

Appendix D

Changes in Per-Mile Fuel-Cycle Energy Use and Emissions

This appendix presents numerical changes in fuel-cycle energy use and emissions by alternative transportation fuels and advanced vehicle technologies relative to baseline gasoline vehicles. The values presented in this appendix were used to generate the charts presented in Section 6 of Volume 1 and in Appendix C of Volume 2. Numerical changes are presented in the following order: near-term passenger cars, near-term LDT1, near-term LDT2, long-term passenger cars, long-term LDT1, and long-term LDT2.

Acronyms, initialisms, and abbreviations are defined on pages xv–xviii of Volume 1.

D-I Near-Term Technologies

D-I.1 Passenger Cars

Parameter	GV: FRFG2, MTBE	GV: CARFG2, ETBE	GV: CARFG2, EtOH	CIDI: CD	Bi-fuel CNGV	Dedi. CNGV	Dedi. LPGV: crude	Dedi. LPGV: NG	M85 FFV: NG	M85 FFV: FG	M85 FFV: LFG
Total energy	0.0%	0.8%	0.4%	-29.7%	6.7%	3.3%	-8.6%	-9.6%	14.5%	16.6%	2.7%
Fossil fuels	0.0%	-3.1%	-2.6%	-29.6%	5.7%	2.3%	-8.6%	-9.3%	15.0%	-39.0%	-52.8%
Petroleum	-11.0%	-10.1%	-2.5%	-26.7%	-99.4%	-99.4%	-3.4%	-98.2%	-72.6%	-72.6%	-73.1%
VOC: Total	-15.1%	-5.5%	8.6%	-60.9%	-48.7%	-71.2%	-58.2%	-64.1%	-19.8%	-120.3%	-35.3%
VOC: Urban	-19.7%	-19.4%	5.3%	-62.8%	-45.8%	-74.8%	-63.1%	-60.3%	-20.3%	-20.3%	-22.8%
CO: Total	-19.1%	-18.9%	-19.4%	-79.5%	-34.8%	-42.7%	-39.3%	-39.7%	-37.4%	-39.1%	-46.5%
CO: Urban	-20.0%	-19.9%	-20.0%	-80.5%	-35.5%	-43.5%	-39.9%	-39.9%	-40.0%	-40.0%	-42.8%
NOx: Total	0.4%	14.6%	2.6%	51.8%	26.6%	18.6%	-17.7%	-22.4%	0.5%	-36.2%	-9.0%
NOx: Urban	-4.2%	-2.9%	-4.2%	111.4%	25.2%	14.7%	-9.1%	-9.3%	-12.0%	-12.0%	-17.4%
PM10: Total	-1.8%	78.2%	38.5%	154.8%	-35.9%	-37.8%	-34.1%	-43.0%	-26.5%	-40.3%	-255.9%
PM10: Urban	-1.4%	-0.4%	-1.3%	258.5%	-30.4%	-32.3%	-31.3%	-31.3%	-22.8%	-22.8%	-201.8%
SOx: Total	-28.9%	-0.4%	-16.3%	-31.4%	-37.5%	-39.5%	-57.3%	-77.4%	-58.7%	-59.5%	45.3%
SOx: Urban	-82.7%	-82.8%	-83.0%	-3.9%	-96.1%	-96.2%	-98.0%	-98.1%	-73.7%	-73.7%	-98.7%
CH4	18.2%	18.8%	-2.4%	-38.8%	211.0%	205.1%	-5.7%	2.8%	1.0%	-12.7%	-434.3%
N2O	0.4%	62.5%	32.4%	-42.6%	-38.4%	-19.4%	-1.8%	-1.8%	1.6%	-2.3%	-0.3%
CO2	1.2%	-0.9%	-5.1%	-25.8%	-13.9%	-16.7%	-12.6%	-14.3%	-4.7%	-69.4%	-134.6%
GHGs	1.6%	0.7%	-4.4%	-26.5%	-8.2%	-10.7%	-12.2%	-13.6%	-4.4%	-66.7%	-140.4%



D-I.1 Passenger Cars (Cont.)

Parameter	E10 GV: corn	E85 FFV: corn	E85 FFV: WB	E85 FFV: HB	EV: US mix	EV: NE US mix	EV: CA mix	GC SIDI HEV: CARFG2, ETBE, CA mix	GC SIDI HEV: CARFG2, EtOH, CA mix	GI SIDI HEV: FRFG2, MTBE	GI CIDI HEV: CD
Total energy	2.1%	17.9%	90.4%	79.1%	-14.7%	-14.0%	-16.9%	-35.9%	-36.0%	-47.4%	-52.5%
Fossil fuels	-3.4%	-41.8%	-81.8%	-72.7%	-34.7%	-46.0%	-68.6%	-52.9%	-52.7%	-47.4%	-52.5%
Petroleum	-6.3%	-73.8%	-71.2%	-73.2%	-98.4%	-96.9%	-99.5%	-64.9%	-62.0%	-53.2%	-50.6%
VOC: Total	14.4%	54.0%	4.5%	0.4%	-88.0%	-90.6%	-95.2%	-48.2%	-36.7%	-34.3%	-65.0%
VOC: Urban	10.7%	-16.0%	-16.1%	-16.1%	-99.6%	-99.4%	-99.5%	-50.8%	-33.3%	-30.4%	-63.7%
CO: Total	-35.0%	-37.4%	-30.3%	-31.7%	-98.0%	-98.0%	-98.7%	-54.7%	-54.9%	-36.0%	-80.0%
CO: Urban	-35.9%	-39.8%	-39.8%	-39.8%	-99.9%	-99.9%	-99.9%	-55.2%	-55.2%	-36.0%	-80.6%
NOx: Total	9.9%	101.9%	125.7%	139.8%	64.5%	11.5%	-51.3%	-21.6%	-26.3%	-18.1%	43.7%
NOx: Urban	0.8%	-1.1%	-2.4%	-1.7%	-94.7%	-90.9%	-93.2%	-28.6%	-29.1%	-1.8%	110.5%
PM10: Total	57.2%	615.2%	139.9%	124.4%	48.5%	10.5%	-31.7%	13.3%	-2.1%	-12.9%	148.0%
PM10: Urban	0.6%	-15.0%	-15.5%	-15.2%	-35.4%	-33.4%	-34.7%	-5.8%	-6.1%	6.0%	257.9%
SOx: Total	15.7%	168.8%	-151.8%	-95.8%	462.8%	217.2%	-13.9%	-35.4%	-41.6%	-62.6%	-53.7%
SOx: Urban	-6.7%	-78.6%	-79.1%	-78.9%	-96.9%	-90.7%	-99.0%	-93.0%	-93.1%	-90.9%	-35.2%
CH4	-1.5%	-14.3%	-62.9%	-48.9%	-15.5%	-23.5%	-49.2%	-34.3%	-42.5%	-31.3%	-58.1%
N2O	45.4%	500.3%	187.1%	607.8%	-89.9%	-90.2%	-92.9%	-4.9%	-16.6%	-1.9%	-43.4%
CO2	-2.9%	-36.4%	-113.1%	-85.5%	-24.3%	-42.8%	-70.7%	-50.4%	-51.9%	-46.8%	-49.9%
GHGs	-2.0%	-26.3%	-106.4%	-72.2%	-25.3%	-43.1%	-70.5%	-49.1%	-51.1%	-45.6%	-50.0%

D-I Near-Term Technologies

D-I.1 Light-Duty Truck 1

Parameter	GV: FRFG2, MTBE	GV: CARFG2, ETBE	GV: CARFG2, EtOH	CIDI: CD	Bi-fuel CNGV	Dedi. CNGV	Dedi LPGV: crude	Dedi. LPGV: NG	M85 FFV: NG	M85 FFV: FG	M85 FFV: LFG
Total energy	0.0%	0.8%	0.4%	-29.7%	6.7%	3.3%	-8.6%	-9.6%	14.5%	16.6%	2.7%
Fossil fuels	0.0%	-3.1%	-2.6%	-29.6%	5.7%	2.3%	-8.6%	-9.3%	15.0%	-41.8%	-52.8%
Petroleum	-11.0%	-10.1%	-2.5%	-26.7%	-99.4%	-99.4%	-3.4%	-98.2%	-72.6%	-72.6%	-73.1%
VOC: Total	-12.4%	-0.6%	8.8%	-56.4%	-48.8%	-68.1%	-53.9%	-61.3%	-20.9%	-145.5%	-40.2%
VOC: Urban	-17.6%	-17.1%	4.4%	-57.0%	-45.1%	-71.7%	-58.8%	-55.0%	-22.0%	-22.0%	-25.5%
CO: Total	-19.2%	-19.0%	-19.5%	-85.1%	-34.9%	-42.8%	-39.4%	-39.8%	-37.7%	-39.2%	-45.8%
CO: Urban	-20.0%	-19.9%	-20.0%	-86.1%	-35.6%	-43.6%	-39.9%	-39.9%	-40.0%	-40.0%	-42.5%
NOx: Total	0.3%	14.2%	2.5%	17.4%	26.0%	18.0%	-17.5%	-22.1%	0.3%	-35.6%	-9.0%
NOx: Urban	-4.2%	-3.0%	-4.2%	53.6%	24.3%	13.8%	-9.1%	-9.3%	-11.9%	-11.9%	-17.1%
PM10: Total	-2.0%	88.5%	43.6%	122.1%	-39.2%	-41.2%	-37.1%	-47.2%	-29.0%	-44.6%	-288.5%
PM10: Urban	-1.5%	-0.4%	-1.5%	227.2%	-34.5%	-36.6%	-35.5%	-35.6%	-26.1%	-26.1%	-243.5%
SOx: Total	-28.9%	-0.4%	-16.3%	-31.4%	-37.5%	-39.5%	-57.3%	-77.4%	-58.7%	-59.5%	45.3%
SOx: Urban	-82.7%	-82.8%	-83.0%	-3.9%	-96.1%	-96.2%	-98.0%	-98.1%	-73.7%	-73.7%	-98.7%
CH4	18.8%	19.4%	-2.3%	-37.3%	193.5%	187.4%	-6.6%	2.1%	2.3%	-11.8%	-433.7%
N2O	0.5%	70.3%	36.4%	-28.1%	-38.2%	-19.3%	-2.1%	-2.0%	1.7%	-2.6%	-0.3%
CO2	1.2%	-0.9%	-5.1%	-25.8%	-13.8%	-16.6%	-12.6%	-14.3%	-4.7%	-69.4%	-134.6%
GHGs	1.6%	0.8%	-4.4%	-26.2%	-8.7%	-11.2%	-12.2%	-13.7%	-4.4%	-66.8%	-140.4%



D-I.1 Light-Duty Truck 1 (Cont.)

Parameter	E10 GV: corn	E85 FFV: corn	E85 FFV: WB	E85 FFV: HB	EV: US mix	EV: NE US mix	EV: CA mix	GC SIDI HEV: CARFG2, ETBE, CA mix	GC SIDI HEV: CARFG2, EtOH, CA mix	GI SIDI HEV: FRFG2, MTBE	GI CIDI HEV: CD
Total energy	2.1%	17.9%	90.4%	79.1%	-14.7%	-14.0%	-16.9%	-35.9%	-36.0%	-47.4%	-52.5%
Fossil fuels	-3.4%	-41.8%	-81.8%	-72.7%	-34.7%	-46.0%	-68.6%	-52.9%	-52.7%	-47.4%	-52.5%
Petroleum	-6.3%	-73.8%	-71.2%	-73.2%	-98.4%	-96.9%	-99.5%	-64.9%	-62.0%	-53.2%	-50.6%
VOC: Total	14.0%	70.6%	9.1%	4.1%	-85.2%	-88.4%	-94.0%	-46.9%	-38.3%	-34.4%	-61.5%
VOC: Urban	9.0%	-16.3%	-16.5%	-16.5%	-99.5%	-99.3%	-99.4%	-49.8%	-34.4%	-29.2%	-58.2%
CO: Total	-35.1%	-37.6%	-31.3%	-32.6%	-98.2%	-98.2%	-98.8%	-54.8%	-55.0%	-36.0%	-85.5%
CO: Urban	-35.9%	-39.8%	-39.8%	-39.8%	-99.9%	-99.9%	-99.9%	-55.2%	-55.2%	-36.0%	-86.2%
NOx: Total	9.7%	99.4%	122.6%	136.5%	60.9%	9.1%	-52.3%	-21.8%	-26.3%	-17.7%	9.5%
NOx: Urban	0.8%	-1.4%	-2.7%	-2.0%	-94.9%	-91.2%	-93.4%	-28.6%	-29.1%	-1.7%	52.7%
PM10: Total	64.7%	696.9%	159.2%	141.8%	56.5%	13.6%	-34.3%	15.3%	-2.1%	-14.9%	114.4%
PM10: Urban	0.7%	-16.6%	-17.2%	-16.9%	-40.3%	-37.8%	-39.4%	-6.6%	-7.0%	6.8%	226.5%
SOx: Total	15.7%	168.8%	-151.8%	-95.8%	462.8%	217.2%	-13.9%	-35.4%	-41.6%	-62.6%	-53.7%
SOx: Urban	-6.7%	-78.6%	-79.1%	-78.9%	-96.9%	-90.7%	-99.0%	-93.0%	-93.1%	-90.9%	-35.2%
CH4	-1.5%	-15.9%	-65.8%	-51.5%	-13.3%	-21.5%	-47.9%	-34.4%	-42.8%	-32.1%	-57.1%
N2O	51.1%	562.8%	210.4%	683.7%	-88.7%	-88.9%	-92.1%	-1.8%	-15.0%	-2.1%	-29.0%
CO2	-2.9%	-36.4%	-113.0%	-85.4%	-24.3%	-42.8%	-70.7%	-50.4%	-51.9%	-46.8%	-49.9%
GHGs	-2.0%	-26.4%	-106.6%	-72.4%	-25.1%	-43.0%	-70.4%	-49.2%	-51.1%	-45.7%	-49.8%



D-I Near-Term Technologies

D-I.1 Light-Duty Truck 2

Parameter	GV: FRFG2, MTBE	GV: CARFG2, ETBE	GV: CARFG2, EtOH	CIDI: CD	Bi-fuel CNGV	Dedi. CNGV	Dedi. LPGV: crude	Dedi. LPGV: NG	M85 FFV: NG	M85 FFV: FG	M85 FFV: LFG
Total energy	0.0%	0.8%	0.4%	-29.7%	6.7%	3.3%	-8.6%	-9.6%	20.2%	22.4%	7.8%
Fossil fuels	0.0%	-3.1%	-2.6%	-29.6%	5.7%	2.3%	-8.6%	-9.3%	20.7%	-36.0%	-50.5%
Petroleum	-11.0%	-10.1%	-2.5%	-26.7%	-99.4%	-99.4%	-3.4%	-98.2%	-71.3%	-71.3%	-71.8%
VOC: Total	-11.7%	-6.9%	3.9%	-35.8%	-50.7%	-71.0%	-42.9%	-45.9%	-25.3%	-78.5%	-33.5%
VOC: Urban	-13.2%	-13.1%	1.8%	-33.3%	-49.7%	-72.6%	-43.0%	-41.8%	-26.7%	-26.7%	-27.9%
CO: Total	-19.5%	-19.4%	-19.7%	-92.1%	-43.3%	-51.2%	-39.7%	-39.9%	-38.6%	-39.5%	-43.5%
CO: Urban	-20.0%	-20.0%	-20.0%	-92.8%	-43.8%	-51.8%	-40.0%	-40.0%	-40.0%	-40.0%	-41.5%
NOx: Total	-2.3%	4.8%	-1.2%	-5.0%	13.2%	12.1%	-17.8%	-20.1%	-7.5%	-26.7%	-12.5%
NOx: Urban	-4.7%	-4.2%	-4.7%	3.7%	9.5%	9.1%	-14.6%	-14.6%	-15.6%	-15.6%	-17.8%
PM10: Total	-2.0%	96.8%	47.8%	125.4%	-39.3%	-41.3%	-37.0%	-48.1%	-27.9%	-45.8%	-325.5%
PM10: Urban	-1.4%	-0.1%	-1.4%	249.9%	-34.0%	-36.2%	-35.2%	-35.3%	-26.2%	-26.2%	-291.1%
SOx: Total	-28.9%	-0.4%	-16.3%	-31.4%	-37.5%	-39.5%	-57.3%	-77.4%	-56.6%	-57.5%	52.5%
SOx: Urban	-82.7%	-82.8%	-83.0%	-3.9%	-96.1%	-96.2%	-98.0%	-98.1%	-72.4%	-72.4%	-98.6%
CH4	19.2%	19.9%	-2.2%	-36.3%	182.9%	176.7%	-7.2%	1.7%	8.0%	-7.0%	-467.7%
N2O	0.4%	67.8%	35.1%	-21.2%	-38.3%	-19.4%	-2.0%	-1.9%	2.0%	-2.3%	-0.1%
CO2	1.2%	-0.9%	-5.1%	-25.8%	-13.8%	-16.5%	-12.6%	-14.3%	0.0%	-67.9%	-136.3%
GHGs	1.6%	0.8%	-4.4%	-26.0%	-9.0%	-11.5%	-12.2%	-13.7%	0.3%	-65.2%	-142.7%



D-I.1 Light-Duty Truck 2 (Cont.)

Parameter	E10 GV: corn	E85 FFV: corn	E85 FFV: WB	E85 FFV: HB	EV: US mix	EV: NE US mix	EV: CA mix	GC SIDI HEV: CARFG2, ETBE, CA mix	GC SIDI HEV: CARFG2, EtOH, CA mix	GI SIDI HEV: FRFG2, MTBE	GI CIDI HEV: CD
Total energy	2.1%	23.8%	99.9%	88.1%	-14.7%	-14.0%	-16.9%	-35.9%	-36.0%	-47.4%	-52.5%
Fossil fuels	-3.4%	-38.9%	-80.9%	-71.3%	-34.7%	-46.0%	-68.6%	-52.9%	-52.7%	-47.4%	-52.5%
Petroleum	-6.3%	-72.5%	-69.8%	-71.9%	-98.4%	-96.9%	-99.5%	-64.9%	-62.0%	-53.2%	-50.6%
VOC: Total	6.4%	13.8%	-12.4%	-14.5%	-94.0%	-95.3%	-97.6%	-48.8%	-33.4%	-31.0%	-37.9%
VOC: Urban	3.7%	-24.8%	-24.8%	-24.8%	-99.8%	-99.8%	-99.8%	-50.0%	-31.4%	-28.9%	-33.7%
CO: Total	-35.5%	-38.5%	-34.7%	-35.5%	-99.0%	-99.0%	-99.3%	-57.7%	-57.8%	-40.0%	-92.4%
CO: Urban	-36.0%	-39.9%	-39.9%	-39.9%	-100.0%	-99.9%	-99.9%	-58.0%	-58.0%	-40.0%	-92.8%
NOx: Total	4.9%	45.3%	57.8%	65.2%	-18.2%	-44.6%	-75.8%	-34.1%	-36.5%	-20.9%	-9.0%
NOx: Urban	0.3%	-11.3%	-11.8%	-11.6%	-98.0%	-96.6%	-97.4%	-39.8%	-40.0%	-15.4%	3.4%
PM10: Total	70.7%	804.5%	187.9%	167.9%	65.6%	18.6%	-33.6%	17.3%	-1.7%	-17.0%	117.0%
PM10: Urban	0.8%	-14.6%	-15.3%	-15.0%	-40.1%	-37.2%	-39.1%	-6.6%	-7.1%	6.5%	249.0%
SOx: Total	15.7%	182.2%	-154.4%	-95.6%	462.8%	217.2%	-13.9%	-35.4%	-41.6%	-62.6%	-53.7%
SOx: Urban	-6.7%	-77.5%	-78.1%	-77.8%	-96.9%	-90.7%	-99.0%	-93.0%	-93.1%	-90.9%	-35.2%
CH4	-1.6%	-13.4%	-66.6%	-51.3%	-12.0%	-20.3%	-47.1%	-34.4%	-43.0%	-32.6%	-56.4%
N2O	49.3%	570.1%	213.3%	692.5%	-89.1%	-89.3%	-92.3%	-2.8%	-15.5%	-2.0%	-22.0%
CO2	-2.8%	-32.4%	-112.8%	-83.9%	-24.3%	-42.8%	-70.7%	-50.4%	-51.9%	-46.8%	-49.9%
GHGs	-1.9%	-22.1%	-106.3%	-70.3%	-25.1%	-43.0%	-70.4%	-49.2%	-51.1%	-45.7%	-49.7%



D-II Long-Term Technologies

D-II.1 Passenger Cars

Parameter	Dedi. CNGV	Dedi. LNGV	Dedi. LPGV: crude	Dedi. LPGV: NG	Dedi. MeOHV: M90, NG	Dedi. MeOHV: M90, FG	Dedi. MeOHV: M90, LFG	Dedi. EtOHV: E90, corn	Dedi. EtOHV: E90, WB	Dedi. EtOHV: E90, HB	SIDI: FRFG2, MTBE
Total energy	-8.6%	-5.7%	-16.8%	-17.7%	8.8%	13.8%	-1.8%	10.0%	57.7%	44.4%	-20.0%
Fossil fuels	-9.5%	-5.1%	-16.9%	-17.4%	9.4%	-45.4%	-61.0%	-50.1%	-82.2%	-78.2%	-20.0%
Petroleum	-99.4%	-96.0%	-1.3%	-98.2%	-78.1%	-78.1%	-78.7%	-81.5%	-79.3%	-81.1%	-20.0%
VOC: Total	-62.6%	-55.8%	-48.6%	-56.2%	-15.8%	-156.0%	-35.9%	74.4%	4.9%	-0.1%	-11.0%
VOC: Urban	-55.1%	-56.8%	-49.0%	-45.3%	-11.1%	-11.1%	-15.0%	-8.9%	-9.0%	-9.0%	-7.3%
CO: Total	-19.9%	-18.2%	-20.6%	-21.3%	1.5%	-0.9%	-14.9%	2.1%	11.7%	9.5%	-1.0%
CO: Urban	-19.4%	-20.1%	-19.9%	-20.0%	-0.2%	-0.2%	-5.6%	0.0%	0.0%	0.0%	-0.1%
NOx: Total	26.5%	67.7%	-32.1%	-39.9%	-4.8%	-74.3%	-24.7%	147.0%	223.2%	228.4%	-16.6%
NOx: Urban	102.8%	-11.5%	-2.8%	-3.7%	-17.2%	-17.2%	-48.5%	9.4%	4.9%	6.2%	-5.2%
PM10: Total	-34.2%	-30.4%	-31.1%	-39.0%	-25.4%	-36.7%	-265.9%	409.1%	59.4%	46.8%	1.5%
PM10: Urban	-24.6%	-26.0%	-25.1%	-25.2%	-14.5%	-14.5%	-197.8%	-12.2%	-12.4%	-12.3%	11.9%
SOx: Total	-34.1%	-76.7%	-48.4%	-71.8%	-60.0%	-60.4%	50.8%	120.0%	-90.2%	-70.0%	-20.0%
SOx: Urban	-80.6%	-98.3%	-91.3%	-91.5%	-77.9%	-77.9%	-234.2%	-82.9%	-83.7%	-83.3%	-20.0%
CH4	84.4%	84.2%	-28.9%	-22.3%	-22.2%	-27.0%	-409.0%	-19.3%	-60.9%	-54.3%	-18.0%
N2O	-48.5%	-47.7%	-2.2%	-2.2%	-0.4%	-2.7%	0.4%	307.9%	91.3%	337.6%	-0.9%
CO2	-26.9%	-27.0%	-21.3%	-22.9%	-11.6%	-77.3%	-146.8%	-49.4%	-107.1%	-88.7%	-20.0%
GHGs	-23.8%	-23.9%	-21.2%	-22.5%	-11.7%	-74.3%	-152.2%	-39.9%	-101.1%	-77.5%	-19.6%



D-II.1 Passenger Cars (Cont.)

Parameter	SIDI: FRFG2, ETBE	SIDI: FRFG2 EtOH	SIDI: CARFG2, ETBE	SIDI: CARFG2, EtOH	Dedi. MeOH SIDI: M90, NG	Dedi. MeOH SIDI: M90, FG	Dedi. MeOH SIDI: M90, LFG	Dedi. EtOH SIDI: E90, corn	Dedi. EtOH SIDI: E90, WB	Dedi. EtOH SIDI: E90, HB	GI SIDI HEV: FRFG2, MTBE
Total energy	-20.0%	-20.0%	-20.0%	-20.0%	-6.7%	-2.3%	-16.1%	-3.2%	38.7%	27.1%	-47.4%
Fossil fuels	-20.0%	-20.0%	-19.0%	-19.3%	-6.2%	-68.4%	-68.1%	-56.1%	-84.4%	-80.8%	-47.4%
Petroleum	-20.0%	-20.0%	-17.2%	-19.2%	-82.1%	-82.1%	-82.6%	-83.7%	-81.8%	-83.4%	-47.4%
VOC: Total	-12.0%	-8.7%	-12.0%	-8.7%	-24.6%	-148.0%	-42.3%	57.4%	-3.8%	-8.1%	-28.0%
VOC: Urban	-7.4%	-3.0%	-7.4%	-3.0%	-15.8%	-15.8%	-19.3%	-13.9%	-14.0%	-14.0%	-32.2%
CO: Total	-1.1%	-0.9%	-1.1%	-0.9%	0.4%	-1.8%	-14.0%	1.3%	9.8%	7.8%	-2.4%
CO: Urban	-0.1%	-0.1%	-0.1%	-0.1%	-0.2%	-0.2%	-5.0%	0.0%	0.0%	0.0%	-0.1%
NOx: Total	-17.2%	-16.7%	-17.2%	-16.7%	-22.5%	-83.6%	-39.9%	119.3%	186.4%	191.0%	-39.3%
NOx: Urban	-6.2%	-5.3%	-6.2%	-5.3%	-18.3%	-18.3%	-45.8%	5.3%	1.3%	2.5%	-12.4%
PM10: Total	-7.7%	-4.4%	-7.7%	-4.4%	-23.1%	-33.1%	-234.7%	359.2%	51.4%	40.3%	-12.2%
PM10: Urban	11.6%	11.9%	11.6%	11.9%	-2.1%	-2.1%	-163.4%	0.0%	-0.2%	-0.1%	4.8%
SOx: Total	-20.0%	-20.0%	-20.0%	-20.0%	-76.3%	-76.7%	21.2%	93.6%	-91.4%	-73.6%	-47.4%
SOx: Urban	-20.0%	-20.0%	-20.5%	-20.5%	-80.6%	-80.6%	-218.1%	-85.0%	-85.7%	-85.3%	-47.4%
CH4	-18.0%	-17.6%	-18.0%	-17.6%	-35.3%	-39.5%	-375.7%	-26.8%	-63.5%	-57.6%	-42.6%
N2O	-7.2%	-4.7%	-7.2%	-4.7%	-1.5%	-3.5%	-0.7%	268.1%	77.5%	294.2%	-2.1%
CO2	-20.0%	-19.7%	-20.0%	-19.8%	-24.7%	-82.5%	-143.7%	-55.3%	-106.2%	-90.0%	-47.4%
GHGs	-19.6%	-19.3%	-19.6%	-19.3%	-24.6%	-79.7%	-148.2%	-46.7%	-100.6%	-79.8%	-46.4%

