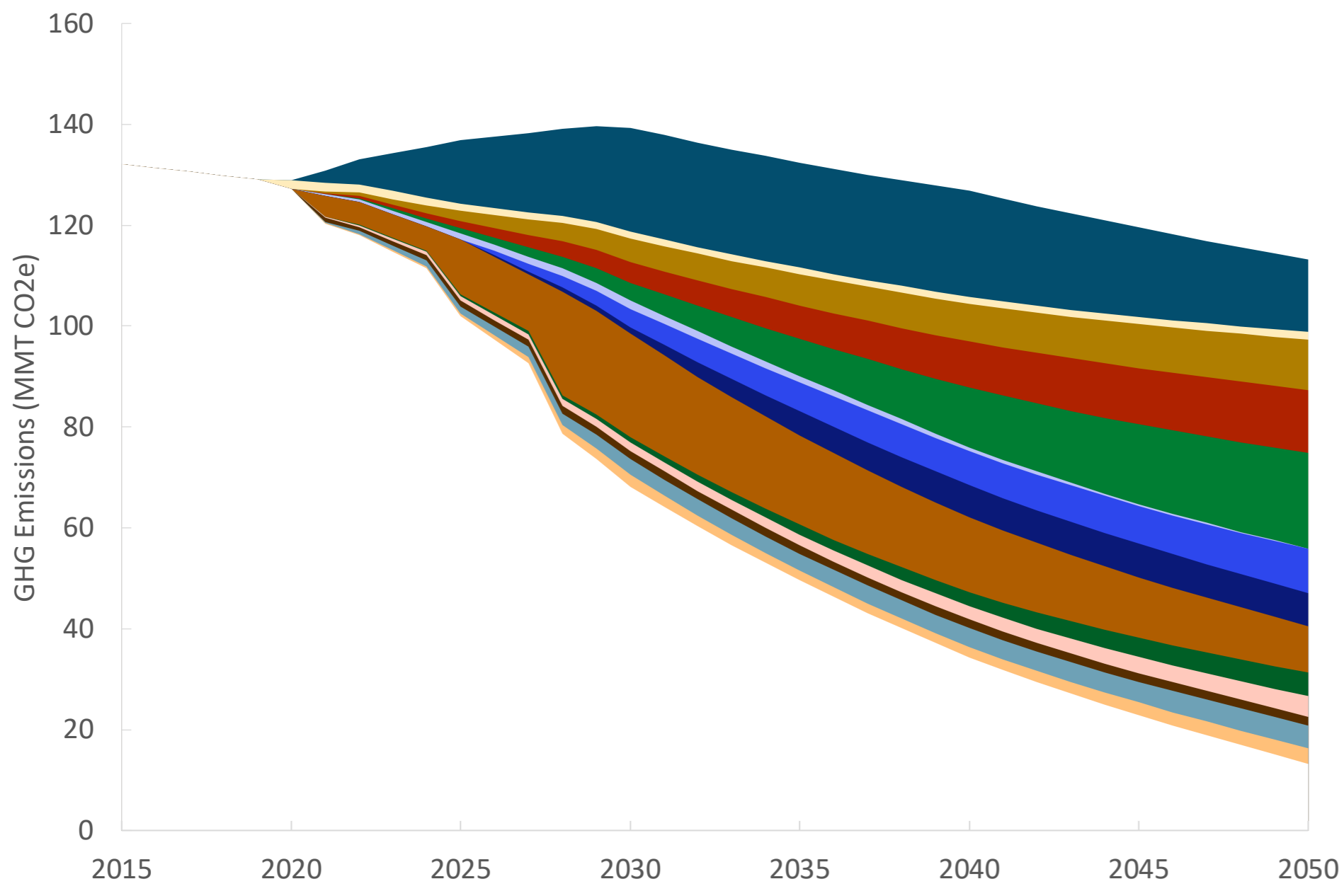
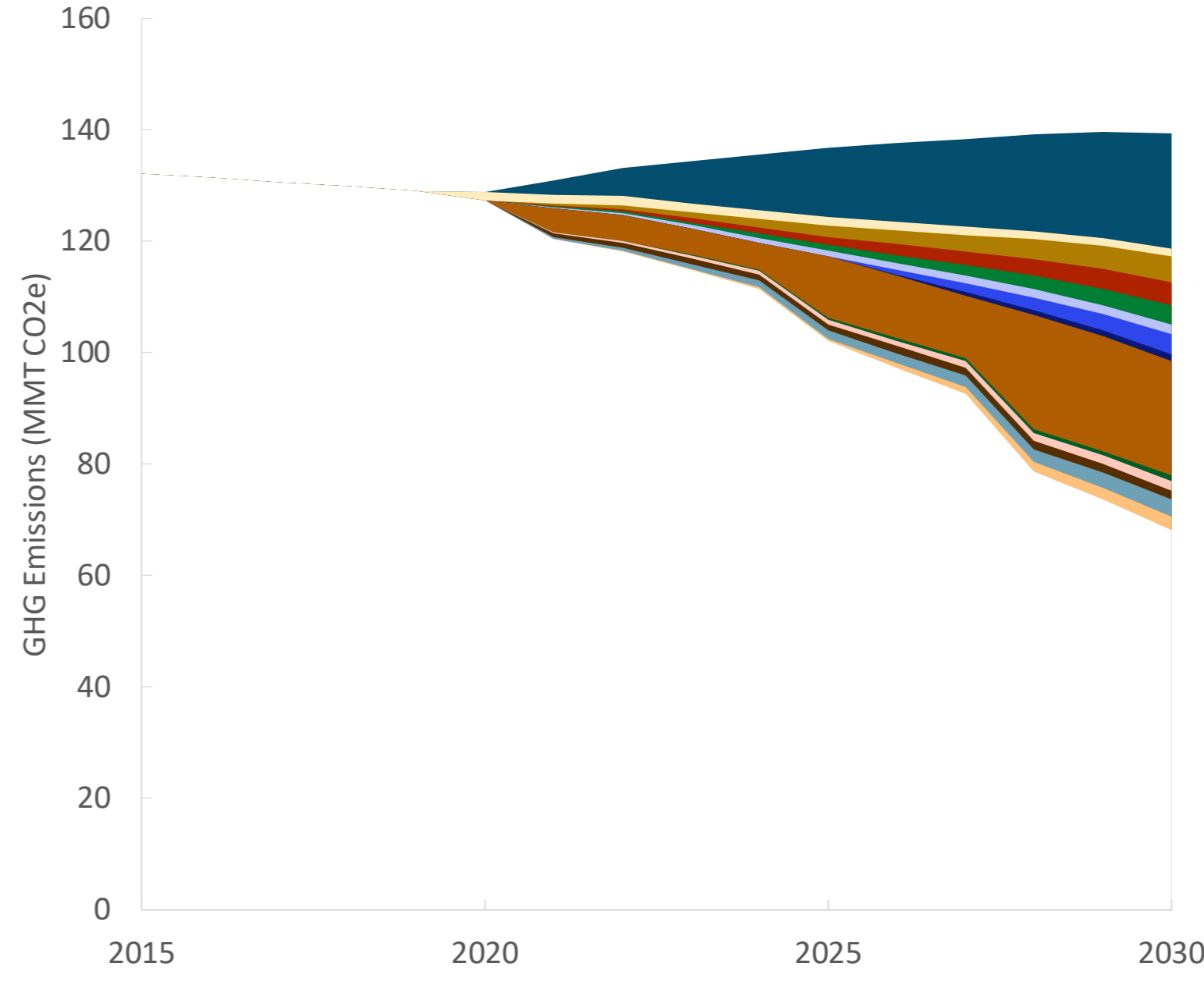


HB1261 Targets Scenario Emissions Reductions
(relative to Reference Scenario)



HB1261 Targets Scenario Emissions Reductions
(relative to Reference Scenario)

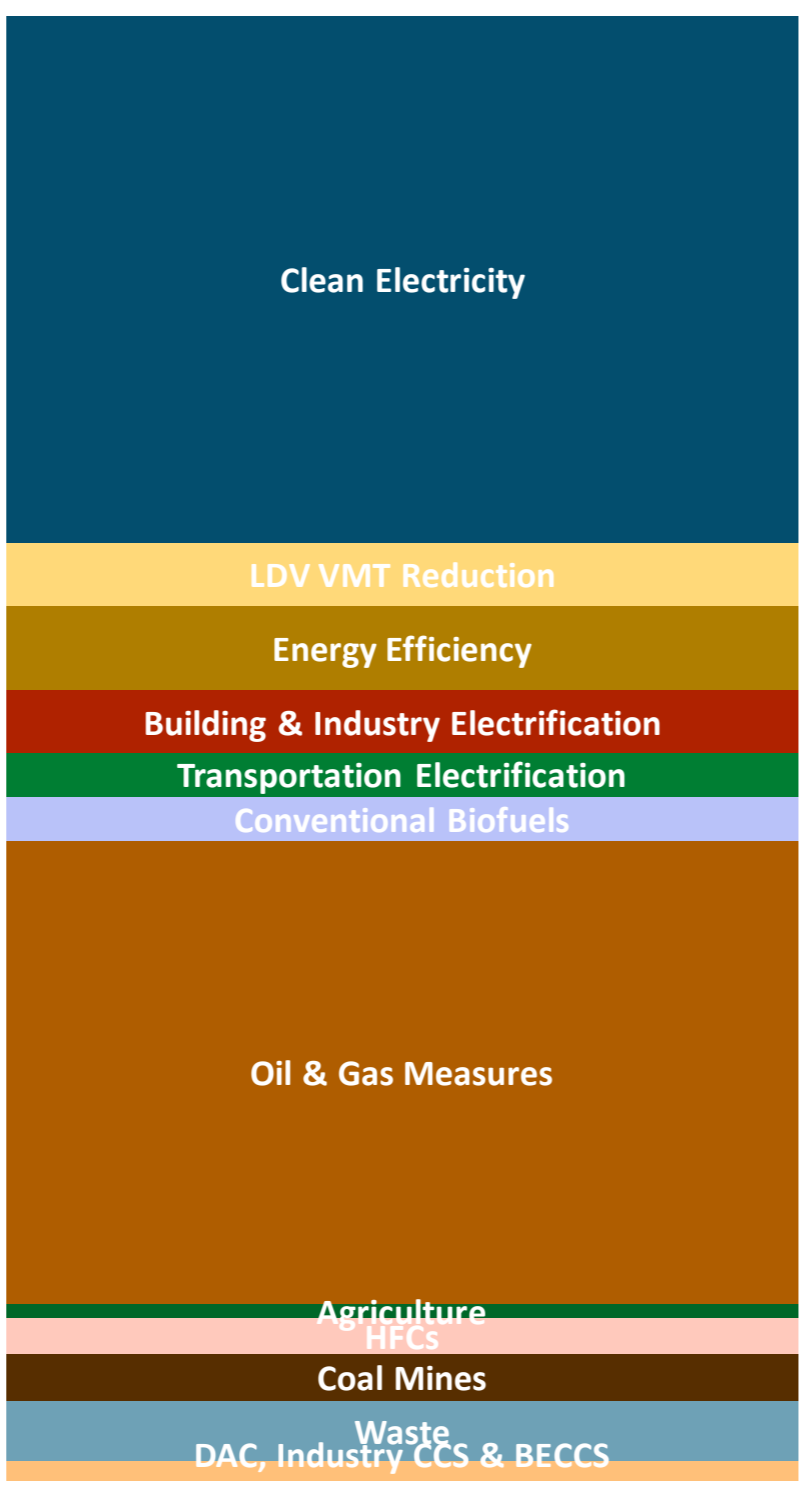


Total Emissions (MMT CO2e, 100-year GWP)	
Scenario	2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050
Reference	132.11 131.38 130.62 129.84 129.04 128.92 130.85 133.08 134.29 135.51 136.83 137.58 138.33 139.15 139.64 139.34 137.83 136.39 135.01 133.69 132.44 131.22 130.05 128.94 127.87 126.85 125.31 123.81 122.35 120.95 119.56 118.22 116.91 115.64 114.39 113.17
Clean Electricity	132.11 131.38 130.62 129.84 129.04 128.92 128.35 128.08 126.79 125.51 124.33 123.46 122.59 121.79 120.66 118.74 117.18 115.69 114.26 112.89 111.59 110.32 109.09 107.94 106.81 105.75 104.87 104.05 103.26 102.53 101.82 101.15 100.51 99.92 99.34 98.79
LDV VMT Reduction	132.11 131.38 130.62 129.84 129.04 127.24 126.70 126.47 125.21 123.97 122.00 121.16 120.38 119.28 117.38 115.83 114.35 112.93 111.57 110.27 109.00 107.77 106.61 105.48 104.40 103.51 102.68 101.88 101.13 100.41 99.72 99.07 98.45 97.85 97.28
Energy Efficiency	132.11 131.38 130.62 129.84 129.04 127.24 126.37 125.76 124.11 122.43 120.82 119.48 118.11 116.77 115.06 112.68 110.84 109.06 107.36 105.70 104.12 102.57 101.06 99.63 98.23 96.89 95.74 94.66 93.60 92.61 91.65 90.72 89.83 88.99 88.16 87.35
Building + Industry Electrification	132.11 131.38 130.62 129.84 129.04 127.22 126.19 125.34 123.38 121.35 119.34 117.54 115.67 113.78 111.49 108.58 106.25 103.98 101.77 99.62 97.53 95.48 93.46 91.52 89.62 87.79 86.17 84.66 83.20 81.83 80.52 79.27 78.08 76.96 75.86 74.80
Transportation Electrification	132.11 131.38 130.62 129.84 129.04 127.22 126.09 125.10 122.93 120.64 118.31 116.12 113.80 111.40 108.56 105.02 102.00 99.00 96.01 93.05 90.12 87.21 84.33 81.52 78.73 75.98 73.50 71.15 68.90 66.76 64.72 62.79 60.95 59.19 57.50 55.90
Conventional Biofuels	132.11 131.38 130.62 129.84 129.04 127.22 125.85 124.63 122.25 119.76 117.24 114.89 112.42 109.88 106.92 103.28 100.35 97.44 94.55 91.68 88.86 86.04 83.26 80.55 77.86 75.21 72.82 70.56 68.38 66.32 64.35 62.48 60.69 58.98 57.34 55.77
Advanced Biofuels (Transportation)	132.11 131.38 130.62 129.84 129.04 127.22 125.85 124.63 122.25 119.76 117.24 114.10 110.87 107.63 104.01 99.77 96.29 92.87 89.54 86.28 83.12 80.01 76.98 74.05 71.19 68.41 65.90 63.51 61.19 58.98 56.84 54.78 52.77 50.82 48.90 47.02
Advanced Biofuels + H2 (Other)	132.11 131.38 130.62 129.84 129.04 127.22 125.85 124.63 122.25 119.76 117.24 113.77 110.26 106.77 102.96 98.58 94.18 89.97 85.93 82.05 78.35 74.80 71.39 68.17 65.07 62.13 59.48 57.00 54.63 52.38 50.23 48.16 46.16 44.22 42.32 40.47
Oil & Gas Measures	132.11 131.38 130.62 129.84 129.04 127.22 121.66 120.11 117.58 114.93 106.25 102.64 98.98 86.18 82.38 77.99 74.16 70.53 67.06 63.76 60.62 57.65 54.81 52.16 49.64 47.27 45.19 43.28 41.49 39.81 38.23 36.73 35.31 33.93 32.61 31.33
Agriculture	132.11 131.38 130.62 129.84 129.04 127.22 121.62 120.02 117.42 114.69 105.92 102.20 98.42 85.49 81.54 76.99 72.97 69.16 65.50 62.01 58.69 55.53 52.50 49.67 46.96 44.40 42.14 40.04 38.06 36.20 34.43 32.74 31.14 29.57 28.06 26.60
HFCs	132.11 131.38 130.62 129.84 129.04 127.22 121.45 119.68 116.91 114.01 105.07 101.18 97.23 84.13 80.01 75.29 71.20 67.32 63.58 60.01 56.60 53.35 50.22 47.29 44.48 41.81 39.43 37.21 35.10 33.11 31.20 29.36 27.61 25.89 24.21 22.59
Coal Mines	132.11 131.38 130.62 129.84 129.04 127.22 120.69 118.83 115.96 112.96 103.94 99.93 95.88 82.67 78.44 73.61 69.52 65.64 61.89 58.32 54.90 51.65 48.52 45.59 42.77 40.10 37.72 35.50 33.39 31.40 29.49 27.64 25.89 24.17 22.49 20.87
Waste	132.11 131.38 130.62 129.84 129.04 127.22 120.42 118.29 115.14 111.85 102.53 98.22 93.86 80.34 75.78 70.61 66.46 62.51 58.70 55.06 51.57 48.25 45.05 42.04 39.15 36.41 33.95 31.65 29.46 27.39 25.40 23.46 21.63 19.83 18.06 16.34
Industry CCS + BECCS	132.11 131.38 130.62 129.84 129.04 127.22 120.33 118.09 114.84 111.45 102.04 97.35 92.57 78.61 73.61 68.08 64.11 60.30 56.61 53.03 49.61 46.31 43.13 40.08 37.16 34.35 31.84 29.45 27.17 24.99 22.89 20.85 18.88 16.94 15.04 13.17

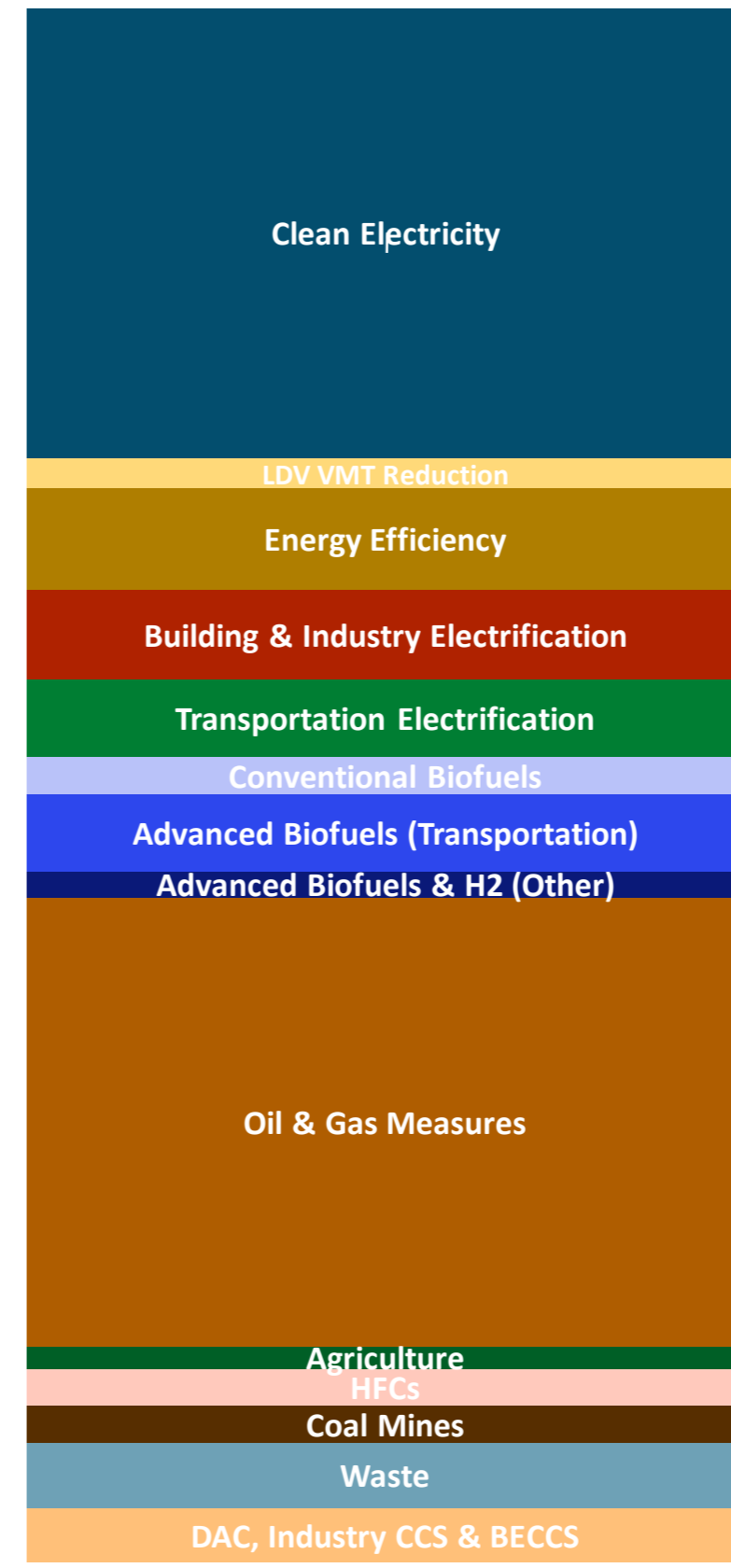
Electricity Emissions (MMT CO2e, 100-year GWP)	
Scenario	2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050
Reference	36.23 34.62 33.00 31.39 29.78 28.16 28.21 28.26 28.31 28.36 28.41 28.46 28.51 28.56 28.61 28.66 28.33 28.01 27.68 27.35 27.03 26.70 26.38 26.05 25.73 25.40 24.52 23.63 22.75 21.87 20.98 20.10 19.22 18.33 17.45 16.57
Current Policy/Compliance	36.23 34.62 33.00 31.39 29.78 28.16 25.71 23.26 20.81 18.36 15.91 14.34 12.77 11.20 9.63 8.06 7.68 7.31 6.93 6.55 6.18 5.80 5.42 5.05 4.67 4.30 4.08 3.87 3.66 3.45 3.24 3.03 2.82 2.61 2.40 2.19

Mitigation (MMT CO2e, 100-year GWP)	
Scenario	2025 2030 2050
Clean Electricity	12.5 20.6 14.4
LDV VMT Reduction	1.5 1.4 1.5
Energy Efficiency	2.0 4.7 9.9
Building + Industry Electrification	1.5 4.1 12.6
Transportation Electrification	1.0 3.6 18.9
Conventional Biofuels	1.1 1.7 0.1
Advanced Biofuels (Transportation)	0.0 3.5 8.7
Advanced Biofuels + H2 (Other)	0.0 1.2 6.6
Oil & Gas Measures	11.0 20.6 9.1
Agriculture	0.3 1.0 4.7
HFCs	0.8 1.7 4.0
Coal Mines	1.1 1.7 1.7
Waste	1.4 3.0 4.5
DAC, Industry CCS + BECCS	0.5 2.5 3.2
Total	34.8 71.3 100.0

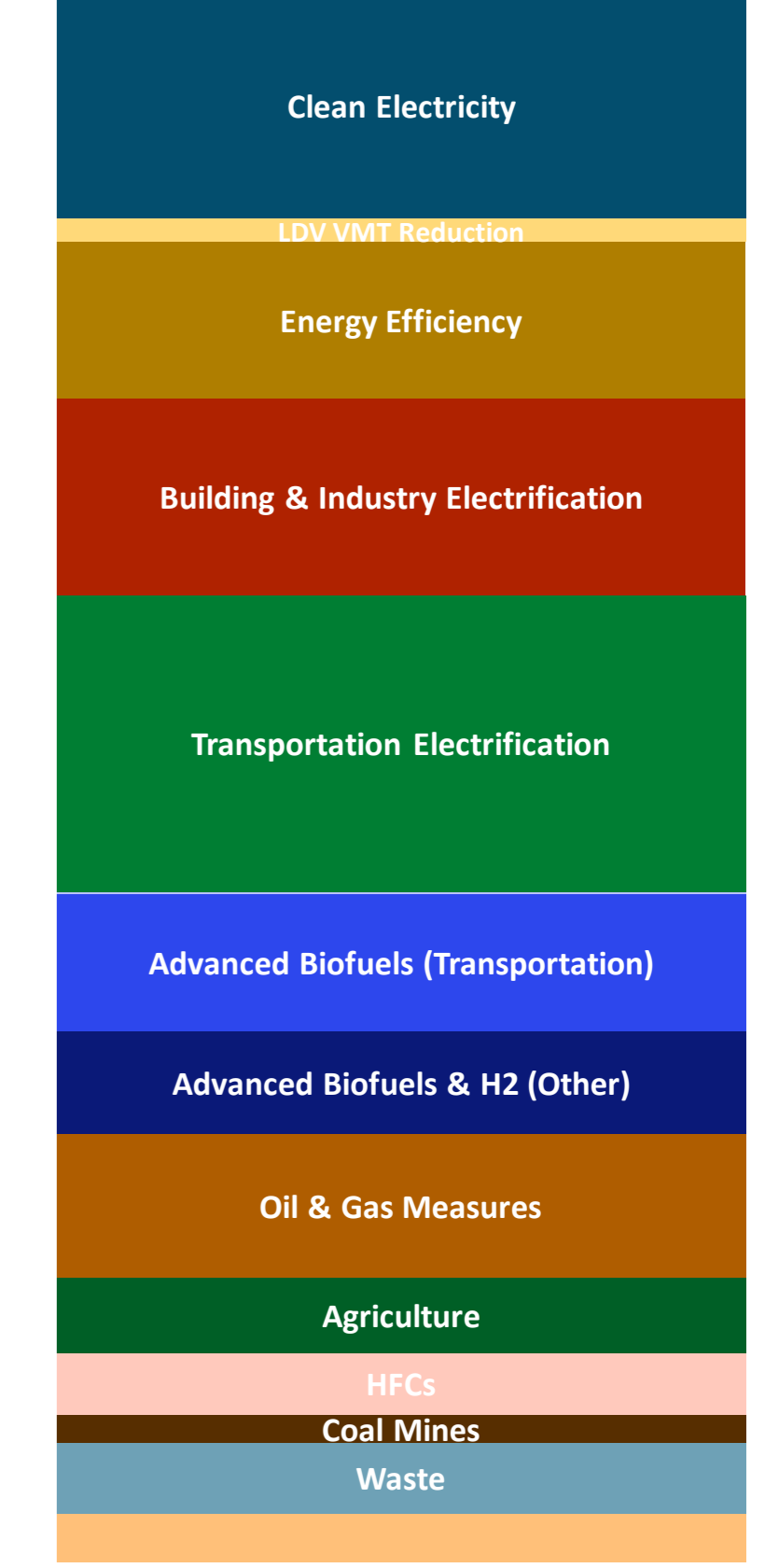
Emissions Mitigation in 2025 by Wedge



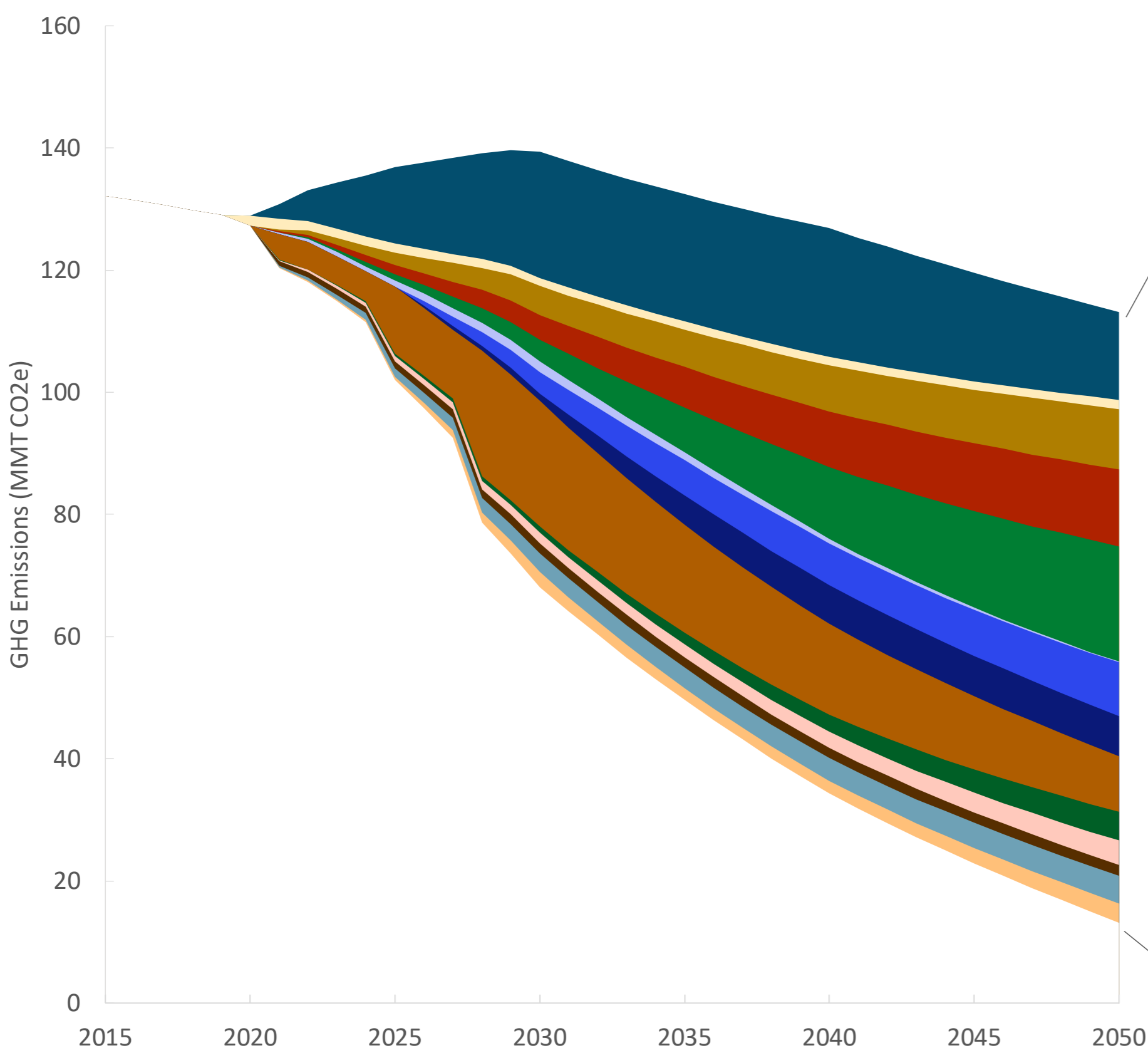
Emissions Mitigation in 2030 by Wedge



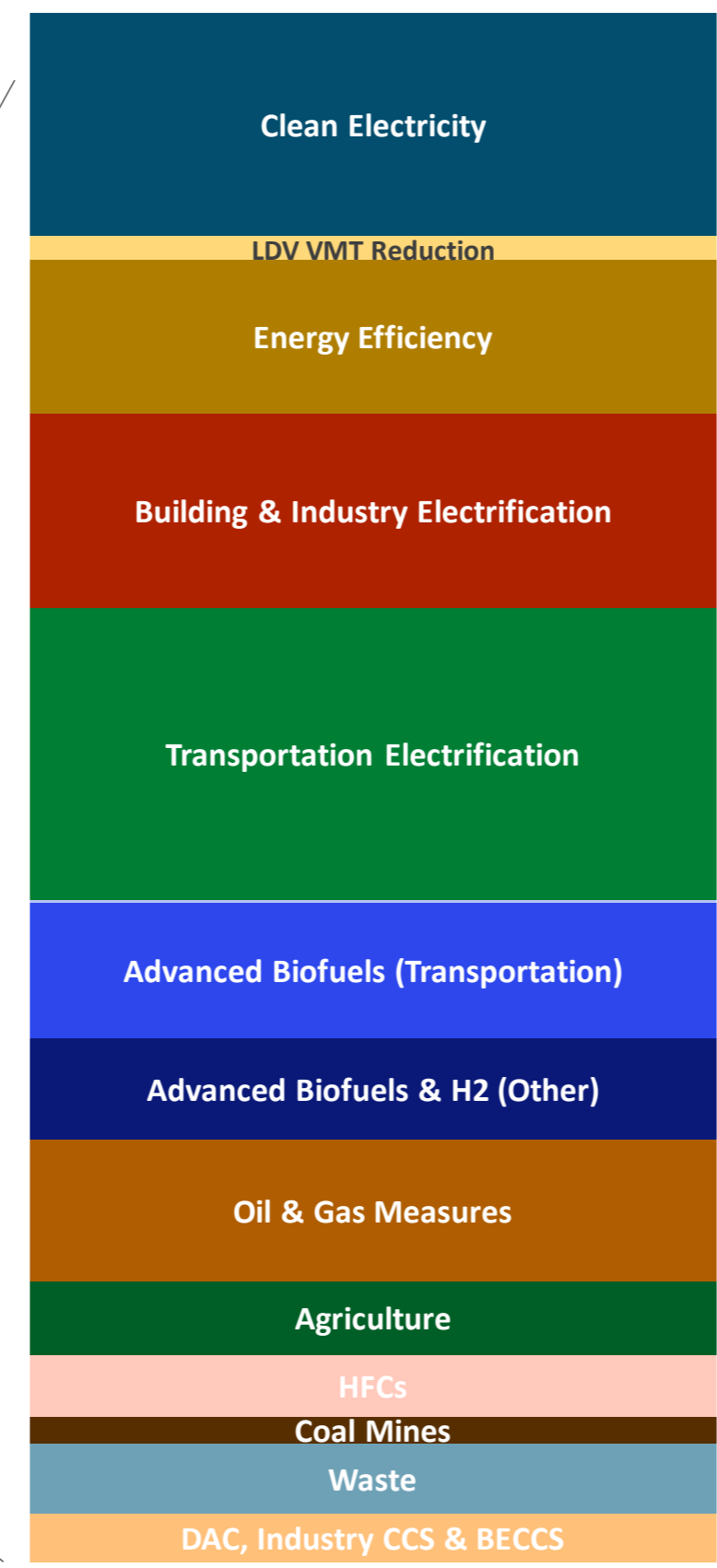
Emissions Mitigation in 2050 by Wedge



HB1261 Targets Scenario Emissions Reductions
(relative to Reference Scenario)



Emissions Mitigation in 2050 by Wedge



E3 Technical Appendix:
Emission Wedges - Transportation Sensitivities Summary

Measure	GHG Emissions Reduction by Measure (MMT CO ₂ e)			Notes
	2025	2030	2050	
VMT Reduction (10%)	1.4-1.5	0.9-1.4	0-1.5	Low to high range based on VMT sensitivities for HB 1261 Targets and Reference scenarios
LDV Electrification	0.8	2.7	12.8	
MDV/HDV Electrification	0.2	0.9	6.1	
Biofuels in transportation	1.1	5.2	8.9	
CAFE extension	0.5	1.2	2.3	Modeled by freezing fuel economy for new passenger vehicles at 2020 levels

Direct (At Point of Emissions)
All Regions, All Fuels, All GHGs, All Tags
Branch: Demand
Units: Million Metric Tonnes CO2 Equivalent

Scenarios	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Adv_Biofuels	53.81	54.04	54.24	54.41	54.55	52.96	52.27	51.43	50.46	49.39	48.22	45.85	43.49	41.14	38.85	36.01	32.86	29.90	27.11	24.48	22.01	19.71	17.55	15.56	13.70	11.99	10.42	9.00	7.70	6.51	5.42	4.41	3.47	2.58	1.74	0.94
BI_Electrification	53.81	54.04	54.24	54.41	54.55	52.98	52.61	52.14	51.59	50.98	50.32	49.62	48.90	48.15	47.38	46.01	44.93	43.91	42.95	42.05	41.19	40.39	39.62	38.91	38.25	37.65	37.11	36.66	36.27	35.96	35.71	35.52	35.39	35.32	35.28	35.27
CCS	53.81	54.04	54.24	54.41	54.55	52.96	52.21	51.31	50.28	49.14	47.92	45.26	42.60	39.97	37.39	34.35	31.41	28.62	25.97	23.44	21.05	18.80	16.68	14.68	12.82	11.07	9.47	7.99	6.62	5.36	4.18	3.07	2.03	1.03	0.08	(0.84)
Conv_Biofuels	53.81	54.04	54.24	54.41	54.55	52.96	52.27	51.43	50.46	49.39	48.22	46.97	45.65	44.25	42.81	40.71	39.03	37.37	35.73	34.11	32.52	30.95	29.42	27.94	26.49	25.07	23.76	22.56	21.45	20.45	19.54	18.73	18.00	17.34	16.76	16.24
Current Policy 2019 Action	53.81	54.04	54.24	54.41	54.55	54.65	54.72	54.76	54.78	54.80	54.82	54.85	54.90	54.97	55.10	54.44	53.85	53.35	52.91	52.55	52.26	52.03	51.86	51.75	51.70	51.72	51.79	51.92	52.09	52.32	52.60	52.91	53.27	53.65	54.07	54.51
EE_Buildings	53.81	54.04	54.24	54.41	54.55	54.66	54.73	54.77	54.80	54.82	54.87	54.94	55.05	55.19	55.37	54.77	54.25	53.79	53.40	53.07	52.79	52.56	52.38	52.25	52.17	52.13	52.14	52.20	52.30	52.45	52.64	52.86	53.12	53.41	53.73	54.07
EE_Ind	53.81	54.04	54.24	54.41	54.55	54.66	54.63	54.59	54.56	54.54	54.56	54.64	54.76	54.94	55.17	54.63	54.23	53.90	53.63	53.42	53.26	53.15	53.08	53.06	53.08	53.15	53.25	53.39	53.57	53.79	54.05	54.33	54.65	55.00	55.37	55.76
EE_Trans	53.81	54.04	54.24	54.41	54.55	52.98	53.12	53.27	53.42	53.60	53.81	54.08	54.39	54.75	55.17	54.81	54.51	54.28	54.11	54.00	53.93	53.91	53.93	54.00	54.11	54.26	54.45	54.68	54.95	55.26	55.60	55.97	56.38	56.81	57.27	57.75
Energy_Efficiency	53.81	54.04	54.24	54.41	54.55	52.98	52.79	52.56	52.32	52.06	51.80	51.56	51.34	51.14	50.95	50.11	49.52	48.99	48.54	48.13	47.78	47.48	47.22	47.02	46.86	46.75	46.68	46.66	46.67	46.74	46.84	46.97	47.14	47.35	47.58	47.82
HB 1261 Ref VMT	53.81	54.04	54.24	54.41	54.55	54.65	53.98	53.16	52.23	51.19	50.08	47.50	44.92	42.38	39.88	36.80	33.75	30.85	28.08	25.46	22.96	20.61	18.40	16.32	14.37	12.55	10.87	9.32	7.89	6.56	5.32	4.16	3.07	2.02	1.02	0.05
HB 1261 Very Low VMT	53.81	54.04	54.24	54.41	54.55	52.96	52.20	51.31	50.32	49.25	48.11	45.53	42.98	40.46	38.01	34.98	32.13	29.42	26.83	24.37	22.03	19.82	17.73	15.77	13.92	12.19	10.58	9.10	7.72	6.44	5.24	4.10	3.03	2.00	1.01	0.05
HB1261 Targets	53.81	54.04	54.24	54.41	54.55	52.96	52.35	51.60	50.74	49.77	48.73	46.23	43.74	41.27	38.86	35.85	32.91	30.10	27.43	24.89	22.48	20.20	18.05	16.03	14.14	12.36	10.72	9.20	7.80	6.50	5.28	4.13	3.05	2.01	1.02	0.05
HB1261 Targets COVID	53.81	53.87	53.87	53.88	53.85	51.48	50.84	50.04	49.14	48.15	47.08	44.90	42.72	40.50	38.37	35.66	32.72	29.93	27.27	24.74	22.34	20.08	17.95	15.94	14.06	12.30	10.67	9.17	7.77	6.48	5.26	4.12	3.04	2.01	1.01	0.05
NonEnergy Measures	53.81	54.04	54.24	54.41	54.55	52.96	52.27	51.43	50.46	49.39	48.22	45.85	43.49	41.14	38.85	36.01	32.86	29.90	27.11	24.48	22.01	19.71	17.55	15.56	13.70	11.99	10.42	9.00	7.70	6.51	5.42	4.41	3.47	2.58	1.74	0.94
OG Measures	53.81	54.04	54.24	54.41	54.55	52.96	52.27	51.43	50.46	49.39	48.22	45.85	43.49	41.14	38.85	36.01	32.86	29.90	27.11	24.48	22.01	19.71	17.55	15.56	13.70	11.99	10.42	9.00	7.70	6.51	5.42	4.41	3.47	2.58	1.74	0.94
Reference	53.81	54.04	54.24	54.41	54.55	54.66	54.77	54.88	55.00	55.14	55.31	55.54	55.82	56.16	56.55	56.17	55.86	55.62	55.44	55.32	55.25	55.23	55.25	55.33	55.44	55.61	55.81	56.05	56.33	56.66	57.01	57.40	57.82	58.28	58.76	59.26
Reference Low VMT	53.81	54.04	54.24	54.41	54.55	52.98	53.12	53.27	53.42	53.60	53.81	54.08	54.39	54.75	55.17	54.81	54.51	54.28	54.11	54.00	53.93	53.91	53.93	54.00	54.11	54.26	54.45	54.68	54.95	55.26	55.60	55.97	56.38	56.81	57.27	57.75
Reference No_CAFE	53.81	54.04	54.24	54.41	54.55	54.66	54.81	54.99	55.21	55.48	55.80	56.18	56.61	57.07	57.59	57.34	57.16	57.04	56.97	56.95	56.97	57.03	57.13	57.27	57.44	57.65	57.89	58.17	58.48	58.83	59.22	59.62	60.06	60.54	61.04	61.55
T_Electrification	53.81	54.04	54.24	54.41	54.55	52.96	52.51	51.90	51.14	50.27	49.29	48.20	47.03	45.77	44.45	42.45	40.68	38.93	37.19	35.48	33.78	32.12	30.49	28.91	27.36	25.84	24.44	23.15	21.97	20.89	19.91	19.04	18.26	17.55	16.92	16.37
Total	1,022.47	1,026.65	1,030.16	1,033.24	1,035.71	1,015.07	1,008.46	1,000.25	990.81	980.35	969.21	947.64	926.28	905.16	884.75	851.89	820.05	790.07	761.88	735.41	710.57	687.39	665.78	645.83	627.42	610.52	595.36	581.88	569.96	559.47	550.24	542.15	535.08	528.88	523.42	518.55

Direct (At Point of Emissions)
All Regions, All Fuels, All GHGs, All Tags
Branch: Non Energy
Units: Million Metric Tonnes CO2 Equivalent

Scenarios	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Adv_Biofuels	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
BI_Electrification	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
CCS	42.07000	42.73000	43.39000	44.05000	44.71000	46.10000	42.41000	43.52000	43.75000	43.95000	38.21000	37.75000	37.20000	27.44000	26.59000	25.67000	25.02000	24.37000	23.71000	23.04000	22.38000	21.71000	21.03000	20.35000	19.67000	18.98000	18.29000	17.59000	16.89000	16.18000	15.47000	14.75000	14.03000	13.30000	12.56000	11.82000
Conv_Biofuels	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
Current Policy 2019 Action	42.07000	42.73000	43.39000	44.05000	44.71000	46.10000	44.98000	46.78000	47.65000	48.50000	46.97000	47.26000	47.51000	42.67000	42.62000	42.54000	41.86000	41.17000	40.49000	39.81000	39.13000	38.45000	37.78000	37.11000	36.44000	35.77000	35.10000	34.44000	33.77000	33.11000	32.45000	31.80000	31.14000	30.49000	29.84000	29.19000
EE_Buildings	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
EE_Ind	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
EE_Trans	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
Energy_Efficiency	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
HB 1261 Ref VMT	42.07000	42.73000	43.39000	44.05000	44.71000	46.10000	42.41000	43.52000	43.75000	43.95000	38.21000	37.75000	37.20000	27.44000	26.59000	25.67000	25.02000	24.37000	23.71000	23.04000	22.38000	21.71000	21.03000	20.35000	19.67000	18.98000	18.29000	17.59000	16.89000	16.18000	15.47000	14.75000	14.03000	13.30000	12.56000	11.82000
HB 1261 Very Low VMT	42.07000	42.73000	43.39000	44.05000	44.71000	46.10000	42.41000	43.52000	43.75000	43.95000	38.21000	37.75000	37.20000	27.44000	26.59000	25.67000	25.02000	24.37000	23.71000	23.04000	22.38000	21.71000	21.03000	20.35000	19.67000	18.98000	18.29000	17.59000	16.89000	16.18000	15.47000	14.75000	14.03000	13.30000	12.56000	11.82000
HB1261 Targets	42.07000	42.73000	43.39000	44.05000	44.71000	46.10000	42.41000	43.52000	43.75000	43.95000	38.21000	37.75000	37.20000	27.44000	26.59000	25.67000	25.02000	24.37000	23.71000	23.04000	22.38000	21.71000	21.03000	20.35000	19.67000	18.98000	18.29000	17.59000	16.89000	16.18000	15.47000	14.75000	14.03000	13.30000	12.56000	11.82000
HB1261 Targets COVID	42.07000	42.73000	43.39000	44.05000	44.71000	37.57000	33.93000	33.40000	32.85000	32.28000	28.74000	28.06000	27.34000	22.23000	21.43000	20.59000	20.18000	19.75000	19.32000	18.89000	18.45000	18.01000	17.57000	17.12000	16.67000	16.21000	15.75000	15.28000	14.81000	14.33000	13.85000	13.36000	12.87000	12.37000	11.86000	11.35000
NonEnergy Measures	42.07000	42.73000	43.39000	44.05000	44.71000	46.10000	42.45000	43.59000	43.86000	44.10000	38.39000	38.03000	37.60000	27.98000	27.29000	26.54000	25.93000	25.30000	24.66000	24.02000	23.38000	22.74000	22.09000	21.44000	20.78000	20.12000	19.45000	18.78000	18.10000	17.42000	16.73000	16.04000	15.34000	14.64000	13.93000	13.21000
OG Measures	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	43.68000	45.42000	46.31000	47.18000	42.12000	42.45000	42.72000	33.84000	33.90000	33.92000	33.62000	33.32000	33.02000	32.73000	32.43000	32.14000	31.84000	31.55000	31.27000	30.98000	30.69000	30.41000	30.13000	29.85000	29.57000	29.29000	29.02000	28.74000	28.47000	28.20000
Reference	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
Reference Low VMT	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
Reference No_CAFE	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
T_Electrification	42.07000	42.72000	43.38000	44.04000	44.71000	46.10000	47.87000	49.94000	50.98000	52.01000	53.11000	53.58000	54.00000	54.43000	54.48000	54.51000	53.64000	52.76000	51.89000	51.02000	50.16000	49.29000	48.42000	47.56000	46.70000	45.84000	44.98000	44.13000	43.27000	42.42000	41.57000	40.72000	39.87000	39.03000	38.18000	37.34000
Total	799.28000	811.71000	824.27000	836.85000	849.45000	867.41000	861.26000	892.55000	906.42000	919.97000	893.30000	896.14000	897.94000	835.20000	830.91000	825.87000	811.67000	797.40000	783.13000	768.87000	754.61000	740.34000	726.08000	711.81000	697.53000	683.25000	668.96000	654.67000	640.37000	626.05000	611.74000	597.41000	583.07000	568.73000	554.37000	540.01000

Direct (At Point of Emissions)
Scenario: Reference No Comparison, Region: Colorado, All Fuels, All GHGs, All Tags
Branch: Non Energy
Units: Million Metric Tonnes CO2 Equivalent

Branches	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050		
Agriculture\Enteric Fermentation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.09000000	0.17000000	0.26000000	0.35000000	0.43000000	0.52000000	0.61000000	0.69000000	0.78000000	0.87000000	0.95000000	1.04000000	1.13000000	1.21000000	1.30000000	1.39000000	1.47000000	1.56000000	1.65000000	1.73000000			
Agriculture\Manure Management CH4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Agriculture\Manure Management N2O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Agriculture\Residue Burning CH4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Agriculture\Residue Burning N2O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Agriculture\Soil Management	-	-	-	-	-	0.04000000	0.09000000	0.16000000	0.24000000	0.33000000	0.44000000	0.56000000	0.69000000	0.84000000	1.00000000	1.10000000	1.20000000	1.30000000	1.40000000	1.50000000	1.60000000	1.70000000	1.80000000	1.90000000	2.00000000	2.10000000	2.20000000	2.30000000	2.40000000	2.50000000	2.60000000	2.70000000	2.80000000	2.90000000	3.00000000			
BECCS\Carbon Dioxide	-	-	-	-	-	0.04000000	0.07000000	0.11000000	0.15000000	0.18000000	0.22000000	0.26000000	0.30000000	0.33000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000	0.37000000			
Coal Mining and Abandoned Mines\Abandoned Coal Mines	-	-	-	-	-	-0.05000000	-0.06000000	-0.06000000	-0.06000000	-0.07000000	#####	-0.08000000	-0.08000000	-0.09000000	-0.09000000	-0.09000000	-0.09000000	-0.09000000	-0.08000000	-0.08000000	-0.07000000	-0.07000000	-0.07000000	-0.07000000	-0.06000000	-0.06000000	-0.06000000	-0.06000000	-0.06000000	-0.05000000	-0.05000000	-0.05000000	-0.05000000	-0.05000000	-0.05000000			
Coal Mining and Abandoned Mines\Coal Mining	-	-	-	-	-	0.81000000	0.91000000	1.01000000	1.11000000	1.20000000	1.32000000	1.43000000	1.54000000	1.66000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000	1.77000000		
Industrial Processes\Cement Manufacture	-	-	-	-	-	-	-	-	-	-	0.04000000	0.10000000	0.17000000	0.25000000	0.35000000	0.36000000	0.38000000	0.40000000	0.42000000	0.43000000	0.45000000	0.47000000	0.48000000	0.50000000	0.52000000	0.54000000	0.55000000	0.57000000	0.59000000	0.61000000	0.62000000	0.64000000	0.66000000	0.67000000	0.69000000			
Industrial Processes\Electric Transmission and Distribution	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Industrial Processes\Iron and Steel Production	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Industrial Processes\Lime Manufacture	-	-	-	-	-	-	-	-	-	-	0.02000000	0.05000000	0.08000000	0.12000000	0.16000000	0.17000000	0.18000000	0.19000000	0.20000000	0.21000000	0.21000000	0.22000000	0.23000000	0.24000000	0.25000000	0.25000000	0.26000000	0.27000000	0.28000000	0.29000000	0.30000000	0.30000000	0.31000000	0.32000000	0.33000000			
Industrial Processes\Limestone and Dolomite Use	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Industrial Processes\ODS Substitutes	-	-	-	-	-	0.17000000	0.34000000	0.51000000	0.68000000	0.85000000	1.02000000	1.19000000	1.36000000	1.53000000	1.70000000	1.77000000	1.84000000	1.92000000	2.00000000	2.09000000	2.18000000	2.28000000	2.38000000	2.48000000	2.59000000	2.71000000	2.83000000	2.96000000	3.09000000	3.23000000	3.38000000	3.53000000	3.68000000	3.85000000	4.01000000			
Industrial Processes\Semiconductor Manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Industrial Processes\Soda Ash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Industrial Processes\Urea Consumption	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Natural Gas and Oil Systems\Carbon Dioxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Natural Gas and Oil Systems\Natural Gas Distribution	-	-	-	-	-	-	-	-	-	-	-	0.01000000	0.01000000	0.01000000	0.01000000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Natural Gas and Oil Systems\Natural Gas Production	-	-	-	-	-	4.19000000	4.52000000	4.67000000	4.83000000	10.99000000	#####	11.27000000	20.58000000	20.58000000	20.58000000	20.01000000	19.44000000	18.87000000	18.29000000	17.72000000	17.15000000	16.58000000	16.00000000	15.43000000	14.86000000	14.29000000	13.71000000	13.14000000	12.57000000	12.00000000	11.42000000	10.85000000	10.28000000	9.71000000	9.14000000			
Natural Gas and Oil Systems\Natural Gas Transmission	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Natural Gas and Oil Systems\Petroleum Systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Natural and Working Lands\NWL Sink	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Solid Waste\Landfills	-	-	-	-	-	0.25000000	0.50000000	0.76000000	1.02000000	1.30000000	1.58000000	1.86000000	2.15000000	2.45000000	2.76000000	2.81000000	2.86000000	2.91000000	2.96000000	3.02000000	3.07000000	3.12000000	3.18000000	3.24000000	3.29000000	3.35000000	3.41000000	3.47000000	3.53000000	3.59000000	3.66000000	3.72000000	3.78000000	3.85000000	3.92000000			
Solid Waste\Waste Combustion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wastewater\Industrial Wastewater CH4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Wastewater\Municipal Wastewater CH4	-	-	-	-	-	0.02000000	0.04000000	0.06000000	0.09000000	0.11000000	0.13000000	0.16000000	0.18000000	0.21000000	0.24000000	0.25000000	0.27000000	0.28000000	0.30000000	0.31000000	0.33000000	0.35000000	0.37000000	0.38000000	0.40000000	0.42000000	0.44000000	0.46000000	0.48000000	0.50000000	0.52000000	0.54000000	0.56000000	0.58000000	0.61000000			
Wastewater\Municipal Wastewater N2O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	-	-	-	-	-	5.46000000	6.42000000	7.22000000	8.05000000	14.91000000	#####	16.80000000	26.98000000	27.89000000	28.84000000	28.61000000	28.40000000	28.19000000	27.98000000	27.78000000	27.58000000	27.39000000	27.21000000	27.03000000	26.86000000	26.69000000	26.54000000	26.38000000	26.24000000	26.10000000	25.97000000	25.84000000	25.73000000	25.62000000	25.52000000			

E3 Technical Appendix
Emissions Wedges: Transportation Adv Biofuels

Direct (At Point of Emissions)																																				
Scenario: Adv_Biofuels Differences vs. Conv_Biofuels, All Regions, All Fuels, All GHGs, All Tags																																				
Branch: Demand																																				
Units: Million Metric Tonnes CO2 Equivalent																																				
Branches	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Transportation Aviation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.25510	-0.51830	-0.78990	-1.07010	-1.35900	-1.65690	-1.96390	-2.28040	-2.60650	-2.94250	-3.28850	-3.64480	-4.01180	-4.38950	-4.77830	-5.17840	-5.59000	-6.01360	-6.44920	-6.89730	
Transportation Other	-	-	-	-	-	-	-	-	-	-	-0.00150	-0.00310	-0.00480	-0.00650	-0.00830	-0.04350	-0.07980	-0.11720	-0.15560	-0.19510	-0.23570	-0.27740	-0.32040	-0.36440	-0.40970	-0.45630	-0.50410	-0.55320	-0.60360	-0.65530	-0.70840	-0.76290	-0.81880	-0.87620	-0.93500	
Transportation Short LDV	-	-	-	-	-	-	-	-	-	-	-0.00580	-0.01050	-0.01420	-0.01700	-0.01880	-0.20250	-0.36030	-0.49210	-0.59790	-0.67770	-0.73360	-0.76670	-0.77840	-0.76970	-0.74150	-0.70270	-0.65620	-0.60510	-0.55010	-0.49340	-0.43700	-0.38100	-0.32670	-0.27540	-0.22810	
Transportation Long LDV	-	-	-	-	-	-	-	-	-	-	-0.06300	-0.11590	-0.15890	-0.19170	-0.21330	-0.40140	-0.56370	-0.70040	-0.81200	-0.89900	-0.96230	-1.00320	-1.02240	-1.02030	-0.99780	-0.96120	-0.91470	-0.86030	-0.80030	-0.73660	-0.68070	-0.62130	-0.55860	-0.49720	-0.43820	
Transportation MDV	-	-	-	-	-	-	-	-	-	-	-0.18570	-0.36540	-0.53690	-0.69820	-0.84730	-0.82030	-0.78980	-0.75710	-0.72460	-0.69340	-0.66300	-0.63200	-0.59860	-0.56150	-0.51920	-0.47480	-0.42790	-0.37900	-0.32890	-0.27900	-0.23090	-0.18620	-0.14600	-0.11100	-0.08160	
Transportation HDV	-	-	-	-	-	-	-	-	-	-	-0.53820	-1.05170	-1.53720	-1.99380	-2.41790	-2.34180	-2.25460	-2.15350	-2.03980	-1.91490	-1.78110	-1.64080	-1.49570	-1.34510	-1.18900	-1.04470	-0.91110	-0.78740	-0.67280	-0.56690	-0.46940	-0.38020	-0.29980	-0.22880	-0.16770	
Transportation Buses	-	-	-	-	-	-	-	-	-	-	-0.00020	-0.00040	-0.00050	-0.00060	-0.00070	-0.00070	-0.00060	-0.00050	-0.00040	-0.00040	-0.00030	-0.00020	-0.00020	-0.00010	-0.00010	-0.00010	-	-	-	-	-	-	-	-	-	
Total	-	-	-	-	-	-	-	-	-	-	-0.79440	-1.54700	-2.25260	-2.90790	-3.50630	-4.06530	-4.56720	-5.01070	-5.40040	-5.73930	-6.03290	-6.28430	-6.49600	-6.66760	-6.79990	-6.92820	-7.05880	-7.19670	-7.34520	-7.50940	-7.70470	-7.92160	-8.16330	-8.43770	-8.74790	

E3 Technical Appendix
Emissions Wedges: Transportation Electrification

Direct (At Point of Emissions)
Scenario: T_Electrification Differences vs. BI_Electrification, All Regions, All Fuels, All GHGs, All Tags
Branch: Demand
Units: Million Metric Tonnes CO2 Equivalent

Branches	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
Transportation Aviation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transportation Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transportation Short LDV	-	0.00030	0.00010	-0.00020	-0.00020	-0.00690	-0.03940	-0.09530	-0.17310	-0.26940	-0.38500	-0.52170	-0.68220	-0.85760	-1.04770	-1.26170	-1.49110	-1.73650	-1.99830	-2.27600	-2.56810	-2.86620	-3.16870	-3.47340	-3.77880	-4.08430	-4.37200	-4.64180	-4.89210	-5.12770	-5.34750	-5.55230	-5.74550	-5.92780	-6.09950	-6.26140	
Transportation Long LDV	-	0.00040	0.00030	-0.00030	-0.00070	-0.00820	-0.04180	-0.10000	-0.18230	-0.28520	-0.40850	-0.55570	-0.72770	-0.92160	-1.13700	-1.39420	-1.66760	-1.94500	-2.22720	-2.51490	-2.80890	-3.10390	-3.39980	-3.69660	-3.99490	-4.29480	-4.57960	-4.84920	-5.10500	-5.34630	-5.57400	-5.77090	-5.96710	-6.16160	-6.34620	-6.52120	
Transportation MDV	-	-	-	-	-	-	-0.00180	-0.00670	-0.01650	-0.03380	-0.06010	-0.09580	-0.13900	-0.18750	-0.23960	-0.29380	-0.35080	-0.40700	-0.45750	-0.49800	-0.52720	-0.54850	-0.56920	-0.59550	-0.63140	-0.68010	-0.73920	-0.80970	-0.89190	-0.98380	-1.08200	-1.18220	-1.27950	-1.36930	-1.44860	-1.51490	
Transportation HDV	-	-	-	-	-	-	-0.01340	-0.03890	-0.07540	-0.12280	-0.18040	-0.24680	-0.32260	-0.40750	-0.50380	-0.61150	-0.74050	-0.89500	-1.07540	-1.28300	-1.51060	-1.74910	-1.99150	-2.24040	-2.49140	-2.74620	-2.98330	-3.20510	-3.41330	-3.60940	-3.79540	-3.97260	-4.14220	-4.30460	-4.45920	-4.60450	
Transportation Buses	-	-	-	-	-	-	-	-	-	-0.00010	-0.00010	-0.00020	-0.00020	-0.00030	-0.00040	-0.00050	-0.00060	-0.00070	-0.00080	-0.00090	-0.00100	-0.00110	-0.00120	-0.00130	-0.00140	-0.00150	-0.00150	-0.00160	-0.00160	-0.00160	-0.00160	-0.00160	-0.00160	-0.00170	-0.00170		
Total	-	0.00070	0.00040	-0.00060	-0.00090	-0.01510	-0.09640	-0.24090	-0.44740	-0.71120	-1.03410	-1.42020	-1.87160	-2.37450	-2.92850	-3.56170	-4.25060	-4.98410	-5.75910	-6.57290	-7.41590	-8.26890	-9.13040	#####	#####	-11.80690	-12.67560	-13.50740	-14.30380	-15.06890	-15.80060	-16.47960	-17.13590	-17.76510	-18.35510	-18.90380	

E3 Technical Appendix
Emissions Wedges: Transportation Biofuels

Direct (At Point of Emissions)
Scenario: Adv_Biofuels Differences vs. T_Electrification, All Regions, All Fuels, All GHGs, All Tags
Branch: Demand
Units: Million Metric Tonnes CO2 Equivalent

Branches	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Transportation Aviation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.25510	-0.51830	-0.78990	-1.07010	-1.35900	-1.65690	-1.96390	-2.28040	-2.60650	-2.94250	-3.28850	-3.64480	-4.01180	-4.38950	-4.77830	-5.17840	-5.59000	-6.01360	-6.44920	-6.89730	
Transportation Other	-	-	-	-	-	-	-	-	-	-	-0.00150	-0.00310	-0.00480	-0.00650	-0.00830	-0.04350	-0.07980	-0.11720	-0.15560	-0.19510	-0.23570	-0.27740	-0.32040	-0.36440	-0.40970	-0.45630	-0.50410	-0.55320	-0.60360	-0.65530	-0.70840	-0.76290	-0.81880	-0.87620	-0.93500	
Transportation Short LDV	-	-	-	-	-	-	-0.05840	-0.11340	-0.16430	-0.21070	-0.25190	-0.29370	-0.32910	-0.35810	-0.38150	-0.39840	-0.55700	-0.68960	-0.79640	-0.87710	-0.93180	-0.96330	-0.97280	-0.96170	-0.93080	-0.88130	-0.82320	-0.75930	-0.69290	-0.62420	-0.55550	-0.48840	-0.42320	-0.36090	-0.30280	-0.24960
Transportation Long LDV	-	-	-	-	-	-	-0.07590	-0.14660	-0.21150	-0.27010	-0.32220	-0.43080	-0.52290	-0.59840	-0.65710	-0.69690	-0.85160	-0.98150	-1.08680	-1.16760	-1.22470	-1.25920	-1.27230	-1.26470	-1.23670	-1.18920	-1.12930	-1.06170	-0.98810	-0.91080	-0.83140	-0.76290	-0.69200	-0.61850	-0.54770	-0.48050
Transportation MDV	-	-	-	-	-	-	-0.02700	-0.05280	-0.07760	-0.10180	-0.12560	-0.33420	-0.53590	-0.72780	-0.90760	-1.07320	-1.03820	-0.99890	-0.95670	-0.91500	-0.87490	-0.83590	-0.79620	-0.75360	-0.70630	-0.65270	-0.59630	-0.53710	-0.47530	-0.41220	-0.34940	-0.28900	-0.23280	-0.18240	-0.13860	-0.10180
Transportation HDV	-	-	-	-	-	-	-0.07710	-0.15300	-0.22690	-0.29810	-0.36630	-0.96880	-1.54240	-2.08380	-2.59200	-3.06270	-2.96420	-2.85180	-2.72200	-2.57650	-2.41700	-2.24660	-2.06830	-1.88400	-1.69320	-1.49570	-1.31330	-1.14450	-0.98850	-0.84410	-0.71070	-0.58810	-0.47600	-0.37510	-0.28610	-0.20960
Transportation Buses	-	-	-	-	-	-	-	-0.00010	-0.00010	-0.00010	-0.00010	-0.00030	-0.00050	-0.00070	-0.00080	-0.00090	-0.00090	-0.00080	-0.00070	-0.00060	-0.00050	-0.00040	-0.00030	-0.00020	-0.00020	-0.00010	-0.00010	-	-	-	-	-	-	-	-	
Total	-	-	-	-	-	-	-0.23840	-0.46580	-0.68040	-0.88080	-1.06600	-2.02940	-2.93400	-3.77370	-4.54560	-5.24050	-5.71040	-6.12080	-6.46960	-6.76230	-7.00290	-7.19800	-7.35120	-7.46490	-7.53820	-7.57120	-7.60700	-7.65160	-7.70970	-7.78430	-7.88060	-8.01520	-8.17700	-8.36920	-8.60040	-8.87380