Non-energy uses

A	В	С	D	E	F	G	н	I	J	К	L	М	N O	Р	Q	R	S	Т	U	V	w x
1																					
2	E.	minoion	- 2. C+		Feeter	for N	lon End		Not		1000 3	010									
3	E	mission	15 & 30	Jrage	Factors	S IOI IN	Mitigation S		ses nau	ural Gas,	1900-2	.010									
4 5 6 7 8 9	Com	might Clin	ente Mitie	ation Co.	ani e e e	Climate	Rick Heede	Services					3-Feb-12	Note: the EPA	and EIA data o	on natural gas i	n non-energy u	ses differ - (EF	A 2009: 0.366	Qbtu/EIA 2009: 0	.620 Qbtu, or 59%)
6	Copy	yright Clin	late Mitig	ation Sel	vices	Carb	on Majors Pr	oject											This factor may	be revised.	
7					l		27-Sep-12								suggests an av				hereas EIA show	s 0.62 Q Btu (botl	h for 2009)
9		EIA, Table	1.15 Fossil F	uel Consu	nption for No	onfuel Use,	1980-2010	l.												on-energy (0.994%	
10		Note: This	table amend	s EIA data	on non-energ	gy uses to	show storag	e & emissio	ons		Ι										
11						N	<mark>atural G</mark>	00									N	<mark>atural G</mark> a			
12 13		Total	Nitrogenous		Other, e.g,		Total	aə	Total	Non-energy	Non-energy	Non-energy						atural Ga	Total	Non-energy	Non-energy
14		Non-fuel	Fertilizers		methanol		Non-fuel		Natural Gas	uses,	emissions,	storage		Non-energy	Carbon	Carbon	Quant	Quantity	natural gas	emission rate	
15		Non-energy		Amnt	Non-energy	Amnt	Non-energy	Amnt	Supplied	Percent of	Percent of	Percent of		use	Coefficent	Content	emitted	stored	emissions	Percent of	Percent of
16		use	use	Emitted	use	Emitted	use	Emitted		total	total	total					41.0%	59.0%		total emissions	
17 18				42.0%		42.0%				supplied	supplied	supplied		QBtu	MtC/QBtu	MtC	MtCO2	MtCO2	MtCO2	Percent	Percent
19	Year	EIA				Billio	n cubic feet	(Bcf)						EIA	EPA	calculated	calculated	calculated	EIA	calculated	calculated
20 21	1980	639	320	134	320	134	639	268	19,877	3.2%	1.4%	1.86%	1980	0.65	14.45	9.39	14.12	20.32	1,063	1.33%	1.91%
22	1981	468	234	98	234	98	468	197	19,404	2.4%	1.0%	1.40%	1981	0.48	14.45	6.94	10.43	15.01	1,036	1.01%	1.45%
23	1982	403	202	85	202	85	403	169	18,001	2.2%	0.9%	1.30%	1982	0.41	14.45	5.92	8.91	12.82	963	0.92%	1.33%
24	1983	390	195	82	195	82	390	164	16,835	2.3%	1.0%	1.34%	1983	0.40	14.45	5.78	8.69	12.51	901	0.96%	1.39%
25	1984	441	221	93		93	441	185	17,951	2.5%	1.0%	1.42%	1984	0.45	14.45	6.50	9.78	14.07	962	1.02%	1.46%
26	1985 1986	500	250	105	250 212	105 89	500	210 178	17,281	2.9%	1.2%	1.68%	1985	0.52	14.45	7.51	11.30 9.56	16.26	926	1.22%	1.76%
27	1986	423 474	212 237	89 100	212	100	423 474	178	16,221 17,211	2.6%	1.1%	1.51%	1986 1987	0.44	14.45 14.45	7.08	9.56	13.76	866	1.10%	1.59%
<u>28</u> 29	1988	554	237	116		116	554	233	18,030	3.1%	1.3%	1.78%	1988	0.49	14.45	8.24	12.38	17.82	<u>920</u> 962	1.29%	1.85%
30	1989	489	245	103	245	103	489	205	19,119	2.6%	1.1%	1.48%	1989	0.50	14.45	7.23	10.86	15.63	1,022	1.06%	1.53%
31	1990	547	274	115	274	115	547	230	19,174	2.9%	1.2%	1.65%	1990	0.56	14.45	8.09	12.17	17.51	1,025	1.19%	1.71%
32	1991	573	287	120	287	120	573	241	19,562	2.9%	1.2%	1.70%	1991	0.59	14.45	8.53	12.82	18.45	1,047	1.22%	1.76%
33	1992	603	302	127	302	127	603	253	20,228	3.0%	1.3%	1.73%	1992	0.62	14.45	8.96	13.47	19.39	1,082	1.25%	1.79%
34	1993	618	309	130	309	130	618	260	20,790	3.0%	1.2%	1.72%	1993	0.64	14.46	9.25	13.91	20.02	1,110	1.25%	1.80%
35	1994	673	337	141	337	141	673	283	21,247	3.2%	1.3%	1.84%	1994	0.69	14.46	9.98	15.00	21.58	1,134	1.32%	1.90%
36	1995 1996	668 681	334 341	140 143	334 341	140 143	668 681	281 286	22,207	3.0%	1.3%	1.74% 1.75%	1995 1996	0.69	14.46 14.46	9.98	15.00 15.22	21.59	1,184	1.27%	1.82%
37 38	1990	706	353	143	353	148	706	200	22,009	3.1%	1.3%	1.80%	1997	0.70	14.46	10.12	15.65	21.50	1,205 1,211	1.29%	1.86%
39	1998	762	381	140	333	140	760	320	22,246	3.4%	1.4%	1.99%	1998	0.72	14.44	11.41	17.15	24.68	1,189	1.44%	2.08%
40	1999	752	376	158	376	158	752	316	22,405	3.4%	1.4%	1.95%	1999	0.77	14.46	11.13	16.74	24.09	1,109	1.40%	2.02%
41	2000	724	362	152	362	152	724	304	23,333	3.1%	1.3%	1.80%	2000	0.74	14.47	10.71	16.10	23.17	1,241	1.30%	1.87%
42	2001	626	313	131	313	131	626	263	22,239	2.8%	1.2%	1.63%	2001	0.64	14.46	9.25	13.91	20.02	1,187	1.17%	1.69%
43	2002	657	329	138	329	138	657	276	23,007	2.9%	1.2%	1.66%	2002	0.68	14.46	9.83	14.78	21.27	1,229	1.20%	1.73%
44	2003	611 607	306 304	128 127	306 304	128 127	611 607	257	22,277	2.7%	1.2%	1.59%	2003	0.63	14.44	9.10 8.97	13.68	19.68	1,191	1.15%	1.65%
45	2004 2005	607	304 315	127	304	127	607	255 264	22,389 22,011	2.7% 2.9%	1.1%	1.57% 1.66%	2004 2005	0.62	14.46 14.46	9.40	13.48 14.13	19.40 20.34	1,194	1.13%	1.62%
46 47	2005	623	315	132	313	132	623	264	21,685	2.9%	1.2%	1.68%	2005	0.63	14.46	9.40	13.91	20.34	<u>1,175</u> 1,157	1.20%	1.73%
48	2007	665	333	140		140	665	279	23,097	2.9%	1.2%	1.67%	2007	0.68	14.46	9.83	14.78	21.27	1,235	1.20%	1.72%
49	2008	642	321	135	321	135	642	270	23,268	2.8%	1.2%	1.60%	2008	0.66	14.46	9.54	14.35	20.65	1,243	1.15%	1.66%
50	2009	605	303	127	303	127	605	254	22,840	2.6%	1.1%	1.54%	2009	0.62	14.46	8.97	13.48	19.40	1,218	1.11%	1.59%
51 52 53	2010	626	313	131	313	131	626	263	24,133	2.6%	1.1%	1.50%	2010	0.64	14.46	9.25	13.91	20.02	1,285	1.08%	1.56%
52													averages:		gy use in 2009 14.45	of 0.366 Qbti 8.80	and 0.222 Qb 13.24	tu in 2010. 19.05	1,108	1.19%	1.71%
54													simple 31-y	r average							
55		Average	carbon st	orage rat	e 1980-20	010 for n	on-energy	uses of n	atural gas (l	USA) - EIA a	pproach	1.650%	Averag	e carbon st	orage rate	1980-2010) for non-er	ergy uses o	of natural gas	s (USA)	1.711%
56													01			I - E - I			2010		2 00004
57													Carbon	storage rat	te in CDIAC'	s giobal en	iissions dat	adase 1751	-2010		2.000%
58													Avera	de of CDI/		verage 10	80-2010	carbon et	orage rate		1.856%
<u>59</u> 60													Avera		10 0 UJ a	relage 13	00-2010	Carbon St		linked to "Gas Fmi	issions Factor Calc"
61																					

Non-energy uses

<u> </u>												•		AK	AL	l	•	
3 4		Estimatio	TABL N OF CARBOI		Products									Table 3-	19: CO ₂ Em	issions fro	m Non-Ener	gy Use I
5		1	2	3	4	5	6	7		IMENDE	D DEFAULT	ASSUMPTIC		View			1000	20
_		Estimated Fuel	Conversion	Estimated	Emission	Carbon	Fraction	Carbon	Coal ^(a)			0.9	8	Year Potentia	l Emissions		1990 307.2	20
		Quantities ^(a)	Factor	Fuel Quantities(b)	Factor	Content(c)	Carbon Stored	Stored(d)	Oil and Oil Produ	icts		0.9	9	C Store			191.3	237
	Product/Fuel(e)	(0	TJ/Units	(TJ)	(t C/TJ)	(0- 0)	JUIEU	(0- 0)	Gas			0.9	95	Emissio	ns as a % of	Potential	38%	37
		(Original Units)		. ,	· · ·	(Gg C)		(Gg C)	Peat for electricit	v denerati	on ^(b)	0.9	9	Emissio	ons		115.8	142
	Lubricants	calc	Table 1-3	calc	Table 1-1	calc	0.50	calc					-	-		115.1	EPA (2012) li	nventorv
	Bitumen	calc	Table 1-3	calc	Table 1-1	calc	1.0	calc	(a) This figure is coal, and can b			aries for diffe	rent types of				Carbon Emitte	
	Coal Oils and Tars from	calc(f)	Table 1-3	calc	Table 1-1(9)	calc	0.75	calc	(b) The fraction for			olds may be m	uch lower.				e 3-19: CO2 E	
	Coking Coal			·	T 4.4				IPCC	(1996)	Table 1-6.			-		I able	: 3-19. COZ E	1115510115
	Naphtha as Feedstock	calc	Table 1-3	calc	Table 1-1	calc	0.75	calc		· · ·		ctors are suc	erceeded by	full oxidation	n in the 200	6 Guidelines		
	Gas/Diesel Oil as Feedstock	calc	Table 1-3	calc	Table 1-1	calc	0.50	calc										
	Natural Gas as Feedstock	calc	Table 1-3	calc	Table 1-1	calc	0.33	calc										
	LPG as Feedstock	calc	Table 1-3	calc	Table 1-1	calc	0.80	calc										
	Ethane as Feedstock	calc	Table 1-3	calc	Table 1-1	calc	0.80	calc		Tab	le 1.15	Fossil Fu	el Consu	mption fo	or Nonfue	I Use Es	timates, S	Select
	(a) Either Apparent Consumpt	tion plus domestic	(manufactured)	production, or	Feedstock Us	e.								Pe	etroleum Produ	cts		
	(b) Estimated Fuel Quantities i	n TJ (Col. 3) equal	s Estimated Fue	Quantities (Co	I. 1) times a C	Conversion F	actor (Col. 2	<u>?</u>).			Asphait	Liquefied			Petro-			
	(c) Carbon Content (Col. 5) e	quals Estimated Fu	el Quantities in	TJ (Col. 3) time	s an Emission	Factor (Col.	4).			Year	and Road Oil	Petroleum Gases	Pentanes Plus	Lubricants	chemical Feedstocks	Petroleum Coke	Special Naphthas	Other
	(d) Carbon Stored (Col. 7) eq	uals Carbon Conte	nt (Col. 5) time	s Fraction Carb	on Stored (C	ol. 6) divided	by 10 ³ .										Physical Units	
	(e) This is an incomplete list of				of carbon sto	red. Where	data are av	ailable for		1980	145	230	(3)	58	253	24	37	
	other fuels, the estimation of s			ed.						1985	156	230 265 340	(³) 13 18	53	253 144	24 15 820	30	58 41 30
	(f) Use 6% of apparent consum									1990 1991 1992	162	340 394 397	18 10 13	60 53 54	199 203 214 216	^R 20 ^R 17	20 17 20	44
	(g) Use the emission factor for	coking coal (25.8	t C/TJ).							1992	166	389	60	55	214 216	P13	20	R3
	IPCC (1996) Revised 1996	IPCC Guidelin	es for Nationa	al Greenhou:	se Gas Inve	ntories, Re	eference M	/anual, Volume 3, Ene	1994 r: 1995 1996	176 162 166 174 176 178 177 184	437 450	56 66 69 65	58 57	224 215	^R 29 ^R 13 ^R 13 ^R 12 ^R 15 ^R 6	15 13	3 P3
		, Estimation of Ca								1996 1997	177 184	450 470 473	69 65	55 58	217 250		14	P3 P3
				,					,	1998 1999	190	494	44	61 62	252	R25 R36	20 28	30
										2000	200 192	520 479	57 51	61	243	^R 16	19	Ra
										2001	189	445	44			Bog	15	Rad
_	T-LI- 8 0E0 0000 H									2001	189	445 465	44 37	56 55	214 229	^B 29 ^B 24 B20	15 20	P39 38 826
1	Table A-256: 2010 Non-E									2001	189	445 465 441	44 37 37	51	214 229 247 287	P29 P24 P20 P36 P31	20 15 10	P39 38 P36 P34
-		nergy Carbon S	Stored in Pro nsumption	ducts Carl		Carbon	Fracti			2001 2002 2003 2004 2005 2006	189	445 465 441	44 37 37 37 33 23	51 52 51 42	224 215 217 250 252 238 243 214 229 247 287 266 265	R25 R36 R16 R29 R24 R20 R36 R31 R35 R35	20 15 10 12 13	P3(38 P36 P34 P34
•	Table A-256: 2010 Non-E	nergy Carbon S Co	Stored in Pro nsumption for Non-	ducts Carl Coefficie	nts C	ontent	Fracti Sequester	ed	Carbon	2001 2002 2003 2004 2005 2006 2007 2008	189 187 184 196 199 185 180	445 465 441 453 428 440 449	44 37 37 37 33 23 30	51 52 51 42 52	242	P29 P24 P36 P31 P35 P33 P33 P37	20 15 10	P3 34 P34 P34 P34 41 41 41
•		nergy Carbon S Co	Stored in Pro nsumption	ducts Carl Coefficie	nts C (Tg (TgC	ontent		ed Sto	ored (Tg	2001 2002 2003 2004 2005 2006 2007	189	445 465 441	44 37 37 37 33 23	51 52 51 42	214 229 247 287 265 242 210 ^R 185 195	R29 R24 R20 R36 R35 R33 R37 29 12	20 15 10 12 13 15	39 444 35 73 73 73 73 73 73 73 73 73 73 73 73 73
	Table A-256: 2010 Non-E Fuel Type Coal	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9	ducts Carl Coefficie Carbon/QE 25	nts C (Tg (TgC (tu)	Content arbon) 1.66	Sequester 0.	ed Sto (10	ored (Tg CO ₂ Eq.) 0.6	2001 2002 2003 2004 2005 2006 2007 2008 2009	189 187 184 196 199 185 180	445 465 441 453 428 440 449 421 P455	44 37 37 33 23 30 25 ^R 21	51 52 51 42 52 48 43	242	R33 R37 29	20 15 10 12 13 15 16 9	
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9	ducts Carl Coefficie Carbon/QE 25 14	nts C (Tg (TgC tu) .61 .46	Content arbon) 1.66 3.21	Sequester 0. 0.	ed Sto C 10 59	ored (Tg :O ₂ Eq.) 0.6 7.0	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 ^p	189 187 184 196 199 185 180 152 130 132	445 465 441 453 428 440 449 421 R455 474	44 37 37 33 23 30 25 ^P 21 23	51 52 51 42 52 48 43 48 43	242 210 ^R 185 195	P33 P37 29 12	20 15 10 12 13 15 16 9 5 Quadrillion Bt	tu
-	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphat & Road Oil	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8	ducts Carl Coefficie Carbon/QE 25 14 20	nts C (Tg (TgC (tu) .46 .55	Content arbon) 1.66 3.21 18.04	Sequester 0. 0. 1.	ed Sto C 10 59 00	ored (Tg <u>'O₂ Eq.)</u> 0.6 7.0 65.9	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 ^p	189 187 184 196 199 185 180 152 130 132 	445 465 441 453 428 440 449 421 ^R 455 474	44 37 37 33 23 30 25 ^P 21 23 (³) .06	51 52 51 42 52 48 43 48 0.35 32	242 210 ^R 185 195 1.43 .82	P33 P37 29 12 0.14 09	20 15 10 12 13 15 16 9 5 Quadrillion Bt 0.19 .16	tu
-	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9	ducts Carl Coefficie Carbon/QE 25 14 20 17	nts C (Tg (TgC tu) .61 .46	Content arbon) 1.66 3.21	Sequester 0. 0.	ed Sto C 10 59 00 59	ored (Tg :O ₂ Eq.) 0.6 7.0	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 ^p 1980 1985 1990 1991 1992	189 187 184 196 199 185 180 152 130 132 	445 465 441 453 428 440 449 421 445 474 0.78 .90 1.18 1.37	44 37 37 33 23 30 25 ^P 21 23 (³) .06	51 52 51 42 48 43 48 43 48 0.35 .32 .36 .32 .33	242 210 ^{P185} 195 1.43 .82 1.12 1.15	R33 R37 29 12 0.14 .09 R.12 R.11	20 15 10 12 13 15 16 9 5 Quadrillion Bt 0.19 .16	tu
-	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphat & Road Oil LPG Lubricants Pentancs Plus	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6	ducts Carl Coefficie Carbon/QB 25 14 20 17 20 19	nts C (Tg (Tg C itu) .61 .46 .55 .06 .20 .10	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98	0. 0. 1. 0. 0. 0. 0. 0. 0. 0.	ed Sto C 10 59 00 59 09 59	rred (Tg 'O ₂ Eq.) 0.6 7.0 65.9 57.4 2.0 4.3	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 ^p 1980 1980 1991 1992 1993	189 187 184 196 199 185 180 152 130 132 	445 465 441 453 428 440 449 421 445 474 0.78 .90 1.18 1.37	44 37 37 33 23 30 25 ^P 21 23 (³) .06	51 52 51 42 48 43 48 43 48 0.35 .32 .36 .32 .33	242 210 ^{P185} 195 1.43 .82 1.12 1.15	R33 R37 29 12 0.14 .09 R.12 R.11	20 15 10 12 13 15 16 9 5 Quadrillion Bt 0.19 .16	tu
-	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentance Plus Petrochemical Feedstocks Petodstocks	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a]	ducts Carl Coefficie Carbon/QB 25 14 20 17 20 19	nts C (Tg (Tg C tu) .61 .46 .55 .06 .20 .10 [a]	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a]	Sequester 0. 0. 1. 0. 0. 0. 0.	ed Sta 0 59 00 59 09 59 59 59 59 59 59 59 59 59 5	rred (Tg (<u>O₂ Eq.)</u> 0.6 7.0 65.9 57.4 2.0 4.3 43.1	2001 2003 2003 2004 2005 2006 2007 2008 2009 2010 ^p 1980 1980 1991 1992 1993 1994 1995	189 187 184 196 199 185 180 130 130 132 	445 465 441 453 428 440 449 421 445 474 0.78 .90 1.18 1.37	44 37 37 33 23 30 25 ^P 21 23 (³) .06	51 52 51 42 52 48 43 48 43 48 48 0.35 .32 .32 .33 .34 .35	242 210 ^{P1} 85 195 1.43 .82 1.12 1.15 1.20 1.22 1.26 1.21	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,08	20 15 10 12 13 15 16 9 5 0.19 .16 .11 .09 .10 .09 .10 .00 .07	tu
-	Coal Natural Gas Asphalk & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemic Oke	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0	ducts Carl Coefficie Carbon/QB 25 14 20 17 20 19 27	nts C (Tg (Tg C itu) .61 .55 .06 .20 .10 [a] .85	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08	Sequester 0. 0. 1. 0. 0. 0. 0. 0. 0.	ed Sta C 10 59 00 59 09 59 59 59 59 59 59 59 30	red (Tg O2 Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3 0.1	2001 2002 2003 2004 2005 2006 2009 2010 ^p 1980 1985 1990 1991 1992 1993 1994 1995 1995	189 187 184 196 199 185 180 130 130 132 	445 465 441 453 428 440 449 421 445 474 0.78 .90 1.18 1.37	44 37 37 33 23 30 25 ^P 21 23 (³) .06	51 52 51 42 52 48 43 48 43 48 48 0.35 .32 .32 .33 .34 .35	242 210 ^{P1} 85 195 1.43 .82 1.12 1.15 1.20 1.22 1.26 1.21	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,08	20 15 10 12 13 15 16 9 5 0.19 .16 .11 .09 .10 .09 .10 .00 .07	tu
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentance Plus Petrochemical Feedstocks Petodstocks	nergy Carbon S Co	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a]	ducts Carl Coefficie Carbon/QB 25 14 20 17 20 19 27	nts C (Tg (Tg C tu) .61 .46 .55 .06 .20 .10 [a]	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a]	Sequester 0. 0. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	ed Sta C 10 59 00 59 09 59 59 59 59 59 59 59 30	rred (Tg (<u>O₂ Eq.)</u> 0.6 7.0 65.9 57.4 2.0 4.3 43.1	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 ^p 1985 1990 1991 1991 1993 1994 1995 1996 1997 1997	189 187 184 196 199 185 180 130 130 132 	445 465 441 453 428 440 449 421 ^R 455 474 474 90 90 1.18 1.37 1.37 1.39 1.35 1.55 1.55 1.54 1.58 1.58 1.58 1.58	44 37 37 33 23 30 25 ^P 21 23 (³) 06 08 04 06 28 26 30 20 20	51 52 51 42 52 48 43 48 48 0.35 32 36 32 33 33 34 35 35 34 35 37	242 210 ^R 185 195 	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,08	20 15 10 12 13 15 16 9 5 Ouadrillion B 0.19 .16 .11 .10 .10 .10 .00 .07 .07 .07	tu
	Coal Natural Gas Asphalk & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemic Oke Special Naphtha Waxes/Mise. Mise. U.S. Territories Petro	i <mark>nergy Carbon S</mark> Co Co F	Stored in Pro- nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5	ducts Carl Coefficie Carbon/QB 25 14 20 17 20 19 27	nts C (Tg (Tg C itu) .61 .46 .55 .06 .20 .10 [a] .85 .74	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50	Sequester 0. 0. 1. 0. 0. 0. 0. 0. 0.	ed Sta C 10 59 00 59 09 59 59 59 59 59 59 59 59	red (Tg 102 Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3 4.3 0.1 1.1 1.3 0.4	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010P 1985 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000	189 187 184 196 199 185 180 130 130 132 	445 465 441 453 428 440 449 421 ^R 455 474 474 90 90 1.18 1.37 1.37 1.39 1.35 1.55 1.55 1.54 1.58 1.58 1.58 1.58	44 37 37 33 23 30 25 ^P 21 23 (³) 06 08 04 06 28 26 30 20 20	51 52 51 42 52 48 43 48 48 0.35 32 36 32 33 36 32 33 33 33 33 35 35 35 37 37 37	242 210 ^R 185 195 	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,08	20 15 10 12 13 15 16 9 5 Ouadrillion B 0.19 .16 .11 .10 .10 .10 .00 .07 .07 .07	tu
	Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentancs Plus Petrochemical Feedstocks Petrochemical Feedstocks Special Naphtha Waxes/Mise. Mais. U.S. Territories Petro Total	i <mark>nergy Carbon S</mark> Co Co E	Stored in Pro- nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5 [a] [a]	ducts Coefficie Carbon/QB 25 14 20 17 20 19 27 19	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a]	0. 0. 1. 0. 0. 0. 0. 0.	ed Sto C 10 59 00 59 09 59 59 59 59 59 30 59 8 30 59 8 30 59 8 30 59 8 30 59 8 30 59 8 30 59 59 59 59 59 59 59 59 59 59 59 59 59	red (Tg (<u>2</u>) <u>E4</u> , <u>0</u> , <u>6</u> , <u>7</u> ,0 <u>65</u> ,9 <u>57</u> ,4 <u>2</u> ,0 <u>43</u> <u>43</u> ,1 <u>0</u> ,1 <u>1</u> ,1 <u>13</u> <u>0</u> ,4 <u>183</u> ,1	2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 ⁹ 1980 1985 1990 1991 1993 1994 1995 1995 1995 1996 1995 1996 1999 2000 2001 2000	189 187 184 196 199 185 180 130 130 132 	445 465 441 453 428 440 449 421 ^R 455 474 474 90 90 1.18 1.37 1.37 1.39 1.35 1.55 1.55 1.54 1.58 1.58 1.58 1.58	44 37 37 37 38 30 30 22 23 (³) (³) 06 06 06 08 04 06 28 28 28 28 28 20 20 20 20 20 20 20 20 21 23 20 20 20 20 20 20 20 20 20 20 20 20 20	51 52 52 52 42 43 43 43 43 43 43 32 32 33 34 35 33 34 35 35 37 37 37 37 37 37 33	242 210 ^{Pi} 185 195 195 143 .82 112 1.20 1.20 1.20 1.21 1.21 1.21 1.21	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,04 R,04 R,15 R,17 R,17 R,17 R,17 R,17 R,15	20 15 10 12 13 15 5 Cuadrillion Bi 0.19 .16 .11 .09 .01 .01 .00 .07 .07 .07 .07 .11 .15 .08 .07 .07 .10 .08 .07 .07 .07 .07 .07 .07 .07 .07	tu
	Coal Natural Gas Asphalk & Road Oil LPG Lubricants Pertochemical Feedstocks Petrochemical Seedstocks Petrochemical Seedstocks Matsure Coke Special Naphtha Waxes/Mise. Mise. U.S. Territories Petro Total [a] Values for Mise. U.S. Te	inergy Carbon S Co E Deum rritories Petroleur	Stored in Pro- nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5 [a] [a]	ducts Coefficie Carbon/QB 25 14 20 17 20 19 27 19	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a]	0. 0. 1. 0. 0. 0. 0. 0.	ed Sto C 10 59 00 59 09 59 59 59 59 59 30 59 8 30 59 8 30 59 8 30 59 8 30 59 8 30 59 8 30 59 59 59 59 59 59 59 59 59 59 59 59 59	red (Tg (<u>2</u>) <u>E4</u> , <u>0</u> , <u>6</u> , <u>7</u> ,0 <u>65</u> ,9 <u>57</u> ,4 <u>2</u> ,0 <u>43</u> <u>43</u> ,1 <u>0</u> ,1 <u>1</u> ,1 <u>13</u> <u>0</u> ,4 <u>183</u> ,1	2001 2002 2003 2004 2005 2006 2006 2007 2008 2009 2010 ^p 1980 1990 1991 1992 1993 1994 1995 1994 1995 1996 1997 1998 1999 2000 2001 2001 2002 2003 2004	189 187 184 196 199 185 180 130 130 132 	445 445 445 453 440 449 449 449 449 449 449 449 474 74 74 74 90 90 90 90 90 91 18 1.39 1.39 1.39 1.39 1.39 1.39 1.39 1.39	44 377 377 383 300 25 ¹⁶ 21 23 300 06 06 06 06 08 04 06 08 04 06 08 04 28 28 20 20 20 20 20 20 20 20 20 20 20 20 20	51 52 52 42 48 48 48 48 48 32 32 32 33 36 32 33 34 35 33 34 35 35 37 37 37 37 37 37 37 37 37 37 37 37 37	242 210 ^R 185 195 195 1.43 .82 1.12 1.20 1.20 1.21 1.21 1.21 1.21 1.2	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,04 R,04 R,15 R,17 R,17 R,17 R,17 R,17 R,15	20 15 10 12 13 15 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	tu
	Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentancs Plus Petrochemical Feedstocks Petrochemical Feedstocks Special Naphtha Waxes/Mise. Mais. U.S. Territories Petro Total	inergy Carbon S Co E Deum rritories Petroleur Initories Petroleur	Stored in Pro nsumption for Non- inergy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5 [a] [a] [a]	ducts Coefficie Carbon/QB 25 14 20 17 20 19 27 19	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a]	0. 0. 1. 0. 0. 0. 0. 0.	ed Sto C 10 59 00 59 09 59 59 59 59 59 30 59 8 30 59 8 30 59 8 30 59 8 30 59 8 30 59 8 30 59 59 59 59 59 59 59 59 59 59 59 59 59	red (Tg (<u>2</u>) <u>E4</u> , <u>0</u> , <u>6</u> , <u>7</u> ,0 <u>65</u> ,9 <u>57</u> ,4 <u>2</u> ,0 <u>43</u> <u>43</u> ,1 <u>0</u> ,1 <u>1</u> ,1 <u>13</u> <u>0</u> ,4 <u>183</u> ,1	2001 2002 2003 2004 2005 2006 2009 2010 ⁹ 1980 1990 1991 1992 1993 1994 1995 1995 1996 1997 1998 1999 2000 2001 2001 2002 2003 2004 2005 2006	189 187 184 196 199 185 180 130 130 132 	445 445 445 453 440 449 449 449 449 449 449 449 474 74 74 74 90 90 90 90 90 91 18 1.39 1.39 1.39 1.39 1.39 1.39 1.39 1.39	44 37 37 37 23 23 23 23 23 23 23 23 23 23	61 52 51 42 42 43 43 48 48 48 48 48 48 33 32 33 33 34 34 33 33 33 33 33 33 33 33 33	242 210 ^R 185 195 195 1.43 .82 1.12 1.20 1.20 1.21 1.21 1.21 1.21 1.2	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,04 R,04 R,15 R,17 R,17 R,17 R,17 R,17 R,15	20 15 10 12 13 15 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	tu
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentancs Plus Petrochemical Feedstocks Petroleum Coke Special Naphtha Waxes/Mise. Mise. U.S. Territories Petro Total [a] Values for Mise. U.S. Te aggregates of numerous small Note: Totals may not sum do State	inergy Carbon S Co E Deum rritories Petroleur Ier components. Le to independent	Stored in Pro nsumption for Non- Energy Use (TBu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5 [a] a) n, Petrochemic rounding.	ducts Cart Coefficie 25 25 14 22 17 27 19 19 27 19 19 27 27 19 30 30 30 30 30 30 30 30 30 30 30 30 30	nts C (Tg (Tg C it)) -61 -61 -64 -65 -06 -20 -10 -[a] -74 -[a] -74 -[a] 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	0. 0. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed <u>Sto</u> C 10 59 00 59 09 59 (a] 30 59 (a] 30 59 (a] 30 59 (a] 30 59 59 (a] 30 59 59 59 59 59 59 59 59 59 59 59 59 59	red (Tg (<u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u>0</u>,<u>6</u> 7.0 65.9 57.4 2.0 4.3 43.1 0.1 1.1 1.3 <u>0.4</u> <u>183.1</u> :ategories are</u></u>	2001 2002 2003 2004 2005 2006 2009 2010 ⁹ 1980 1990 1991 1992 1993 1994 1995 1995 1996 1997 1998 1999 2000 2001 2001 2002 2003 2004 2005 2006	189 187 184 196 199 185 180 152 130 132 	445 445 445 453 440 449 449 449 449 449 449 449 474 74 74 74 90 90 90 90 90 91 18 1.39 1.39 1.39 1.39 1.39 1.39 1.39 1.39	44 34 37 37 37 23 23 23 23 23 23 23 23 23 23	61 51 51 51 51 51 51 52 52 52 52 52 52 52 52 52 52	242 210 P185 185 185 185 185 185 185 185 185 185	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,04 R,04 R,15 R,17 R,17 R,17 R,17 R,17 R,15	20 15 10 12 13 15 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	tu
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petroleum Coke Special Naphtha Waxes/Mise. Mise. U.S. Territories Petro Total [a] Values for Misc. U.S. Te	inergy Carbon S Co E Decum Tritorics Petroleur Her components, ae to independent ence Approach	Stored in Pro nsumption for Non- Chergy Use (TBuu) 64.9 221.9 877.8 291.7 103.6 [a] 3.0 22.5 [a] n, Petrochemic rounding. C0. Emissio	ducts Carfficio Carbon/QE 252 14 20 17 20 17 20 19 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 27 27 27 27 27 27 27 27 27 27 27	nts C (Tg (Tg C ita) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	Sequester 0. 0. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	ed <u>Sto</u> C 10 59 00 59 59 59 59 30 59 30 59 30 59 30 59 30 59 30 59 59 30 59 59 30 59 59 59 59 59 59 59 59 59 59 59 59 59	red (Tg (32) Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3 4.3 1.1 1.1 1.3 0.4 183.1 categories are Dtherwise notedD	2001 2002 2003 2004 2005 2006 2009 2010 ^p 1985 1990 1991 1993 1994 1995 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2004 2005	189 187 184 196 199 185 180 130 130 132 	445 465 441 453 428 440 449 421 ^R 455 474 474 90 90 1.18 1.37 1.37 1.39 1.35 1.55 1.55 1.54 1.58 1.58 1.58 1.58	44 37 37 37 33 23 23 23 23 23 23 23 23 23	61 52 51 42 42 43 43 48 48 48 48 48 48 33 32 33 33 34 34 33 33 33 33 33 33 33 33 33	242 210 ^R 185 195 195 1.43 .82 1.12 1.20 1.20 1.21 1.21 1.21 1.21 1.2	R33 R37 29 12 0.14 .09 R,12 R,11 R,17 R,08 R,08 R,08	20 15 10 12 13 15 5 Cuadrillion Bi 0.19 .16 .11 .09 .01 .01 .00 .07 .07 .07 .07 .11 .15 .08 .07 .07 .10 .08 .07 .07 .07 .07 .07 .07 .07 .07	tu
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphak & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petroleum Coke Special Naphtha Waxes/Mise. Mise. U.S. Territories Petro Total [a] Values for Mise. U.S. Te agregates of numerous smal Note: Totals may not sum do Table A-257: 2010 Reference	inergy Carbon S Co E E Deum Tritories Petroleur Her components. ae to independent ence Approach Pote Pote	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] [a] [a] [a] [b] n, Petrochemic rounding. (Co, Emission ntial	ducts Cart Coeffici 25 14 22 15 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 15 27 27 27 27 27 27 27 27 27 27 27 27 27	nts C (Tg (Tg C it) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	Sequester 0. 0.1 0.0	ed <u>C</u> 10 59 00 59 59 59 59 59 59 59 59 59 59 59 59 59	red (Tg 102 Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3 4.3 1.1 1.3 0.4 183.1 categories are 0therwise notedD Total	2001 2002 2003 2004 2005 2006 2007 2008 2009 20109 20109 20109 20109 20109 20109 20109 20109 20109 20109 2000 2000	1869 1870 1870 1894 1996 1996 1996 1996 1996 1996 1996 19	4463 4463 4484 4489 4489 4449 4449 7 7 7 7 7 7 7 7 7 7 7 7 7 7	444 37 37 38 38 20 20 20 20 20 20 20 20 20 20 20 20 20	610 911 42 42 43 44 43 44 43 44 44 44 44 44 44 44 44	242 210 P185 1195 1195 120 1.43 82 1.15 1.20 1.22 1.22 1.21 1.21 1.22 1.22 1.21 1.21 1.21 1.22 1.21 1.21 1.21 1.37 1.37 1.57 1.57 1.57 1.57 1.57 1.57 1.57 1.5	R33 P37 29 12 0.14 09 R11 R11 R11 R12 R08 R08 R08 R08 R08 R08 R08 R08 R08 R08	20 15 10 22 3 3 5 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	tu 0.34 24 23 26 7 20 20 20 20 20 20 20 20 20 20 20 20 20
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalt & Road Oil LPG Lubricants Pentancs Plus Petrochemical Feedstocks Petroleum Coke Special Naphtha Waxes/Mise. Mise. U.S. Territories Petro Total [a] Values for Mise. U.S. Te aggregates of numerous small Note: Totals may not sum do State	inergy Carbon S Co E E Deum Ier components. ae to independent ence Approach Pote Emiss	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] [a] [a] [a] [b] n, Petrochemic rounding. (Co, Emission ntial	ducts Carfface Carbon/QE 25 14 20 17 20 17 20 19 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 27 15 27 27 27 27 27 27 27 27 27 27 27 27 27	nts C (Tg (Tg C ita) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	Sequester 0. 0. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	ed Sto 59 00 59 59 59 59 59 59 59 59 59 59	red (Tg (32) Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3 4.3 1.1 1.1 1.3 0.4 183.1 categories are Dtherwise notedD	2001 2002 2003 2004 2006 2007 2007 2009 2010 ⁹ 1980 1980 1981 1981 1981 1981 1981 1981	189 189 184 196 199 185 185 185 185 185 185 185 185 185 185	4461 4461 4461 4461 4461 4461 4461 4461	44 4 34 37 37 37 30 20 20 20 20 20 20 20 20 20 2	61 51 52 52 52 52 52 52 52 52 52 52 52 52 52	242 210 Filds 1935 1935 1935 193 193 193 193 193 193 193 193 122 123 123 124 124 125 120 122 126 121 126 121 126 121 126 121 127 127 127 127 127 127 127 127 127	A33 M37 29 12 0.14 09 R 12 R 10 R 10 R 08 R 08 R 08 R 08 R 08 R 09 R 10 R 10 R 10 R 10 R 11 R 11 R 11 R 11	20 15 10 12 13 15 15 15 15 16 15 16 15 16 17 16 10 10 10 10 10 10 10 10 10 10	tu 0.34 22 22 22 22 22 22 22 22 22 2
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalk & Road Oil LPG Lubricants Pentances Plus Pertochemical Feedstocks Petroleum Coke Special Naphtha Waxes/Mise. Waxes/Mise. U.S. Territories Petro Mise. U.S. Territories Petro Total [a] Values for Mise. U.S. Te aggregates of numerous small Note: Totals may not sum du Table A-257: 2010 Referent Fuel Category Coal Petroleum	Deum rritories Petroleur ler components. ae to independent ence Approach Pote Emiss 1,8 2,3	Stored in Pro nsumption for Non- Crergy Use (TBu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5 [a] [a] a) counding. CO. Emission trial sions Seq 98.9	ducts Carton/QE 25 14 22 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 27 27 27 28 27 29 29 29 29 29 29 29 29 29 29 29 29 29	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	Sequester 0. 1.1 0.0	ed Sto 59 00 59 09 59 59 30 59 30 59 30 59 30 59 59 30 59 59 59 59 59 59 59 59 59 59	red (Tg (3) (2) (2) (2) (2) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4	2001 2002 2003 2004 2006 2006 2007 2007 2008 2008 2008 2008 2008 2008	189 189 187 184 184 184 184 184 196 199 185 185 185 185 185 185 185 185 185 185	4461 4461 4461 4463 4463 4463 4463 4469 449 449 449 449 449 449 449 449 44	44 34 37 37 37 38 30 29 29 29 20 20 20 20 20 20 20 20 20 20	61 51 52 52 52 52 52 52 52 52 52 52	242 210 Files 193 193 143 22 122 122 122 122 122 122 121 121 120 122 122	#33 #37 29 12 0.14 0.09 812 811 8.17 8.08 8.08 8.08 8.08 8.08 8.08 8.08 8.08 8.04 9.04 8.12 8.12 8.21 8.22 8.21 8.23 8.33 8.07 mn.	20 15 10 12 12 13 15 16 15 16 15 16 15 16 15 16 15 16 15 16 15 16 15 16 17 10 10 10 10 10 10 10 10 10 10	tu 0.34 24 23 26 20 20 20 20 20 20 20 20 20 20
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalt & Road Oil LPG LPG Lubricants Pentances Plus Petrochemical Feedstocks Petrochemical Feedstocks Special Naphtha Waxes/Misc. Misc. U.S. Territories Petro Total [a] Values for Misc. U.S. Te aggregates of numerous smal Note: Totals may not sum di Table A-257: 2010 Referent Fuel Category Coal Petroleum Natural Gas Natural Gas	cleum cleum rritories Petroleur lier components. ae to independent ence Approach Pote Emiss 1,8 2,3 1,2	Stored in Pro rssumption for Non- Energy Use (TBu) 64.9 221.9 877.8 1545.8 291.7 103.6 [a] 3.0 225.5 [a] [a] n, Petrochemic rounding. CO: Emissio 67.2 197.1	ducts Cart Coefficie Carbon/QE 14 22 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 27 27 15 15 15 15 15 15 15 15 15 15 15 15 15	nts C (Tg (Tg C tu) .61 .55 .55 .06 .20 .10 .10 .10 .13 .85 .74 [a] [a] .85 .74 [a] .85 .74 [a] .85 .74 [a] .85 .74 [a] .85 .74 [a] .85 .74 [a] .85 .74 .85 .74 .85 .74 .85 .74 .74 .74 .74 .74 .74 .74 .74 .74 .74	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	0. 0. 0.1 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. shown becc 0. Shown becc Fract Oxidit 1000 / Eq	ed Sto 59 00 59 09 59 59 30 59 30 59 30 59 30 59 59 30 59 59 59 59 59 59 59 59 59 59	red (Tg (V ₂ , Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3.1 0.1 1.1 1.3 0.4 183.1 categories are 0therwise noted Total Emissions 1,898.3 2,191.7 1,290.1	2001 2002 2003 2004 2006 2006 2007 2008 2007 2008 2007 1990 2009 2009 2009 2009 2009 2009 2009	189 189 184 194 195 199 185 199 185 199 185 199 185 199 185 199 185 199 185 199 185 199 199 185 100 100 100 100 100 100 100 10	445 5 4461 4 441 4 441 4 441 4 441 4 443 3 428 4 440 9 440 9 440 9 440 9 440 9 1 9 0.78 9 0 0.78 9 0 1 1 9 0.78 1 9 0 1 1 9 1	44 1 37 37 37 37 37 37 38 39 39 9 29 1 29 1 29 1 29 1 39 29 1 29 2 40 2	61 51 51 52 52 48 52 48 52 48 52 48 52 52 48 52 52 52 53 53 53 53 53 53 53 53 53 53	242 210 F(88) 199 143 142 112 122 122 122 122 123 123 120 122 123 120 122 123 120 122 123 120 122 123 120 121 121 121 121 121 121 121 121 120 122 123 123 123 123 123 123 123 123 123	#33 #37 219 0 0 0 14 0 8 8 8 8 8 8 9 9 9 11 17 8 8 9 9 10 11 11 12 12 12 12 12 12 12 14 14 10 11 12 13 14 10 10 10	20 15 10 12 21 13 15 15 15 16 15 16 19 9 9 9 9 9 9 9 9 9 9 9 9 9	tu 0.34 24 22 22 22 22 22 22 22 22 2
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalk & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemical Seedstocks Petrochemical Feedstocks Masser, Mise. Masser, Mise. Mise. Jalues for Mise. Jalues for Mise. V.S. Territories Petro Total Special Naghtha Masser, Mise. Jalues for Mise. U.S. Territories Petro Total	Deum rritories Petroleur Ber components, ae to independent ence Approach Pote Emiss 1,8 2,3 1,2 5,5	Stored in Pro nsumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] [a] [a] [b] n, Petrochemic rounding. (Co, Emissio nfial sions Sequences 97.1 63.2	ducts Carton/QE 25 14 22 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 27 27 27 28 27 29 29 29 29 29 29 29 29 29 29 29 29 29	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] [a] fisc. are not	Sequester 0. 1.1 0.0	ed Sto 59 00 59 09 59 59 30 59 30 59 30 59 30 59 59 30 59 59 59 59 59 59 59 59 59 59	red (Tg (3) (2) (2) (2) (2) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4	2001 2002 2003 2004 2004 2004 2004 2005 2006 2006 2006 2006 2006 2006 2006	189 189 184 194 195 199 185 199 185 199 185 199 185 199 185 199 185 199 185 199 199 199 199 199 199 199 19	445 446 446 446 446 440 441 440 441 440 441 440 441 440 9 445 140 140 140 140 140 140 140 140 140 140	44 337 337 377 377 377 377 377 377 377 3	61 51 51 52 42 42 42 43 44 48 48 48 48 48 48 48 48 48	242 210 Files 193 193 193 193 193 193 193 193 193 193	P33 P37 29 12 0 14 0 14 17 8 17 8 17 8 18 17 8 18 17 8 18 12 8 10 8 10 8 10 8 10 8 10 8 10 8	20 15 10 12 21 22 13 15 15 16 15 16 15 16 16 16 16 16 16 16 16 16 16	tu 0.3 2 2 2 2 2 2 2 2 2 2 2 2 2
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphak & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemical Secostocks Petrochemical Keedstocks Petrochemical Secostocks Vaxes/Misc. Misc. U.S. Territories Petro Misc. U.S. Territories Petro Total [a] Values for Misc. U.S. Te aggregates of numerous smal Note: Totals may not sum do Table A-257: 2010 Referent Fuel Category Coal Petroleum Natural Gas Total Note: Totals may not sum do	bleum rritories Petroleur ler components. ae to independent ence Approach Pote Emiss 1,8 2,3 1,2 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 1,25	Stored in Pro insumption for Non- Energy Use (TBu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] [a] [a] [a] [a] [a] [a] [a]	ducts Carton/QE 22 14 22 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 27 20 57 27 20 57 20 20 20 20 20 20 20 20 20 20 20 20 20	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] [a] fise. are not Sumption	0. 0. 0.1 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 100 100 100	ed Sta C 10 59 59 59 59 30 59 30 59 30 59 30 59 30 59 30 59 4] 30 59 20 20 20 20 20 20 20 20 20 20	red (Tg (3) (2) (2) (2) (2) (3) (3) (3) (3) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4	2001 2002 2005 2005 2005 2005 2005 2005	189 184 184 194 189 189 189 189 189 189 189 189 189 189 189 180 180 180 181 180 130 132 133 132 130 132 140 110 110 115 117 16 128 128 128 124 128 124 128 126 124 122 126 124 128 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120	445 5 446 4 446 1 446 1 443 4 440 4 440 4 440 4 440 4 440 4 440 4 440 4 440 4 140 4 140 4 140 4 140 4 140 4 140 4 150 4 150 1 154 15	44 34 37 37 37 33 30 92 921 23 921 23 921 23 921 23 921 23 921 23 921 23 921 23 921 24 921 28 28 28 28 28 29 20 20 20 20 20 20 20 20 20 20	61 51 51 52 52 52 54 52 54 52 54 54 54 55 55 55 55 55 55 55	242 210 Files 1955 1955 143 143 82 112 122 122 122 122 121 121 121 121	P33 P37 P37	20 15 12 12 13 13 15 16 9 9 9 9 9 9 9 9 9 9 9 9 9	tu 0.3 2.2 8.2 2.2 8.2 2.2 8.2 8.2 8.2
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphak & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemical Secostocks Petrochemical Keedstocks Petrochemical Secostocks Vaxes/Misc. Misc. U.S. Territories Petro Misc. U.S. Territories Petro Total [a] Values for Misc. U.S. Te aggregates of numerous smal Note: Totals may not sum do Table A-257: 2010 Referent Fuel Category Coal Petroleum Natural Gas Total Note: Totals may not sum do	bleum rritories Petroleur ler components. ae to independent ence Approach Pote Emiss 1,8 2,3 1,2 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 5,55 1,25	Stored in Pro insumption for Non- Energy Use (TBu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] [a] [a] [a] [a] [a] [a] [a]	ducts Carton/QE 22 14 22 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 27 20 57 27 20 57 20 20 20 20 20 20 20 20 20 20 20 20 20	nts C (Tg (Tg C tu) 	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] [a] fise. are not Sumption	0. 0. 0.1 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 0. 0.0 100 100 100	ed Sta C 10 59 59 59 59 30 59 30 59 30 59 30 59 30 59 30 59 4] 30 59 20 20 20 20 20 20 20 20 20 20	red (Tg (V ₂ , Eq.) 0.6 7.0 65.9 57.4 2.0 4.3 4.3.1 0.1 1.1 1.3 0.4 183.1 categories are 0therwise noted Total Emissions 1,898.3 2,191.7 1,290.1	2001 2002 2005 2005 2005 2005 2005 2005	189 184 184 194 189 189 189 189 189 189 189 189 189 189 189 180 180 180 181 180 130 132 133 132 130 132 140 110 110 115 117 16 128 128 128 124 128 124 128 126 124 122 126 124 128 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120	445 445 446 445 446 445 446 440 449 440 449 449 449 449 449 449 449	44 37 37 37 37 38 39 9 9 9 9 9 9 9 9 9 9 9 9 9	61 51 51 52 52 52 52 52 52 52 52 52 52	242 210 Philos 195 195 195 143 82 82 122 122 122 122 122 122 122 122 1	R33 R37 R37 R37 R12 0.14 0.9 12 12 12 14 0.14 0.9 12 12 12 12 12 13 14 9	20 15 12 13 15 9 Quadrillen Bl 0 16 11 11 09 00 00 07 07 07 07 07 07 07 07	tu 0.3.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalk & Road Oil LPG Lubricants Petrochemical Feedstocks Petrochemical Feedstocks Petrochemical Feedstocks Masc. U.S. Territories Petro Total [a] Values for Misc. U.S. Te agregates of numerous small Able A-257: 2010 Refer Coal Petroleum Natural Gas Total Note: Totals may not sum du Table A-253:	Deum rritories Petroleur ler components. et o independent Pore Emiss 1,8 2,3 1,2 5,5 ae to independent 2; 2009 Non-Ene	Stored in Pro nsumption for Non- Energy Use (TBu) 64.9 221.9 877.8 291.7 103.6 [a] 3.0 25.5 [a] [a] n, Petrochemic rounding. C0.Emissio Sequences	ducts Carton/QE 25 14 22 17 17 22 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 15 27 20 20 20 20 20 20 20 20 20 20 20 20 20	nts C (Tg (Tg C tu) -61 -55 -55 -20 -20 -10 -10 -10 -10 -10 -10 -10 -10 -10 -1	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] (a) fise. are not sumption	0. 0. 0. 1. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	ed Sta Sta 59 00 59 59 59 59 59 59 59 59 59 59	red (Tg (3) (2) (2) (2) (2) (3) (3) (3) (3) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4	2001 2002 2005 2005 2005 2005 2005 2005	189 184 184 194 189 189 189 189 189 189 189 189 189 189 189 180 180 180 181 180 130 132 133 132 130 132 140 110 110 115 117 16 128 128 128 124 128 124 128 126 124 122 126 124 128 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120	445 465 465 468 468 468 468 468 469 469 469 469 469 469 469 469 469 469	44 34 37 37 37 38 30 30 30 30 30 30 30 30 30 30	61 51 52 52 52 52 52 52 52 52 52 52	242 210 Priles 195 195 195 195 195 195 120 122 122 122 121 121 121 121 121 121	P33 P37 P38 P37 P37 P37 P38 P37 P38 P37 P38 P39 P39	20 15 12 12 13 13 15 16 9 9 9 9 9 9 9 10 0 10 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0	u 0.3 2
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	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphak & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemical Receistocks Petrochemical Section Section Masc U.S. Territories Petro Tatal Ray Values for Misc. U.S. Teraggregates of numerous smalla Table A-257: 2010 Referent Coal Petroleum Natural Gas Total Note: Totals may not sum du Table A-257: 2010 Referent Coal Petroleum Natural Gas Total Note: Totals may not sum du Table A-257:	Deum rritories Petroleur ler components. et o independent Pore Emiss 1,8 2,3 1,2 5,5 ae to independent 2; 2009 Non-Ene	Stored in Pro nsumption for Non- Energy Use (TBu) 64.9 221.9 877.8 1.545.8 291.7 103.6 [a] a.0 25.5 [a] [a] n, Petrochemic rounding. CO: Emission ntial 60.2 97.1 163.2 rounding. ergy Carbon S of U.S. Green	ducts Carton/QE 22 14 22 15 27 20 15 27 20 27 20 20 20 20 20 20 20 20 20 20 20 20 20	nts C (Tg (Tg C tu) -61 -55 -0.06 55 -0.06 20 10 [a] 85 20 10 [a] 20 11 [a] 20 12 20 20 20 20 20 20 20 2	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] fisc. are not sumption A-253: Se Sinks: 199	0. 0.	ed Stee (C 10 59 59 59 59 59 59 59 59 59 59	red (Tg (3) (2) (2) (2) (2) (3) (3) (3) (3) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4	2001 2002 2005 2005 2005 2005 2005 2005	189 184 184 194 189 189 189 189 189 189 189 189 189 189 189 180 180 180 181 180 130 132 133 132 130 132 140 110 110 115 117 16 128 128 128 124 128 124 128 126 124 122 126 124 128 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120	445 465 465 468 468 468 468 468 469 469 469 469 469 469 469 469 469 469	44 34 37 37 37 38 30 30 30 30 30 30 30 30 30 30	61 51 52 52 52 52 52 52 52 52 52 52	242 210 Priles 195 195 195 195 195 195 120 122 122 122 121 121 121 121 121 121	P33 P37 P38 P37 P37 P37 P38 P37 P38 P37 P38 P39 P39	20 15 12 12 13 13 15 16 9 9 9 9 9 9 9 10 0 10 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0	u 0.3 2
	Table A-256: 2010 Non-E Fuel Type Coal Natural Gas Asphalk & Road Oil LPG Lubricants Pentanes Plus Petrochemical Feedstocks Petrochemical Feedstocks Petrochemical Feedstocks Masser, Mise. Masser, Mise. Mise. U.S. Territories Petro Total [a] Values for Mise. U.S. Ter agregates of numerous smal Note: Totals may not sum di Table A-257: 2010 Referent Coal Petroleum Natural Gas Total Note: Totals may not sum di Table A-257: U.S. EPA (2 LUS. EPA (2 Annex 4: IP	sergy Carbon S Co E Second P Second	Stored in Pro ssumption for Non- Energy Use (TBtu) 64.9 221.9 877.8 1,545.8 291.7 103.6 [a] 3.0 25.5 [a] [a] n, Petrochemic rounding. (Co, Emissio nital sions Sequence 97.1 643.2 rounding. ergy Carbon 5 of U.S. Green pproach for E:	ducts Carton/QE 25 14 22 14 22 15 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 15 27 27 15 27 27 15 27 27 27 27 27 27 27 27 27 27 27 27 27	nts C (Tg (Tg C tu) -61 -61 -55 -0.6 -55 -0.6 -55 -0.6 -55 -0.6 -55 -74 [a] [a] -74 [a] [a] -74 [a] [a] -74 [a] -74 [a] -74 [a] -74 -74 -74 -74 -74 -74 -74 -74 -74 -74	Content arbon) 1.66 3.21 18.04 26.37 5.89 1.98 [a] 0.08 0.50 [a] [a] fisc. are not sumption A-253: Se Sinks: 199	0. 0.	ed Stee (C 10 59 59 59 59 59 59 59 59 59 59	red (Tg (3) (2) (2) (2) (2) (3) (3) (3) (3) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4	2001 2002 2005 2005 2005 2005 2005 2005	189 184 184 194 189 189 189 189 189 189 189 189 189 189 189 180 180 180 181 180 130 132 133 132 130 132 140 110 110 115 117 16 128 128 128 124 128 124 128 126 124 122 126 124 128 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120 101 87 126 120	445 465 465 465 468 468 468 468 468 468 468 469 469 469 469 469 469 469 474 474 474 474 474 474 474 474 474 47	44 34 37 37 37 33 30 29 29 20 28 28 28 28 28 28 28 28 28 28	61 51 52 52 48 52 48 52 48 52 48 52 48 52 48 52 52 48 52 52 52 53 53 53 53 53 53 53 53 53 53	242 210 Files 195 143 122 123 124 125 122 122 121 121 120 123 123 121 120 123 123 121 120 123 121 121 120 123 123 123 123 123 123 124 133 127 127 135 129 127 135 129 127 135 129 127 135 129 127 135 129 129 129 129 129 129 129 129 129 129	#33 #37 #39 12 0 14 0 #12 #11 #17 #08 #08 #08 #08 #08 #09 #04 #12 #17 #12 #20 #22 #20 #22 #20 #22 #20 #21 #20 #23 #17 #12 #20 #23 #17 #20 #23 #17 #20 #23 #17 #20 #23 #10 #10 #11 #11 #12 #13 #14 #15	20 15 12 12 13 13 15 16 9 9 9 9 9 9 9 10 0 10 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0	u 0.3 2.2 2.3 2.4 2.2 2.3 2.4 2.3 2.4 2.3 2.4 2.3 2.4 2.3 2.4 2.5 2.7 2.2 2.3 <t< td=""></t<>

Jse Fossil Fuel Consumption (Tg CO2 Eq.)

Year	1990	2000	2005	2006	2007	2008	2009	2010
Potential Emissions	307.2	380.1	375.9	367.1	355.6	333.1	297.3	302.5
C Stored	191.3	237.7	236.3	229.1	225.2	198.0	179.0	183.1
Emissions as a % of Potential	38%	37%	37%	38%	37%	41%	40%	39%
Emissions	115.8	142.5	139.6	138.0	130.4	135.0	118.2	119.4

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tory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 2010, (Draft), om Non-Energy Uses of Fossil Fuels (IPCC Source 48 Category 1A), sions from Non-Energy Use Fossil Fuel Consumption (Tg CO2 Eq.)

ected Years, 1980-2010

				Pe	etroleum Produc	ts							
Year	Asphalt and Road Oil	Liquefied Petroleum Gases	Pentanes Plus	Lubricants	Petro- chemical Feedstocks	Petroleum Coke	Special Naphthas	Other 1	Total	Natural Gas d	Coal	Total	Percent of Total Energy Consumptio
							Physical Units	1					
1980	145	230	(3)	58	253	24	37	58	805	639	2.4		
1985	156	265	13	53	144	15	30	41	718	500	1.1		
1990	176	340	18	60	199	R20	20	39	P873	P547	.6		
1991	162	394	10	53	203	^R 17	17	44	P900	573	.6		
1992	166	397	13	54	214	^R 29	20	35	P929	603	1.2		
1993	174	389	60	55	216	^R 13	20	P35	P962	618	.9		
1994	176	437	56	58	224	R13	15	35	R1,015	673	.9		
1995	178	450	66	57	215	R12	13	P33	^R 1,025 R1,050	668	.9		
1996	177	470	69	55	217	R15	14	P33	^R 1,050	681	.9		
1997	184	473	65	58	250	P6	14	P34	R1,085	706	.9		
1998	190	494	44	61	252	R25	20	39	R1,126	762	.8		
1999	200	520	57	62	238	P36	28	37	R1,177	752	.8		
2000	192	479	51	61	243	^R 16	19	P38	^R 1,099	R724	.8		
2001	189	445	44	56	214	P29 P24	15	P39	^R 1,031	P626	.7		
2002	187	465	37	55	229	^P 24	20	38	^R 1,055	657	.7		
2003	184	441	37	51	247	^H 20	15	^R 36	^R 1,031	611	.7		
2004	196	453	37	52 51	287	^R 36	10	^R 34	^R 1,106	P607	.7		
2005	199	428	33	51	266	P31	12	R34	R1,054	P629	.7		
2006	185	440	23	42	265	P35	13	41	R1,044	P627	.6		
2007	180	449	30	52	242	P33	15	40	R1,041	P665	.6		
2008	152	421	25	48	_210	P37	16	41	P951	P642	.6		
2009	130	R455	P21	43	^R 185	29	9	41	P914	P605	.4		
2010 ^P	132	474	23	48	195	12	5	43	932	626	.6		
							Quadrillion Btu					_	
1980	0.96	0.78	(³)	0.35	1.43	0.14	0.19	0.34	4.19	0.65	0.08	4.92	6.3
1985	1.03	.90	.06	.32	.82	.09	.16	.24	3.63	.52	.03	4.18	5.5
1990	1.17	1.18	.08	.36 .32	1.12	B.12	.11	.23	^R 4.38	^R .56	.02	^R 4.96	5.9
1991	1.08	1.37	.04	.32	1.15	8.11	.09	.26	R4.42	.59	.02	P5.03	6.0
1992	1.10	1.39	.06	.33	1.20	B.17	.10	^B .21	P4.57	.62	.04	^B 5.23	P6.1
1993	1.15	1.35	.28	.34	1.22	R.08	.10	.20	R4.72	.64	.03	^R 5.38	6.2
1994	1.17	1.54	.26	.35	1.26	P.08	.08	.20	R4.95	.69	.03	^R 5.67	6.4
1995	1.18	1.58	.30	.35	1.21	^R .08	.07	.20	^R 4.96	.69	.03	^R 5.68	P6.2
1996	1.18	1.64	.32	.34	1.21	^R .09	.07	20	^R 5.04	70	.03	^R 5.77	P6.1
1997	1.22	1.66	.30	.35	1.40	^R .04	.07	^R .20	^R 5.24	^R .72	.03	^R 6.00	P6.3
1998	1.26	1.73	.20	.37	1.40	^R .15	.11	.23	^R 5.46	.79	.03	^R 6.27	P6.6
1999	1.32	1.81	.26	.37	1.33	R.22	.15	B.22	^R 5.68	.77	.03	^R 6.48	P6.7
2000	1.28	1.66	.24	.37	1.35	P.10	.10	B.22	^R 5.30	.74	.03	^R 6.07	P6.1
2001	1.26	1.55	.20	.34	1.19	B.17	.08	B.23	R5.02	^R .64	.02	^R 5.68	5.9
2002	1.24	1.61	.17	.33	1.27	^B .15	.10	.22	^R 5.10	.68	.02	^R 5.80	P5.9
2003	1.22	1.54	.17	.31	1.37	B.12	.08	B.21	P5.02	63	.02	P5.68	5.8
2004	1.30	1.57	.17	.31	1.59	B.22	.05	^B .20	^R 5.42	^R .62	.02	^R 6.07	_6.1
2005	1.32	1.49	.15	.31	1.47	^B .19	.06	^R .20	^R 5.19	^R .65	.02	^R 5.86	^R 5.8
2006	1.26	1.52	.11	.25	1.48	^B .21	.07	.24	^R 5.14	^R .64	.02	^R 5.81	^R 5.8
2007	1.20	1.54	.14	.31	1.35	^B .20	.08	.24	^R 5.06	^R .68	.02	^R 5.76	5.7
2008	1.01	1.45	.12	.29	_1.17	^R .23	.08	.24	P4.59	.66	.02	^R 5.27	5.3
2009	.87	^R 1.54	^R .10	.26	R1.03	^R .18	^{R.05}	.24	R4.28	^R .62	.01	P4.91	P5.2
2010 ^P	.88	1.61	.11	.29	1.09	.07	.03	.25	4.33	64	.02	4.99	5.1

For related information, see http://www.cia.gov/environment/. Sources: Petroleum Products: • 1980–U.S. Energy Information Administration (EIA), Energy Data Reports, Petroleum Statement, Annual and Cables of Liquefed Petroleum Gases and Ethane in 1980. • 1991 forward-EIA, Petroleum Suppy Annual, annual reports, and unpublished data. Natural Gas: • 1990-Elueua of the Cenaus, 1980 Gurvey of Manufactures, Hydrocarbon, Coal, and Colex Materiale Consumed. • 1981 forward-U.S. Department of Commerce. Coalt. • 1980 Diversed-EIA estimates Gased on the methodology underlying the notified emissions calculations in EIA's Emissions of Greenhouse Gases on the United States 2008. Percent of Total Energy Consumption: Derived by dividing total by total consumption on Table 1.3.

U.S. Energy Information Administration (2011) Annual Energy Review 2010, Table 1.15. Source of data in "Natural Gas" table at page 1. Note: EIA revised natural gas non-energy uses in Oct2011 for some years, e.g., 1981-1987, which are used in "Natural Gas."

See the EIA (2012) AER for 2011 at right for updated table 1.15: Non-Combustion Use of Fossil Fuels, 1980-2011.

AT

AU

AV	AW		AX	AY		AZ	BA	BE	3	BC	BD		BE	BF	BG	BH	BI
		Tabl	e 1.15 No	n-Combus	stion Use	of Fossil	Fuels, Sele	ected Yea	rs, 1980-	2011							
						Petroleun	n Products										
		Year	Asphalt and Road Oil	Liquefied Petroleum Gases 1	Lubricants	Petro- chemical Feedstocks ²	Petroleum Coke	Special Naphthas	Other ³	Total	Natural Gas ⁴	Coal	Total	Percent of Total Energy Consumption			
			1					Physica	I Units 5								
		1980 1985 1990 1991 1992 1993 1993 1995 1995 1995 1995 1997 1998 1999 2000 2001 2002 2003 2004 2004 2006 2007 2008 2009 2000 2010 2011	145 176 176 176 176 176 177 177 177 177 177	230 P278 P373 R426 R448 R436 R436 R448 R456 R501 R485 R502 R545 R485 R566 R545 R485 R545 R485 R511 R556 R488 R521 R526 R488 R521 R526 R488 R521 R526 R526 R526 R526 R526 R526 R526 R526	58 320 354 558 558 61 61 655 551 24 328 43 449 449 449	253 199 203 214 214 224 224 225 250 250 252 238 243 244 244 247 266 265 266 265 266 266 266 266 266 266	P14 P16 20 P28 P18 P29 P29 P29 P29 P25 P15 P15 P15 P15 P15 P15 P15 P15 P15 P1	37 382 7 202 15 3 14 4 202 19 5 20 5 10 2 15 15 16 9 5 4	58 439 435 355 353 33 33 33 33 33 33 33 33 4 40 41 41 41 44	P795 P719 P867 P966 P951 R1019 R1019 R1019 R1019 R1019 R1019 R1106 R1073 R1114 R1064 R1151 R11064 R11062 R11082 R1089 P96	639 900 9667 9667 9606 973 9606 973 9606 973 9607 9740 7740 7740 7740 7740 7740 7740 77	24 1.66299998887777776666466					
							0		lion Btu				D				
		1980 1985 1990 1991 1992 1993 1994 1995 1995 1995 1995 1997 1999 2000 2001 2002 2003 2004 2006 2006 2007 2008 2009 2010 2011P	0.96 1.03 1.17 1.08 1.10 1.15 1.15 1.15 1.22 1.26 1.26 1.22 1.26 1.22 1.22 1.22	0.78 6.78 6.78 6.78 7.75	0.572/6672/33 34:0753 34:0777 34:33 51 51 52 52 52 52 52 52 52 52 52 52 52 52 52	1.43 .822 1.15 1.20 1.22 1.21 1.21 1.21 1.21 1.21 1.21	P0.09 R.10 .12 .12 .12 .12 .12 .12 .12 .12	0.19 16 11 10 .10 .09 .10 .09 .07 .07 .07 .07 .07 .11 .08 .00 .08 .00 .05 .05 .03 .02	0.34 223 224 223 224 223 222 222 222 222 2	4,14 4,34,44 4,34,44 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,44,40 4,50 4,44,40 4,50 4,44,40 4,50 4,44,40 4,50 4,44,40 4,50 4,44,40 4,50 4,44,40 4,40	0.52 862 87 87 88 86 86 87 71 77 77 77 77 77 77 77 77 77 77 77 77	0.06 0.02 0.02 0.03 0.03 0.03 0.03 0.03 0.03	P4.87 4.18 P5.05 P5.13 P5.40 P5.40 P5.40 P5.40 P5.92 P	823 935 9461 9663 9661 9663 9663 9664 9663 9662 9662 9662 9662 9662 9662 9662			

U.S. Energy Information Administration (2012) Annual Energy Review 2011, Table 1.15. Table 3-21: 2010 Adjusted Non-Energy Use Fossil Fuel Consumption, Storage, and Emissions

Table 3-20: Adjusted Consumption of Fossil Fuels for Non-Energy Uses (TBtu)

Year	1990	2000	2005	2006	2007	2008	2009	2010
Industry	4,138.4	5,192.2	5,124.0	4,945.4	4,826.0	4,483.0	4,118.8	4,217.7
Industrial Coking Coal	+	53.6	80.5	62.9	2.3	29.1	6.4	64.9
Industrial Other Coal	8.2	12.4	11.9	11.9	11.9	11.9	11.9	11.9
Natural Gas to Chemical								
Plants	263.2	418.6	389.4	228.0	222.4	227.0	219.5	221.9
Asphalt & Road Oil	1,170.2	1,275.7	1,323.2	1,261.2	1,197.0	1,012.0	873.1	877.8
LPG	1,118.7	1,606.9	1,443.9	1,489.8	1,479.4	1,416.9	1,467.2	1,545.8
Lubricants	186.3	189.9	160.2	156.1	161.2	149.6	134.5	149.5
Pentanes Plus	77.5	229.3	146.3	105.4	132.4	114.7	93.2	103.6
Naphtha (<401 ° F)	325.8	593.7	679.6	617.5	541.4	466.7	449.7	471.3
Other Oil (>401 ° F)	661.2	533.8	499.5	572.7	667.7	598.5	391.7	403.7
Still Gas	21.3	12.6	67.7	57.2	44.2	47.3	133.9	147.2
Petroleum Coke	27.2	7.5	105.2	134.2	117.8	147.4	112.1	3.0
Special Naphtha	100.7	94.4	60.9	68.9	75.3	83.1	44.1	25.5
Distillate Fuel Oil	7.0	11.7	11.7	17.5	17.5	17.5	17.5	17.5
Waxes	33.3	33.1	31.4	26.1	21.9	19.1	12.2	15.4
Miscellaneous Products	137.8	119.2	112.8	136.0	133.5	142.0	151.8	158.8
Transportation	176.0	179.4	151.3	147.4	152.2	141.3	127.1	141.2
Lubricants	176.0	179.4	151.3	147.4	152.2	141.3	127.1	141.2
U.S. Territories	86.7	152.2	121.9	133.4	108.4	126.7	56.3	56.3
Lubricants	0.7	3.1	4.6	6.2	5.9	2.7	1.0	1.0
Other Petroleum (Misc.								
Prod.)	86.0	149.1	117.3	127.2	102.5	124.1	55.2	55.2
Total	4,401.1	5,523.7	5,397.2	5,226.2	5,086.6	4,751.0	4,302.1	4,415.2

+ Does not exceed 0.05 TBtu

Note: To avoid double-counting, coal coke, petroleum coke, natural gas consumption, and other oils are adjusted for industrial processes consumption reported in the Industrial Processes sector. Natural gas, LPG, Pentanes Plus, Naphthas, Special Naphtha, and Other Oils are adjusted to account for exports of chemical intermediates derived from three fuels. For residual oil (not shown in the table), all non-energy use is assumed to be consumed in C black production, which is also reported in the Industrial Processes chapter.

U.S. EPA (2012) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 2010, (Draft),

3.2. Carbon Emitted from Non-Energy Uses of Fossil Fuels (IPCC Source 48 Category 1A),

Table 3-20: Adjusted Consumption of Fossil Fuels for Non-Energy Uses (TBtu)

		Carbon					
	Adjusted	Content	Potential		Carbon	Carbon	Carbon
	Non-Energy Use ^a	Coefficient	Carbon	Storage	Stored	Emissions	Emissions
Sector/Fuel Type	(TBtu)	(Tg C/QBtu)	(Tg C)	Factor	(Tg C)	(Tg C)	(Tg CO ₂ Eq.)
Industry	4,217.7	-	78.5	-	49.6	28.9	106.1
Industrial Coking Coal	64.9	25.61	1.7	0.10	0.2	1.5	5.5
Industrial Other Coal	11.9	25.82	0.3	0.59	0.2	0.1	0.5
Natural Gas to Chemical							
Plants	221.9	14.47	3.2	0.59	1.9	1.3	4.8
Asphalt & Road Oil	877.8	20.55	18.0	1.00	18.0	0.1	0.3
LPG	1,545.8	17.06	26.4	0.59	15.7	10.7	39.3
Lubricants	149.5	20.20	3.0	0.09	0.3	2.7	10.1
Pentanes Plus	103.6	19.10	2.0	0.59	1.2	0.8	2.9
Naphtha (<401° F)	471.3	18.55	8.7	0.59	5.2	3.5	13.0
Other Oil (>401° F)	403.7	20.17	8.1	0.59	4.8	3.3	12.1
Still Gas	147.2	17.51	2.6	0.59	1.5	1.0	3.8
Petroleum Coke	3.0	27.85	0.1	0.30	+	0.1	0.2
Special Naphtha	25.5	19.74	0.5	0.59	0.3	0.2	0.7
Distillate Fuel Oil	17.5	20.17	0.4	0.50	0.2	0.2	0.6
Waxes	15.4	19.80	0.3	0.58	0.2	0.1	0.5
Miscellaneous Products	158.8	20.31	3.2	+	+	3.2	11.8
Transportation	141.2	-	2.9	-	0.3	2.6	9.5
Lubricants	141.2	20.20	2.9	0.09	0.3	2.6	9.5
U.S. Territories	56.3	-	1.1	-	0.1	1.0	3.7
Lubricants	1.0	20.20	+	0.09	+	+	0.1
Other Petroleum (Misc.							
Prod.)	55.2	20.00	1.1	0.10	0.1	1.0	3.6
Total	4,415.2		82.5		49.9	32.6	119.4

BJ

BK

BL

BM

+ Does not exceed 0.05 Tg - Not applicable.

^aTo avoid double counting, net exports have been deducted. Note: Totals may not sum due to independent rounding.

U.S. EPA (2012) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 2010, (Draft),

3.2. Carbon Emitted from Non-Energy Uses of Fossil Fuels (IPCC Source 48 Category 1A),

Table 3-21: 2010 Adjusted Non-Energy Use Fossil Fuel Consumption, Storage, and Emissions

Non-energy uses

Cell: W12

Comment: Rick Heede:

EPA uses carbon storage factor of 59 percent for the proportion of natural gas used for non-energy uses (vs 58 percent in 2009).

U.S. EPA (2012) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 2010, (Draft), Annex 4 IPCC Reference Approach for Estimating CO2 Emissions from Fossil Fuel Combustion, Table A-256: 2010 Non-Energy Carbon Stored in Products.

Cell: E13

Comment: Rick Heede:

Revision, Feb12: CMS applies the 58 percent sequestration rate (EPA, 2011, Annex 4: Table A-252) but uses the extensive data from EIA on non-energy uses of natural gas 1980-2010 (EIA 2011 Annual Energy Review 2010, Table 1.15 for both nitrogenous fertilizer and methanol. U.S. EPA (2011) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2009, Annex 4 IPCC Reference Approach for Estimating CO2 Emissions from Fossil Fuel Combustion, Table A-252: 2009 Non-Energy Carbon Stored in Products; Table A-253: Sequestered CO2 and Oxidation factors.

Older cell note (retained for background): EIA(2004) Documentation for Emissions of Greenhouse Gases in the United States 2002, p. 29-30: EIA states that the use of natural gas feedstocks to make nitrogenous fertilizers "is considered a non-sequestering use, because the underlying chemical is ammonia (NH3), which is manufactured by steam reforming of natural gas and reacting the synthesis gas with atmospheric nitrogen, literally leaving the carbon in the feedstock `up in the air.'' Other pathways, e.g., recovering the carbon for urea production, only delays the carbon's release to the atmosphere.

Cell: G13

Comment: Rick Heede:

See cell note under "nitrogenous fertilizers."

Cell: J13

Comment: Rick Heede:

EIA (2011) Annual Energy Review 2010, Table 6.1 Natural Gas Overview, 1949-2010.

Cell: T14

Comment: Rick Heede:

One reviewer of our methodology report pointed out that the sequestration rate used by EPA (59 percent) is probably too high, and thus the final sequestration rate of 1.71 percent also high, and leads to underestimating final emissions from natural gas production. CMS contacted Perry Lindstrom (US Energy Information Administration, Office of Energy Analysis) in Sep12. The agency is reviewing natural gas non-energy uses with the US EPA, and while the sequestration rate does appear too high, Mr Lindstrom cannot release any data until the procedure is reviewed by external experts and final changes are approved -- presumably in time for the EPA's completion of its US emission inventory in April 2013.

Fertilizer use of natural gas is now considered non-sequestered, the only natural gas use that is sequestered is methanol for the plastics industry. A revised sequestration rate is thus not available.

This project will retain the use of the existing result of 1.711 percent overall sequestration rate, and note that a downward revision is probable in the future when data becomes available.

Cell: C19

Comment: Rick Heede:

Data from EIA (2011) Annual Energy Review 2010, Table 1.15 Fossil Fuel Consumption for Nonfuel Use, 1980-2010.

Cell: P19

Comment: Rick Heede:

U. S. Energy Information Administration (2011) Annual Energy Review 2010 Table 1.15 Fossil Fuel Consumption for Nonfuel Use Estimates, 1980-2010, www.eia.gov/totalenergy/data/annuał

The 2011 AER (Sep12) revises natural gas for non-combustion uses, mostly slightly downward, for many years 1980-2010. CMS has not adjusted the table or the calculations below.

Note: Perry Lindstrom (former inventory manager at US EPA, now EIA) notes that the EPA is analyzing non-energy uses, and emissions and sequestration rates. He noted in a personal communication 27Sep2012 that natural gas non-energy usage rates are probably high and likely to be revised downward.** The effect will be to lower sequestration quantities and rates. However, the new data will not be released until ~April 2013. CMS therefore cannot modify the non-energy factors developed and applied in this analysis at this point. Revisions may follow at a later date.

** Natrual gas non-combustion fuel use was revised from 0.64 Q Btu to 0.41 Q Btu.

Cell: Q19

Comment: Rick Heede

CMS uses the latest EPA data (Nov2011): Climate leaders Emission Factor Hub at www.epa.gov/climateleaders/guidance/ghg-emissions.html

Cell: U19

Comment: Rick Heede:

U. S. Energy Information Administration (2011) Annual Energy Review 2010, page 317: Table 11.2 Carbon Dioxide Emissions From Energy Consumption by Source, Selected Years, 1949-2010 (Million Metric Tons of Carbon Dioxide). Note: "Data are estimates for carbon dioxide emissions from energy consumption, including the nonfuel use of fossil fuels."

Cell: P50

Comment: Rick Heede:

EPA (2011) Annex 4: table A-252 shows 0.366 Q Btu of natural gas for non-energy uses vs EIA's 0.62 Q Btu. Using the EIA data set and the EPA sequestration rate of 58 percent means a higher quantity of stored carbon (19.07 MtCO2 vs EPA's 11.26 MtCO2 in 2009), as well as a higher overall carbon sequestration rate (1.57 percent of all natural gas supplied in the U.S. in 2009, or 1.682 percent if averaged for 1980-2010).

Cell: P51

Comment: Rick Heede:

EPA cites EIA data for 2010 of 221.9 TBtu that differs from final results in EIA's Table 1.15 listed here. EIA and EPA tables are reproduced at right.