

Table of Contents

ACKNOWLEDGMENTS	I
TABLE OF CONTENTS	V
LIST OF TABLES, FIGURES, AND BOXES	VIII
Tables	viii
FIGURES	XVI
Boxes	xix
EXECUTIVE SUMMARY	ES-1
Background Information	ES-2
Recent Trends in U.S. Greenhouse Gas Emissions and Sinks	ES-4
Overview of Sector Emissions and Trends	ES-12
Other Information	ES-15
1. INTRODUCTION	1-1
1.1. Background Information	1-2
1.2. Institutional Arrangements	1-9
1.3. Inventory Process	1-9
1.4. Methodology and Data Sources	1-11
1.5. Key Categories	1-12
1.6. Quality Assurance and Quality Control (QA/QC)	1-14
1.7. Uncertainty Analysis of Emission Estimates	1-15
1.8. Completeness	1-16
1.9. Organization of Report	1-16
2. TRENDS IN GREENHOUSE GAS EMISSIONS	2-1
2.1. Recent Trends in U.S. Greenhouse Gas Emissions	2-1
2.2. Emissions by Economic Sector	2-16
2.3. Indirect Greenhouse Gas Emissions (CO, NO _x , NMVOCs, and SO ₂)	2-26
3. ENERGY	3-1
3.1. Carbon Dioxide Emissions from Fossil Fuel Combustion (IPCC Source Category 1A)	3-3
3.2. Carbon Emitted from Non-Energy Uses of Fossil Fuels (IPCC Source Category 1A)	3-19
3.3. Stationary Combustion (excluding CO ₂) (IPCC Source Category 1A)	3-24
3.4. Mobile Combustion (excluding CO ₂) (IPCC Source Category 1A)	3-29
3.5. Coal Mining (IPCC Source Category 1B1a)	3-37
3.6. Abandoned Underground Coal Mines (IPCC Source Category 1B1a)	3-40
3.7. Natural Gas Systems (IPCC Source Category 1B2b)	3-44

3.8.	Petroleum Systems (IPCC Source Category 1B2a)	3-48
3.9.	Municipal Solid Waste Combustion (IPCC Source Category 1A5)	3-53
3.10.	Energy Sources of Indirect Greenhouse Gas Emissions	3-56
3.11.	International Bunker Fuels (IPCC Source Category 1: Memo Items)	3-57
3.12.	Wood Biomass and Ethanol Consumption (IPCC Source Category 1A)	3-61
4.	INDUSTRIAL PROCESSES	4-1
4.1.	Cement Manufacture (IPCC Source Category 2A1)	4-4
4.2.	Lime Manufacture (IPCC Source Category 2A2)	4-7
4.3.	Limestone and Dolomite Use (IPCC Source Category 2A3)	4-10
4.4.	Soda Ash Manufacture and Consumption (IPCC Source Category 2A4)	4-13
4.5.	Ammonia Manufacture (IPCC Source Category 2B1) and Urea Consumption	4-16
4.6.	Nitric Acid Production (IPCC Source Category 2B2)	4-19
4.7.	Adipic Acid Production (IPCC Source Category 2B3)	4-21
4.8.	Silicon Carbide Production (IPCC Source Category 2B4) and Consumption	4-24
4.9.	Petrochemical Production (IPCC Source Category 2B5)	4-26
4.10.	Titanium Dioxide Production (IPCC Source Category 2B5)	4-29
4.11.	Carbon Dioxide Consumption (IPCC Source Category 2B5)	4-31
4.12.	Phosphoric Acid Production (IPCC Source Category 2B5)	4-34
4.13.	Iron and Steel Production (IPCC Source Category 2C1)	4-37
4.14.	Ferroalloy Production (IPCC Source Category 2C2)	4-41
4.15.	Aluminum Production (IPCC Source Category 2C3)	4-43
4.16.	Magnesium Production and Processing (IPCC Source Category 2C4)	4-47
4.17.	Zinc Production (IPCC Source Category 2C5)	4-50
4.18.	Lead Production (IPCC Source Category 2C5)	4-53
4.19.	HCFC-22 Production (IPCC Source Category 2E1)	4-55
4.20.	Substitution of Ozone Depleting Substances (IPCC Source Category 2F)	4-57
4.21.	Semiconductor Manufacture (IPCC Source Category 2F6)	4-61
4.22.	Electrical Transmission and Distribution (IPCC Source Category 2F7)	4-66
4.23.	Industrial Sources of Indirect Greenhouse Gases	4-72
5.	SOLVENT AND OTHER PRODUCT USE	5-1
5.1.	Nitrous Oxide from Product Uses (IPCC Source Category 3D)	5-1
5.2.	Indirect Greenhouse Gas Emissions from Solvent Use	5-4
6.	AGRICULTURE	6-1
6.1.	Enteric Fermentation (IPCC Source Category 4A)	6-2
6.2.	Manure Management (IPCC Source Category 4B)	6-7
6.3.	Rice Cultivation (IPCC Source Category 4C)	6-13

6.4.	Agricultural Soil Management (IPCC Source Category 4D)	6-18
6.5.	Field Burning of Agricultural Residues (IPCC Source Category 4F)	6-29
7.	LAND USE, LAND-USE CHANGE, AND FORESTRY	7-1
7.1.	Representation of the U.S. Land Base	7-3
7.2.	Forest Land Remaining Forest Land	7-11
7.3.	Land Converted to Forest Land (IPCC Source Category 5A2)	7-23
7.4.	Cropland Remaining Cropland (IPCC Source Category 5B1)	7-23
7.5.	Land Converted to Cropland (IPCC Source Category 5B2)	7-35
7.6.	Grassland Remaining Grassland (IPCC Source Category 5C1)	7-38
7.7.	Land Converted to Grassland (IPCC Source Category 5C2)	7-43
7.8.	Settlements Remaining Settlements	7-46
7.9.	Land Converted to Settlements (Source Category 5E2)	7-52
7.10.	Other (IPCC Source Category 5G)	7-53
8.	WASTE	8-1
8.1.	Landfills (IPCC Source Category 6A1)	8-2
8.2.	Wastewater Treatment (IPCC Source Category 6B)	8-6
8.3.	Composting (IPCC Source Category 6D)	8-17
8.4.	Waste Sources of Indirect Greenhouse Gases	8-19
9.	OTHER	9-1
10.	RECALCULATIONS AND IMPROVEMENTS	10-1
11.	REFERENCES	11-1

List of Tables, Figures, and Boxes

Tables

Table ES-1: Global Warming Potentials (100-Year Time Horizon) Used in this Report	ES-3
Table ES-2: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks (Tg CO ₂ Eq.)	ES-4
Table ES-3: CO ₂ Emissions from Fossil Fuel Combustion by Fuel Consuming End-Use Sector (Tg CO ₂ Eq.)	ES-8
Table ES-4: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks by Chapter/IPCC Sector (Tg CO ₂ Eq.)	ES-12
Table ES-5: Net CO ₂ Flux from Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	ES-14
Table ES-6: Emissions from Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	ES-14
Table ES-7: U.S. Greenhouse Gas Emissions Allocated to Economic Sectors (Tg CO ₂ Eq.)	ES-15
Table ES-8: U.S. Greenhouse Gas Emissions by Economic Sector with Electricity-Related Emissions Distributed (Tg CO ₂ Eq.)	ES-16
Table ES-9: Recent Trends in Various U.S. Data (Index 1990 = 100)	ES-17
Table ES-10: Emissions of NO _x , CO, NMVOCs, and SO ₂ (Gg)	ES-18
Table 1-1: Global Atmospheric Concentration, Rate of Concentration Change, and Atmospheric Lifetime (years) of Selected Greenhouse Gases	1-3
Table 1-2: Global Warming Potentials and Atmospheric Lifetimes (Years) Used in this Report	1-7
Table 1-3: Comparison of 100-Year GWPs	1-8
Table 1-4: Key Categories for the United States (1990-2006) Based on Tier 1 Approach	1-12
Table 1-5: Estimated Overall Inventory Quantitative Uncertainty (Tg CO ₂ Eq. and Percent)	1-15
Table 1-6: IPCC Sector Descriptions	1-16
Table 1-7: List of Annexes	1-17
Table 2-1: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks (Tg CO ₂ Eq.)	2-3
Table 2-2: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks (Gg)	2-5
Table 2-3: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks by Chapter/IPCC Sector (Tg CO ₂ Eq.)	2-7
Table 2-4: Emissions from Energy (Tg CO ₂ Eq.)	2-8
Table 2-5: CO ₂ Emissions from Fossil Fuel Combustion by End-Use Sector (Tg CO ₂ Eq.)	2-9
Table 2-6: Emissions from Industrial Processes (Tg CO ₂ Eq.)	2-10
Table 2-7: N ₂ O Emissions from Solvent and Other Product Use (Tg CO ₂ Eq.)	2-12
Table 2-8: Emissions from Agriculture (Tg CO ₂ Eq.)	2-12
Table 2-9: Net CO ₂ Flux from Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	2-13
Table 2-10: Emissions from Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	2-14
Table 2-11: Emissions from Waste (Tg CO ₂ Eq.)	2-15
Table 2-12: U.S. Greenhouse Gas Emissions Allocated to Economic Sectors (Tg CO ₂ Eq. and Percent of Total in 2006)	2-16

Table 2-13: Electricity Generation-Related Greenhouse Gas Emissions (Tg CO ₂ Eq.)	2-19
Table 2-14: U.S Greenhouse Gas Emissions by Economic Sector and Gas with Electricity-Related Emissions Distributed (Tg CO ₂ Eq.) and Percent of Total in 2006	2-20
Table 2-15: Transportation-Related Greenhouse Gas Emissions (Tg CO ₂ Eq.)	2-22
Table 2-16: Recent Trends in Various U.S. Data (Index 1990 = 100)	2-26
Table 2-17: Emissions of NO _x , CO, NMVOCs, and SO ₂ (Gg)	2-27
Table 3-1: CO ₂ , CH ₄ , and N ₂ O Emissions from Energy (Tg CO ₂ Eq.)	3-1
Table 3-2: CO ₂ , CH ₄ , and N ₂ O Emissions from Energy (Gg)	3-2
Table 3-3: CO ₂ Emissions from Fossil Fuel Combustion by Fuel Type and Sector (Tg CO ₂ Eq.)	3-3
Table 3-4: Annual Change in CO ₂ Emissions from Fossil Fuel Combustion for Selected Fuels and Sectors (Tg CO ₂ Eq. and Percent)	3-4
Table 3-5: CO ₂ Emissions from International Bunker Fuels (Tg CO ₂ Eq.)*	3-7
Table 3-6: CO ₂ Emissions from Fossil Fuel Combustion by End-Use Sector (Tg CO ₂ Eq.)	3-7
Table 3-7: CO ₂ Emissions from Fossil Fuel Combustion in Transportation End-Use Sector (Tg CO ₂ Eq.) ^a	3-9
Table 3-8: Carbon Intensity from Direct Fossil Fuel Combustion by Sector (Tg CO ₂ Eq./QBtu)	3-15
Table 3-9: Carbon Intensity from all Energy Consumption by Sector (Tg CO ₂ Eq./QBtu)	3-16
Table 3-10: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Energy-related Fossil Fuel Combustion by Fuel Type and Sector (Tg CO ₂ Eq. and Percent)	3-18
Table 3-11: CO ₂ Emissions from Non-Energy Use Fossil Fuel Consumption (Tg CO ₂ Eq.)	3-20
Table 3-12: Adjusted Consumption of Fossil Fuels for Non-Energy Uses (TBtu)	3-21
Table 3-13: 2006 Adjusted Non-Energy Use Fossil Fuel Consumption, Storage, and Emissions	3-21
Table 3-14: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Non-Energy Uses of Fossil Fuels (Tg CO ₂ Eq. and Percent)	3-23
Table 3-15: Tier 2 Quantitative Uncertainty Estimates for Storage Factors of Non-Energy Uses of Fossil Fuels (Percent)	3-23
Table 3-16: CH ₄ Emissions from Stationary Combustion (Tg CO ₂ Eq.)	3-25
Table 3-17: N ₂ O Emissions from Stationary Combustion (Tg CO ₂ Eq.)	3-25
Table 3-18: CH ₄ Emissions from Stationary Combustion (Gg)	3-26
Table 3-19: N ₂ O Emissions from Stationary Combustion (Gg)	3-26
Table 3-20: Tier 2 Quantitative Uncertainty Estimates for CH ₄ and N ₂ O Emissions from Energy-Related Stationary Combustion, Including Biomass (Tg CO ₂ Eq. and Percent)	3-28
Table 3-21: CH ₄ Emissions from Mobile Combustion (Tg CO ₂ Eq.)	3-30
Table 3-22: N ₂ O Emissions from Mobile Combustion (Tg CO ₂ Eq.)	3-31
Table 3-23: CH ₄ Emissions from Mobile Combustion (Gg)	3-31
Table 3-24: N ₂ O Emissions from Mobile Combustion (Gg)	3-32
Table 3-25: Tier 2 Quantitative Uncertainty Estimates for CH ₄ and N ₂ O Emissions from Mobile Sources (Tg CO ₂ Eq. and Percent)	3-34
Table 3-26: CH ₄ Emissions from Coal Mining (Tg CO ₂ Eq.)	3-37
Table 3-27: CH ₄ Emissions from Coal Mining (Gg)	3-37

Table 3-28: Coal Production (Thousand Metric Tons)	3-38
Table 3-29: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Coal Mining (Tg CO ₂ Eq. and Percent)	3-39
Table 3-30: CH ₄ Emissions from Abandoned Coal Mines (Tg CO ₂ Eq.)	3-40
Table 3-31: CH ₄ Emissions from Abandoned Coal Mines (Gg)	3-41
Table 3-32: Number of gassy abandoned mines occurring in U.S. basins grouped by class according to post-abandonment state	3-42
Table 3-33: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Abandoned Underground Coal Mines (Tg CO ₂ Eq. and Percent)	3-43
Table 3-34: CH ₄ Emissions from Natural Gas Systems (Tg CO ₂ Eq.)*	3-45
Table 3-35: CH ₄ Emissions from Natural Gas Systems (Gg)*	3-45
Table 3-36: Non-combustion CO ₂ Emissions from Natural Gas Systems (Tg CO ₂ Eq.)	3-45
Table 3-37: Non-combustion CO ₂ Emissions from Natural Gas Systems (Gg)	3-45
Table 3-38: Tier 2 Quantitative Uncertainty Estimates for CH ₄ and Non-combustion CO ₂ Emissions from Natural Gas Systems (Tg CO ₂ Eq. and Percent)	3-46
Table 3-39: CH ₄ Emissions from Petroleum Systems (Tg CO ₂ Eq.)	3-48
Table 3-40: CH ₄ Emissions from Petroleum Systems (Gg)	3-49
Table 3-41: CO ₂ Emissions from Petroleum Systems (Tg CO ₂ Eq.)	3-49
Table 3-42: CO ₂ Emissions from Petroleum Systems (Gg)	3-49
Table 3-43: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Petroleum Systems (Tg CO ₂ Eq. and Percent)	3-51
Table 3-44: Potential Emissions from CO ₂ Capture and Transport (Tg CO ₂ Eq.)	3-52
Table 3-45: Potential Emissions from CO ₂ Capture and Transport (Gg)	3-52
Table 3-46: CO ₂ and N ₂ O Emissions from Municipal Solid Waste Combustion (Tg CO ₂ Eq.)	3-53
Table 3-47: CO ₂ and N ₂ O Emissions from Municipal Solid Waste Combustion (Gg)	3-53
Table 3-48: Municipal Solid Waste Generation (Metric Tons) and Percent Combusted	3-54
Table 3-49: Tier 2 Quantitative Uncertainty Estimates for CO ₂ and N ₂ O from Municipal Solid Waste Combustion (Tg CO ₂ Eq. and Percent)	3-55
Table 3-50: NO _x , CO, and NMVOC Emissions from Energy-Related Activities (Gg)	3-56
Table 3-51: CO ₂ , CH ₄ , and N ₂ O Emissions from International Bunker Fuels (Tg CO ₂ Eq.)	3-58
Table 3-52: CO ₂ , CH ₄ and N ₂ O Emissions from International Bunker Fuels (Gg)	3-58
Table 3-53: Aviation Jet Fuel Consumption for International Transport (Million Gallons)	3-59
Table 3-54: Marine Fuel Consumption for International Transport (Million Gallons)	3-59
Table 3-55: CO ₂ Emissions from Wood Consumption by End-Use Sector (Tg CO ₂ Eq.)	3-61
Table 3-56: CO ₂ Emissions from Wood Consumption by End-Use Sector (Gg)	3-62
Table 3-57: CO ₂ Emissions from Ethanol Consumption (Tg CO ₂ Eq.)	3-62
Table 3-58: CO ₂ Emissions from Ethanol Consumption (Gg)	3-62
Table 3-59: Woody Biomass Consumption by Sector (Trillion Btu)	3-63

Table 3-60: Ethanol Consumption (Trillion Btu)	3-63
Table 4-1: Emissions from Industrial Processes (Tg CO ₂ Eq.)	4-1
Table 4-2: Emissions from Industrial Processes (Gg)	4-2
Table 4-3: CO ₂ Emissions from Cement Production (Tg CO ₂ Eq. and Gg)	4-5
Table 4-4: Clinker Production (Gg)	4-6
Table 4-5: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Cement Manufacture (Tg CO ₂ Eq. and Percent)	4-6
Table 4-6: CO ₂ Emissions from Lime Manufacture (Tg CO ₂ Eq. and Gg)	4-7
Table 4-7: High-Calcium- and Dolomitic-Quicklime, High-Calcium- and Dolomitic-Hydrated, and Dead-Burned-Dolomite Lime Production (Gg)	4-8
Table 4-8: Adjusted Lime Production ^a (Gg)	4-8
Table 4-9: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Lime Manufacture (Tg CO ₂ Eq. and Percent)	4-10
Table 4-10: CO ₂ Emissions from Limestone & Dolomite Use (Tg CO ₂ Eq.)	4-10
Table 4-11: CO ₂ Emissions from Limestone & Dolomite Use (Gg)	4-11
Table 4-12: Limestone and Dolomite Consumption (Thousand Metric Tons)	4-12
Table 4-13: Dolomitic Magnesium Metal Production Capacity (Metric Tons)	4-12
Table 4-14: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Limestone and Dolomite Use (Tg CO ₂ Eq. and Percent)	4-13
Table 4-15: CO ₂ Emissions from Soda Ash Manufacture and Consumption (Tg CO ₂ Eq.)	4-14
Table 4-16: CO ₂ Emissions from Soda Ash Manufacture and Consumption (Gg)	4-14
Table 4-17: Soda Ash Manufacture and Consumption (Gg)	4-15
Table 4-18: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Soda Ash Manufacture and Consumption (Tg CO ₂ Eq. and Percent)	4-16
Table 4-19: CO ₂ Emissions from Ammonia Manufacture and Urea Consumption (Tg CO ₂ Eq.)	4-17
Table 4-20: CO ₂ Emissions from Ammonia Manufacture and Urea Consumption (Gg)	4-17
Table 4-21: Ammonia Production, Urea Production, Urea Net Imports, and Urea Exports (Gg)	4-18
Table 4-22: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Ammonia Manufacture and Urea Consumption (Tg CO ₂ Eq. and Percent)	4-19
Table 4-23: N ₂ O Emissions from Nitric Acid Production (Tg CO ₂ Eq. and Gg)	4-20
Table 4-24: Nitric Acid Production (Gg)	4-20
Table 4-25: Tier 2 Quantitative Uncertainty Estimates for N ₂ O Emissions From Nitric Acid Production (Tg CO ₂ Eq. and Percent)	4-21
Table 4-26: N ₂ O Emissions from Adipic Acid Production (Tg CO ₂ Eq. and Gg)	4-22
Table 4-27: Adipic Acid Production (Gg)	4-23
Table 4-28: Tier 2 Quantitative Uncertainty Estimates for N ₂ O Emissions from Adipic Acid Production (Tg CO ₂ Eq. and Percent)	4-24
Table 4-29: CO ₂ and CH ₄ Emissions from Silicon Carbide Production and Consumption (Tg CO ₂ Eq.)	4-24
Table 4-30: CO ₂ and CH ₄ Emissions from Silicon Carbide Production and Consumption (Gg)	4-25

Table 4-31: Production and Consumption of Silicon Carbide (Metric Tons)	4-25
Table 4-32: Tier 2 Quantitative Uncertainty Estimates for CH ₄ and CO ₂ Emissions from Silicon Carbide Production and Consumption (Tg CO ₂ Eq. and Percent)	4-26
Table 4-33: CO ₂ and CH ₄ Emissions from Petrochemical Production (Tg CO ₂ Eq.)	4-26
Table 4-34: CO ₂ and CH ₄ Emissions from Petrochemical Production (Gg)	4-27
Table 4-35: Production of Selected Petrochemicals (Thousand Metric Tons)	4-27
Table 4-36: Carbon Black Feedstock (Primary Feedstock) and Natural Gas Feedstock (Secondary Feedstock) Consumption (Thousand Metric Tons)	4-28
Table 4-37: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Petrochemical Production and CO ₂ Emissions from Carbon Black Production (Tg CO ₂ Eq. and Percent)	4-29
Table 4-38: CO ₂ Emissions from Titanium Dioxide (Tg CO ₂ Eq. and Gg)	4-29
Table 4-39: Titanium Dioxide Production (Gg)	4-30
Table 4-40: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Titanium Dioxide Production (Tg CO ₂ Eq. and Percent)	4-31
Table 4-41: CO ₂ Emissions from CO ₂ Consumption (Tg CO ₂ Eq. and Gg)	4-32
Table 4-42: CO ₂ Production (Gg CO ₂) and the Percent Used for Non-EOR Applications for Jackson Dome and Bravo Dome	4-33
Table 4-43: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from CO ₂ Consumption (Tg CO ₂ Eq. and Percent)	4-33
Table 4-44: CO ₂ Emissions from Phosphoric Acid Production (Tg CO ₂ Eq. and Gg)	4-34
Table 4-45: Phosphate Rock Domestic Production, Exports, and Imports (Gg)	4-35
Table 4-46: Chemical Composition of Phosphate Rock (percent by weight)	4-35
Table 4-47: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Phosphoric Acid Production (Tg CO ₂ Eq. and Percent)	4-36
Table 4-48: CO ₂ and CH ₄ Emissions from Iron and Steel Production (Tg CO ₂ Eq.)	4-38
Table 4-49: CO ₂ and CH ₄ Emissions from Iron and Steel Production (Gg)	4-38
Table 4-50: CH ₄ Emission Factors for Coal Coke, Sinter, and Pig Iron Production (g/kg)	4-39
Table 4-51: Production and Consumption Data for the Calculation of CO ₂ and CH ₄ Emissions from Iron and Steel Production (Thousand Metric Tons)	4-39
Table 4-52: Tier 2 Quantitative Uncertainty Estimates for CO ₂ and CH ₄ Emissions from Iron and Steel Production (Tg. CO ₂ Eq. and Percent)	4-40
Table 4-53: CO ₂ and CH ₄ Emissions from Ferroalloy Production (Tg CO ₂ Eq.)	4-41
Table 4-54: CO ₂ and CH ₄ Emissions from Ferroalloy Production (Gg)	4-41
Table 4-55: Production of Ferroalloys (Metric Tons)	4-42
Table 4-56: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Ferroalloy Production (Tg CO ₂ Eq. and Percent)	4-43
Table 4-57: CO ₂ Emissions from Aluminum Production (Tg CO ₂ Eq. and Gg)	4-43
Table 4-58: PFC Emissions from Aluminum Production (Tg CO ₂ Eq.)	4-44
Table 4-59: PFC Emissions from Aluminum Production (Gg)	4-44
Table 4-60: Production of Primary Aluminum (Gg)	4-46

Table 4-61: Tier 2 Quantitative Uncertainty Estimates for CO ₂ and PFC Emissions from Aluminum Production (Tg CO ₂ Eq. and Percent)	4-47
Table 4-62: SF ₆ Emissions from Magnesium Production and Processing (Tg CO ₂ Eq. and Gg)	4-48
Table 4-63: SF ₆ Emission Factors (kg SF ₆ per metric ton of magnesium)	4-49
Table 4-64: Tier 2 Quantitative Uncertainty Estimates for SF ₆ Emissions from Magnesium Production and Processing (Tg CO ₂ Eq. and Percent)	4-50
Table 4-65: CO ₂ Emissions from Zinc Production (Tg CO ₂ Eq. and Gg)	4-51
Table 4-66: Zinc Production (Metric Tons)	4-52
Table 4-67: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Zinc Production (Tg CO ₂ Eq. and Percent)	4-53
Table 4-68: CO ₂ Emissions from Lead Production (Tg CO ₂ Eq. and Gg)	4-54
Table 4-69: Lead Production (Metric Tons)	4-54
Table 4-70: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Lead Production (Tg CO ₂ Eq. and Percent)	4-55
Table 4-71: HFC-23 Emissions from HCFC-22 Production (Tg CO ₂ Eq. and Gg)	4-56
Table 4-72: HCFC-22 Production (Gg)	4-56
Table 4-73: Quantitative Uncertainty Estimates for HFC-23 Emissions from HCFC-22 Production (Tg CO ₂ Eq. and Percent)	4-57
Table 4-74: Emissions of HFCs and PFCs from ODS Substitutes (Tg CO ₂ Eq.)	4-58
Table 4-75: Emissions of HFCs and PFCs from ODS Substitution (Mg)	4-58
Table 4-76: Emissions of HFCs and PFCs from ODS Substitutes (Tg CO ₂ Eq.) by Sector	4-59
Table 4-77: Tier 2 Quantitative Uncertainty Estimates for HFC and PFC Emissions from ODS Substitutes (Tg CO ₂ Eq. and Percent)	4-61
Table 4-78: PFC, HFC, and SF ₆ Emissions from Semiconductor Manufacture (Tg CO ₂ Eq.)	4-62
Table 4-79: PFC, HFC, and SF ₆ Emissions from Semiconductor Manufacture (Mg)	4-62
Table 4-80: Tier 2 Quantitative Uncertainty Estimates for HFC, PFC, and SF ₆ Emissions from Semiconductor Manufacture (Tg CO ₂ Eq. and Percent)	4-66
Table 4-81: SF ₆ Emissions from Electric Power Systems and Electrical Equipment Manufacturers (Tg CO ₂ Eq.)	4-67
Table 4-82: SF ₆ Emissions from Electric Power Systems and Electrical Equipment Manufacturers (Gg)	4-67
Table 4-83: Tier 2 Quantitative Uncertainty Estimates for SF ₆ Emissions from Electrical Transmission and Distribution (Tg CO ₂ Eq. and Percent)	4-70
Table 4-84: 2006 Potential and Actual Emissions of HFCs, PFCs, and SF ₆ from Selected Sources (Tg CO ₂ Eq.)	4-72
Table 4-85: NO _x , CO, and NMVOC Emissions from Industrial Processes (Gg)	4-72
Table 5-1: N ₂ O Emissions from Solvent and Other Product Use (Tg CO ₂ Eq. and Gg)	5-1
Table 5-2: N ₂ O Emissions from N ₂ O Product Usage (Tg CO ₂ Eq. and Gg)	5-1
Table 5-3: N ₂ O Production (Gg)	5-3
Table 5-4: Tier 2 Quantitative Uncertainty Estimates for N ₂ O Emissions From N ₂ O Product Usage (Tg CO ₂ Eq. and Percent)	5-3
Table 5-5: Emissions of NO _x , CO, and NMVOC from Solvent Use (Gg)	5-4

Table 6-1: Emissions from Agriculture (Tg CO ₂ Eq.)	6-1
Table 6-2: Emissions from Agriculture (Gg)	6-1
Table 6-3: CH ₄ Emissions from Enteric Fermentation (Tg CO ₂ Eq.)	6-3
Table 6-4: CH ₄ Emissions from Enteric Fermentation (Gg)	6-3
Table 6-5: Quantitative Uncertainty Estimates for CH ₄ Emissions from Enteric Fermentation (Tg CO ₂ Eq. and Percent)	6-5
Table 6-6: CH ₄ and N ₂ O Emissions from Manure Management (Tg CO ₂ Eq.)	6-9
Table 6-7: CH ₄ and N ₂ O Emissions from Manure Management (Gg)	6-9
Table 6-8: Tier 2 Quantitative Uncertainty Estimates for CH ₄ and N ₂ O (Direct and Indirect) Emissions from Manure Management (Tg CO ₂ Eq. and Percent)	6-11
Table 6-9: CH ₄ Emissions from Rice Cultivation (Tg CO ₂ Eq.)	6-14
Table 6-10: CH ₄ Emissions from Rice Cultivation (Gg)	6-15
Table 6-11: Rice Areas Harvested (Hectares)	6-16
Table 6-12: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Rice Cultivation (Tg CO ₂ Eq. and Percent)	6-17
Table 6-13: N ₂ O Emissions from Agricultural Soils (Tg CO ₂ Eq.)	6-18
Table 6-14: N ₂ O Emissions from Agricultural Soils (Gg N ₂ O)	6-19
Table 6-15: Direct N ₂ O Emissions from Agricultural Soils by Land-Use and N Input (Tg CO ₂ Eq.)	6-19
Table 6-16: Indirect N ₂ O Emissions from all Land Use Types (Tg CO ₂ Eq.)	6-19
Table 6-17: Quantitative Uncertainty Estimates of N ₂ O Emissions from Agricultural Soil Management in 2006 (Tg CO ₂ Eq. and Percent)	6-27
Table 6-18: CH ₄ and N ₂ O Emissions from Field Burning of Agricultural Residues (Tg CO ₂ Eq.)	6-29
Table 6-19: CH ₄ , N ₂ O, CO, and NO _x Emissions from Field Burning of Agricultural Residues (Gg)	6-30
Table 6-20: Agricultural Crop Production (Gg of Product)	6-32
Table 6-21: Percent of Rice Area Burned by State	6-32
Table 6-22: Key Assumptions for Estimating Emissions from Field Burning of Agricultural Residues	6-33
Table 6-23: Greenhouse Gas Emission Ratios	6-33
Table 6-24: Tier 2 Uncertainty Estimates for CH ₄ and N ₂ O Emissions from Field Burning of Agricultural Residues (Tg CO ₂ Eq. and Percent)	6-33
Table 7-1: Net CO ₂ Flux from Carbon Stock Changes in Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	7-1
Table 7-2: Net CO ₂ Flux from Carbon Stock Changes in Land Use, Land-Use Change, and Forestry (Tg C)	7-2
Table 7-3: Emissions from Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	7-2
Table 7-4: Non-CO ₂ Emissions from Land Use, Land-Use Change, and Forestry (Gg)	7-3
Table 7-5: Land use areas during the inventory reporting period (millions of hectares)	7-4
Table 7-6: Net Annual Changes in C Stocks (Tg CO ₂ /yr) in Forest and Harvested Wood Pools	7-13
Table 7-7: Net Annual Changes in C Stocks (Tg C/yr) in Forest and Harvested Wood Pools	7-13
Table 7-8: Forest area (1000 ha) and C Stocks (Tg C) in Forest and Harvested Wood Pools	7-14

Table 7-9: Estimates of CO ₂ (Tg/yr) emissions for the lower 48 states and Alaska ¹	7-14
Table 7-10: Tier 2 Quantitative Uncertainty Estimates for Net CO ₂ Flux from Forest Land Remaining Forest Land: Changes in Forest C Stocks (Tg CO ₂ Eq. and Percent)	7-18
Table 7-11: Estimated Non-CO ₂ Emissions from Forest Fires (Tg CO ₂ Eq.) for U.S. forests ¹ .	7-20
Table 7-12: Estimated Non-CO ₂ Emissions from Forest Fires (Gg Gas) for U.S. forests ¹ .	7-20
Table 7-13: Estimated Carbon Released from Forest Fires for U.S. Forests.	7-20
Table 7-14: Tier 2 Quantitative Uncertainty Estimates of Non-CO ₂ Emissions from Forest Fires in <i>Forest Land Remaining Forest Land</i> (Tg CO ₂ Eq. and Percent)	7-21
Table 7-15. N ₂ O Fluxes from Soils in <i>Forest Land Remaining Forest Land</i> (Tg CO ₂ Eq. and Gg)	7-21
Table 7-16: Quantitative Uncertainty Estimates of N ₂ O Fluxes from Soils in <i>Forest Land Remaining Forest Land</i> (Tg CO ₂ Eq. and Percent)	7-22
Table 7-17: Net CO ₂ Flux from Soil C Stock Changes in <i>Cropland Remaining Cropland</i> (Tg CO ₂ Eq.)	7-24
Table 7-18: Net CO ₂ Flux from Soil C Stock Changes in <i>Cropland Remaining Cropland</i> (Tg C)	7-24
Table 7-19: Quantitative Uncertainty Estimates for C Stock Changes occurring within <i>Cropland Remaining Cropland</i> (Tg CO ₂ Eq. and Percent)	7-29
Table 7-20: Emissions from Liming of Agricultural Soils (Tg CO ₂ Eq.)	7-31
Table 7-21: Emissions from Liming of Agricultural Soils (Tg C)	7-31
Table 7-22: Applied Minerals (Million Metric Tons)	7-32
Table 7-23: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Emissions from Liming of Agricultural Soils (Tg CO ₂ Eq. and Percent)	7-33
Table 7-24: CO ₂ Emissions from Urea Fertilization in <i>Cropland Remaining Cropland</i> (Tg CO ₂ Eq.)	7-33
Table 7-25: CO ₂ Emissions from Urea Fertilization in <i>Cropland Remaining Cropland</i> (Tg C)	7-34
Table 7-26: Applied Urea (Million Metric Tons)	7-34
Table 7-27: Quantitative Uncertainty Estimates for CO ₂ Emissions from Urea Fertilization (Tg CO ₂ Eq. and Percent)	7-35
Table 7-28: Net CO ₂ Flux from Soil C Stock Changes in <i>Land Converted to Cropland</i> (Tg CO ₂ Eq.)	7-36
Table 7-29: Net CO ₂ Flux from Soil C Stock Changes in <i>Land Converted to Cropland</i> (Tg C)	7-36
Table 7-30: Quantitative Uncertainty Estimates ¹ for C Stock Changes occurring within <i>Land Converted to Cropland</i> (Tg CO ₂ Eq. and Percent)	7-38
Table 7-31: Net CO ₂ Flux from Soil C Stock Changes in <i>Grassland Remaining Grassland</i> (Tg CO ₂ Eq.)	7-39
Table 7-32: Net CO ₂ Flux from Soil C Stock Changes in <i>Grassland Remaining Grassland</i> (Tg C)	7-39
Table 7-33: Quantitative Uncertainty Estimates ¹ for C Stock Changes occurring within <i>Grassland Remaining Grassland</i> (Tg CO ₂ Eq. and Percent)	7-42
Table 7-34: Net CO ₂ Flux from Soil C Stock Changes for <i>Land Converted to Grassland</i> (Tg CO ₂ Eq.)	7-43
Table 7-35: Net CO ₂ Flux from Soil C Stock Changes for <i>Land Converted to Grassland</i> (Tg C)	7-43
Table 7-36: Quantitative Uncertainty Estimates ¹ for C Stock Changes occurring within <i>Land Converted to Grassland</i> (Tg CO ₂ Eq. and Percent)	7-45
Table 7-37: Net C Flux from Urban Trees (Tg CO ₂ Eq. and Tg C)	7-47
Table 7-38: C Stocks (Metric Tons C), Annual C Sequestration (Metric Tons C/yr), Tree Cover (Percent), and Annual C Sequestration per Area of Tree Cover (kg C/m ² cover-yr) for 15 U.S. Cities	7-48

Table 7-39: Tier 2 Quantitative Uncertainty Estimates for Net C Flux from Changes in C Stocks in Urban Trees (Tg CO ₂ Eq. and Percent)	7-49
Table 7-40: N ₂ O Fluxes from Soils in <i>Settlements Remaining Settlements</i> (Tg CO ₂ Eq. and Gg)	7-51
Table 7-41: Quantitative Uncertainty Estimates of N ₂ O Emissions from Soils in <i>Settlements Remaining Settlements</i> (Tg CO ₂ Eq. and Percent)	7-52
Table 7-42: Net Changes in Yard Trimming and Food Scrap Stocks in Landfills (Tg CO ₂ Eq.)	7-53
Table 7-43: Net Changes in Yard Trimming and Food Scrap Stocks in Landfills (Tg C)	7-53
Table 7-44: Moisture Content (%), C Storage Factor, Proportion of Initial C Sequestered (%), Initial C Content (%), and Half-Life (years) for Landfilled Yard Trimmings and Food Scraps in Landfills	7-56
Table 7-45: C Stocks in Yard Trimmings and Food Scraps in Landfills (Tg C)	7-56
Table 7-46: Tier 2 Quantitative Uncertainty Estimates for CO ₂ Flux from Yard Trimmings and Food Scraps in Landfills (Tg CO ₂ Eq. and Percent)	7-56
Table 8-1: Emissions from Waste (Tg CO ₂ Eq.)	8-1
Table 8-2: Emissions from Waste (Gg)	8-1
Table 8-3: CH ₄ Emissions from Landfills (Tg CO ₂ Eq.)	8-2
Table 8-4: CH ₄ Emissions from Landfills (Gg)	8-3
Table 8-5: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Landfills (Tg CO ₂ Eq. and Percent)	8-5
Table 8-6: CH ₄ and N ₂ O Emissions from Domestic and Industrial Wastewater Treatment (Tg CO ₂ Eq.)	8-7
Table 8-7: CH ₄ and N ₂ O Emissions from Domestic and Industrial Wastewater Treatment (Gg)	8-7
Table 8-8: U.S. Population (Millions) and Domestic Wastewater BOD ₅ Produced (Gg)	8-10
Table 8-9: U.S. Pulp and Paper, Meat and Poultry, and Vegetables, Fruits and Juices Production (Tg)	8-10
Table 8-10: Wastewater Flow (m ³ /ton) and BOD Production (g/L) for U.S. Vegetables, Fruits and Juices Production	8-12
Table 8-11: U.S. Population (Millions) and Average Protein Intake [kg/(person-year)]	8-15
Table 8-12: Tier 2 Quantitative Uncertainty Estimates for CH ₄ Emissions from Wastewater Treatment (Tg CO ₂ Eq. and Percent)	8-15
Table 8-13: CH ₄ and N ₂ O Emissions from Composting (Tg CO ₂ Eq.)	8-18
Table 8-14: CH ₄ and N ₂ O Emissions from Composting (Gg)	8-18
Table 8-15: U.S. Waste Composted (Gg)	8-19
Table 8-16: Tier 1 Quantitative Uncertainty Estimates for Emissions from Composting (Tg CO ₂ Eq. and Percent)	8-19
Table 8-17: Emissions of NO _x , CO, and NMVOC from Waste (Gg)	8-19
Table 10-1: Revisions to U.S. Greenhouse Gas Emissions (Tg CO ₂ Eq.)	10-3
Table 10-2: Revisions to Net Flux of CO ₂ to the Atmosphere from Land Use, Land-Use Change, and Forestry (Tg CO ₂ Eq.)	10-4

Figures

Figure ES-1: U.S. Greenhouse Gas Emissions by Gas	ES-4
Figure ES-2: Annual Percent Change in U.S. Greenhouse Gas Emissions	ES-4

Figure ES-3: Cumulative Change in U.S. Greenhouse Gas Emissions Relative to 1990	ES-4
Figure ES-4: 2006 Greenhouse Gas Emissions by Gas (percents based on Tg CO ₂ Eq.)	ES-6
Figure ES-5: 2006 Sources of CO ₂	ES-7
Figure ES-6: 2006 CO ₂ Emissions from Fossil Fuel Combustion by Sector and Fuel Type	ES-8
Figure ES-7: 2006 End-Use Sector Emissions of CO ₂ from Fossil Fuel Combustion	ES-8
Figure ES-8: 2006 Sources of CH ₄	ES-10
Figure ES-9: 2006 Sources of N ₂ O	ES-11
Figure ES-10: 2006 Sources of HFCs, PFCs, and SF ₆	ES-11
Figure ES-11: U.S. Greenhouse Gas Emissions and Sinks by Chapter/IPCC Sector	ES-12
Figure ES-12: 2006 U.S. Energy Consumption by Energy Source	ES-13
Figure ES-13: Emissions Allocated to Economic Sectors	ES-15
Figure ES-14: Emissions with Electricity Distributed to Economic Sectors	ES-17
Figure ES-15: U.S. Greenhouse Gas Emissions Per Capita and Per Dollar of Gross Domestic Product	ES-17
Figure ES-16: 2006 Key Categories—Tier 1 Level Assessment	ES-19
Figure 2-1: U.S. Greenhouse Gas Emissions by Gas	2-1
Figure 2-2: Annual Percent Change in U.S. Greenhouse Gas Emissions	2-1
Figure 2-3: Cumulative Change in U.S. Greenhouse Gas Emissions Relative to 1990	2-1
Figure 2-4: U.S. Greenhouse Gas Emissions by Chapter/IPCC Sector	2-7
Figure 2-5: 2006 Energy Chapter Greenhouse Gas Sources	2-7
Figure 2-6: 2006 U.S. Fossil C Flows (Tg CO ₂ Eq.)	2-7
Figure 2-7: 2006 CO ₂ Emissions from Fossil Fuel Combustion by Sector and Fuel Type	2-9
Figure 2-8: 2006 End-Use Sector Emissions of CO ₂ from Fossil Fuel Combustion	2-9
Figure 2-9: 2006 Industrial Processes Chapter Greenhouse Gas Sources	2-10
Figure 2-10: 2006 Agriculture Chapter Greenhouse Gas Sources	2-12
Figure 2-11: 2006 Waste Chapter Greenhouse Gas Sources	2-15
Figure 2-12: Emissions Allocated to Economic Sectors	2-16
Figure 2-13: Emissions with Electricity Distributed to Economic Sectors	2-20
Figure 2-14: U.S. Greenhouse Gas Emissions Per Capita and Per Dollar of Gross Domestic Product	2-26
Figure 3-1: 2006 Energy Chapter Greenhouse Gas Sources	3-1
Figure 3-2: 2006 U.S. Fossil Carbon Flows (Tg CO ₂ Eq.)	3-1
Figure 3-3: 2006 U.S. Energy Consumption by Energy Source	3-5
Figure 3-4: U.S. Energy Consumption (Quadrillion Btu)	3-5
Figure 3-5: 2006 CO ₂ Emissions from Fossil Fuel Combustion by Sector and Fuel Type	3-5
Figure 3-6: Annual Deviations from Normal Heating Degree Days for the United States (1950–2006)	3-6
Figure 3-7: Annual Deviations from Normal Cooling Degree Days for the United States (1950–2006)	3-6
Figure 3-8: Aggregate Nuclear and Hydroelectric Power Plant Capacity Factors in the United States (1974–2006)	3-6

Figure 3-9: 2006 End-Use Sector Emissions of CO ₂ from Fossil Fuel Combustion	3-7
Figure 3-10: Sales-Weighted Fuel Economy of New Passenger Cars and Light-Duty Trucks, 1990–2006	3-8
Figure 3-11: Sales of New Passenger Cars and Light-Duty Trucks, 1990–2006	3-8
Figure 3-12: Industrial Production Indices (Index 2002=100)	3-10
Figure 3-13: Electricity Generation Retail Sales by End-Use Sector	3-11
Figure 3-14: U.S. Energy Consumption and Energy-Related CO ₂ Emissions Per Capita and Per Dollar GDP	3-16
Figure 3-15: Mobile Source CH ₄ and N ₂ O Emissions	3-30
Figure 4-1: 2006 Industrial Processes Chapter Greenhouse Gas Sources	4-1
Figure 6-1: 2006 Agriculture Chapter Greenhouse Gas Emission Sources	6-1
Figure 6-2: Agricultural Sources and Pathways of N that Result in N ₂ O Emissions	6-18
Figure 6-3: Major Crops, Average Annual Direct N ₂ O Emissions Estimated Using the DAYCENT Model, 1990–2006 (Tg CO ₂ Eq./state/year)	6-20
Figure 6-4: Grasslands, Average Annual Direct N ₂ O Emissions Estimated Using the DAYCENT Model, 1990–2006 (Tg CO ₂ Eq./state/year)	6-20
Figure 6-5: Major Crops, Average Annual N Losses Leading to Indirect N ₂ O Emissions Using the DAYCENT Model, 1990–2006 (Gg N/state/year)	6-20
Figure 6-6: Grasslands, Average Annual N Losses Leading to Indirect N ₂ O Emissions Using the DAYCENT Model, 1990–2006 (Gg N/state/year)	6-20
Figure 6-7: Comparison of measured emissions at field sites with modeled emissions using the DAYCENT simulation model	6-27
Figure 7-1. Percent of Total Land Area in Each Land-Use Category by State	7-4
Figure 7-2: Forest Sector Carbon Pools and Flows	7-12
Figure 7-3: Estimates of Net Annual Changes in C Stocks for Major C Pools	7-14
Figure 7-4: Average C Density in the Forest Tree Pool in the Conterminous United States, 2007	7-14
Figure 7-5: Total Net Annual CO ₂ Flux for Mineral Soils under Agricultural Management within States, 1993-2006 <i>Cropland Remaining Cropland</i>	7-25
Figure 7-6: Total Net Annual CO ₂ Flux for Organic Soils under Agricultural Management within States, 1993-2006 <i>Cropland Remaining Cropland</i>	7-25
Figure 7-7: Total Net Annual CO ₂ Flux for Mineral Soils under Agricultural Management within States, 1993-2006 <i>Land Converted to Cropland</i>	7-36
Figure 7-8: Total Net Annual CO ₂ Flux for Organic Soils under Agricultural Management within States, 1993-2006 <i>Land Converted to Cropland</i>	7-36
Figure 7-9: Total Net Annual CO ₂ Flux for Mineral Soils under Agricultural Management within States, 1993-2006 <i>Grassland Remaining Grassland</i>	7-39
Figure 7-10: Total Net Annual CO ₂ Flux for Organic Soils under Agricultural Management within States, 1993-2006 <i>Grassland Remaining Grassland</i>	7-40
Figure 7-11: Total Net Annual CO ₂ Flux for Mineral Soils under Agricultural Management within States, 1993-2006 <i>Land Converted to Grassland</i>	7-44
Figure 7-12: Total Net Annual CO ₂ Flux for Organic Soils under Agricultural Management within States, 1993-2006 <i>Land Converted to Grassland</i>	7-44
Figure 8-1: 2006 Waste Chapter Greenhouse Gas Sources	8-1

Boxes

Box ES- 1: Recalculations of Inventory Estimates	ES-1
Box ES-2: Recent Trends in Various U.S. Greenhouse Gas Emissions-Related Data	ES-17
Box 1-1: The IPCC Third Assessment Report and Global Warming Potentials	1-8
Box 1-2: IPCC Reference Approach	1-11
Box 2-1: Methodology for Aggregating Emissions by Economic Sector	2-24
Box 2-2: Recent Trends in Various U.S. Greenhouse Gas Emissions-Related Data	2-25
Box 2-3: Sources and Effects of Sulfur Dioxide	2-28
Box 3-1: Weather and Non-Fossil Energy Effects on CO ₂ from Fossil Fuel Combustion Trends	3-5
Box 3-2: Carbon Intensity of U.S. Energy Consumption	3-14
Box 3-3. Carbon Dioxide Transport, Injection, and Geological Storage	3-52
Box 4-1: Potential Emission Estimates of HFCs, PFCs, and SF ₆	4-71
Box 6-1. Tier 1 vs. Tier 3 Approach for Estimating N ₂ O Emissions	6-21
Box 6-2: Comparison of Tier 2 U.S. Inventory Approach and IPCC (2006) Default Approach	6-31
Box 7-1: CO ₂ Emissions from Forest Fires	7-14
Box 7-2: Tier 3 Inventory for Soil C Stocks compared to Tier 1 or 2 Approaches	7-26
Box 8-1: Biogenic Emissions and Sinks of Carbon	8-6