\$7.81	\$9.48
2033	\$8.76	\$7.85	\$9.66
2034	\$8.85	\$7.89	\$9.83
2035	\$8.94	\$7.92	\$9.99



Transportation Propane and Ethanol E85 Price Forecasts

Propane (\$/GGE)

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	2.04	2.04	2.04
2019	1.85	1.85	1.85
2020	1.32	1.32	1.32
2021	1.66	1.66	1.66
2022	1.74	1.85	1.69
2023	1.76	1.97	1.71
2024	1.81	2.05	1.72
2025	1.85	2.12	1.73
2026	1.88	2.17	1.74
2027	1.90	2.22	1.76
2028	1.95	2.27	1.77
2029	1.97	2.32	1.77
2030	2.04	2.40	1.84
2031	2.06	2.42	1.85
2032	2.10	2.45	1.88
2033	2.12	2.47	1.89
2034	2.13	2.49	1.90
2035	2.14	2.51	1.91

E85 (\$/GGE)

Year	Mid Demand	High Electricity Demand	Low Electricity Demand
2018	3.66	3.66	3.66
2019	3.72	3.72	3.72
2020	3.13	3.13	3.13
2021	3.86	3.86	3.86
2022	3.86	4.07	3.78
2023	3.86	4.29	3.70
2024	3.86	4.41	3.62
2025	3.90	4.50	3.61
2026	3.92	4.58	3.60
2027	3.96	4.66	3.59
2028	4.00	4.78	3.58
2029	4.04	4.85	3.57
2030	4.11	4.94	3.56
2031	4.18	5.02	3.55
2032	4.25	5.10	3.54
2033	4.28	5.17	3.53
2034	4.31	5.24	3.52
2035	4.34	5.31	3.51



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