

附件一

IPCC 第五次評估報告溫暖化潛勢值

化學名稱 (縮寫或通稱)	化學式	生命週期 (年)	GWP (20年平均)	GWP (100年平均)
Carbon dioxide	CO ₂	>500 (Ber model, 與大氣中CO ₂ 濃度相關)	1	1
Methane	CH ₄	12	84	28
Nitrous Oxide	N ₂ O	114	264	265
Hydrofluorocarbons				
HFC-23	CHF ₃	222.0	10,800	12,400
HFC-32	CH ₂ F ₂	5.2	2,430	677
HFC-125	CHF ₂ CF ₃	28.2	6,090	3,170
HFC-134a	CH ₂ FCF ₃	13.4	3,710	1,300
HFC-143a	CH ₃ CF ₃	47.1	6,940	4,800
HFC-152a	CH ₃ CHF ₂	1.5	506	138
HFC-227ea	CF ₃ CHF ₂ CF ₃	38.9	5,360	3,350
HFC-236fa	CF ₃ CHF ₂ CF ₃	242.0	6,940	8,060
HFC-245fa	CHF ₂ CH ₂ CF ₃	7.7	2,920	858
HFC-365mfc	CH ₃ CF ₂ CH ₂ CF ₃	8.7	2,660	804
HFC-43-10mee	CF ₃ CHFCH ₂ CF ₂ CF ₃	16.1	4,310	1,650
Fully Fluorinated Species				
Nitrogen trifluoride	NF ₃	500.0	12,800	161,00
Sulphur hexafluoride	SF ₆	3,200.0	17,500	23,500
Sulphur pentafluoride	SF ₅ CF ₃	800.0	13,500	17,400
PFC-14	CF ₄	50,000.0	4,880	6,630
PFC-116	C ₂ F ₆	10,000.0	8,210	11,100
PFC-218	C ₃ F ₈	2,600.0	6,640	8,900
PFC-318	c-C ₄ F ₈	3,200.0	7,110	9,540
PFC-31-10	C ₄ F ₁₀	2600.0	6,870	9,200
PFC-41-12	n-C ₅ F ₁₂	4,100.0	6,350	8,550
PFC-51-14	n-C ₆ F ₁₄	3,100	5,890	7,910
PFC-91-18	C ₁₀ F ₁₈	2,000.0	5,390	7,190

說明：

1.現行UNFCCC規範，使用IPCC AR5中GWP百年平均值，作為計算溫室氣體當量之基礎。

2.詳細資料請參考IPCC AR5，如下網址：

https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf

3.UNFCCC規範，請參閱第決議文decision 18/CMA.1附件。，如下網址：

https://unfccc.int/sites/default/files/resource/cma2018_3_add2_new_advance.pdf#page=25

3.年能源平衡表 (公噸油當量單位) _Yearly Energy Balance (Calorific Unit)

111年(2022)

單位：公噸油當量;10⁷千卡(tonne of oil equivalent;10⁷kilocalorie)

項 目	1 煤及煤產品 Coal and Coal Products C2 ~ C12	2 煙煤-煉焦煤 Bituminous Coal- Coking Coal	3 煙煤-燃料煤 Bituminous Coal- Steam Coal	4 無煙煤 Anthracite	5 亞煙煤 Sub-bituminous Coal	6 褐煤 Lignite	7 泥煤 Peat	8 焦炭 Coke Oven Coke	9 煙球 Patent Fuel	10 焦爐氣 Coke Oven Gas	11 高爐氣 Blast Furnace Gas	12 轉爐氣 Oxygen Steel Furnace Gas	13 原油及石油產品 Crude Oil and Petroleum Products C14 ~ C36
1 自產													95,338
2 + 進口	37,459,431	4,805,082	26,627,215	59,191	5,821,616			146,327					55,059,636
3 - 出口	36,520			818				35,702					16,675,825
4 - 國際海運													1,400,852
5 - 國際航空													1,808,782
6 - 存貨變動	445,093	-9,705	228,914	-7,799	254,257			-20,575					-222,331
7 = 初級能源總供給	36,977,818	4,814,787	26,398,300	66,171	5,567,359			131,200					35,491,845
8 - 產品間轉換(轉出)													2,647,716
9 - 統計差異	1,102,428	564,596	187,344	-1,156	326,065			25,578			-0	-0	-362,729
10 - 轉變投入	36,956,190	4,250,192	23,399,875		5,241,293			3,240,382		306,992	420,595	96,861	44,129,306
11 煉焦工場/煤製品業	5,415,083	4,250,192	1,164,891										
12 高爐工場	4,485,802		1,245,420					3,240,382					
13 煉油廠													42,966,995
14 石化工廠													
15 公用發電廠	19,462,169		14,220,875		5,241,293								890,011
16 自用發電廠	186,459		186,459										3,046
17 公用汽電共生廠	424,454		424,454										1,793
18 自用汽電共生廠	6,982,224		6,157,776							306,992	420,595	96,861	267,460
19 + 轉變產出合計	7,063,150							4,011,652		1,237,097	1,569,336	245,064	47,987,345
20 轉變產出	7,063,150							4,011,652		1,237,097	1,569,336	245,064	45,629,843
21 產品間轉換(轉入)													2,357,501
22 - 能源部門自用	1,071,983									189,185	815,766	67,033	2,812,343
23 煤礦業													
24 煉焦工場/煤製品業	513,689									165,290	281,366	67,033	
25 高爐工場	558,294									23,895	534,400		
26 油氣礦業													
27 煉油廠													2,807,601
28 發電廠													1,285
29 抽水用電													
30 汽電共生廠													3,435
31 氣體燃料供應業													23
32 - 損耗	93,241							80,815		8	10,161	2,256	
33 = 最終消費	4,817,126		2,811,081	67,327	1			796,077		740,912	322,815	78,914	34,252,554
34 能源消費	4,570,426		2,811,081	27,956	1			588,748		740,912	322,815	78,914	15,032,199
35 工業部門	4,570,426		2,811,081	27,956	1			588,748		740,912	322,815	78,914	1,049,686
36 礦業及土石採取業(不含煤、油及氣)													6,483
37 食品飲料及菸草業	6,780		6,780										51,715
38 紡織成衣及服飾業	209,600		209,600										56,098
39 皮革及毛皮業													3,698
40 木竹及家具業													1,349
41 紙漿、紙及紙製品業	454,256		454,256										36,684
42 印刷業													2,513
43 化學材料製造業	1,223,563		1,223,563										477,829
44 基本化學材料製造業	1,066,828		1,066,828										302,795
45 (基本化學工業)	(39,977)		(39,977)										(28,230)
46 (石油化工原料製造業)	(1,026,851)		(1,026,851)										(274,474)
47 (肥料製造業)													(91)
48 人造纖維製造業	128,973		128,973										32,673
49 樹脂塑膠及橡膠製造業	27,763		27,763										29,482
50 其他化學材料製造業													112,878
51 化學製品製造業	12,955		12,955										18,600
52 橡膠製品製造業													4,109
53 塑膠製品製造業	1,818		1,818										21,183
54 非金屬礦物製品製造業	892,012		892,012										162,094
55 水泥及水泥製品業	865,135		865,135										29,889
56 其他	26,877		26,877										132,204
57 (陶瓷製品製造業)													(17,864)
58 (玻璃及玻璃製品製造業)													(89,742)
59 金屬基本工業	1,759,345			27,956	1			588,748		740,912	322,815	78,914	113,842
60 鋼鐵基本工業	1,759,345			27,956	1			588,748		740,912	322,815	78,914	77,638
61 非鐵金屬基本工業													36,205
62 (鋁業)													(31,080)
63 金屬製品製造業													27,409
64 機械設備製造業													8,448
65 電腦數位及網路電子產品製造業	10,098		10,098										11,823
66 (電子零組件製造業)													(8,934)
67 運輸工具製造業													18,487
68 精密光學醫療器材及鐘錶製造業													33
69 其他工業製品製造工業													912
70 用水供應及污染整治業													11,940
71 營造業													14,437
72 其他													
73 運輸部門													11,669,888
74 國內航空													68,735
75 公路													11,483,270
76 鐵路													11,818
77 管線運輸													
78 國內水運													106,065
79 其他													
80 農業部門													437,735
81 農牧及林業													67,652
82 漁業													370,083
83 服務業部門													945,270
84 批發及零售業													169,497
85 住宿及餐飲業													235,629
86 運輸服務業													32,408
87 倉儲業													153
88 通信業													7,527
89 金融保險及不動產業													686
90 工商服務業													18,731
91 社會服務及個人服務業													7,267
92 公共行政業													376,055
93 其他													97,317
94 住宅部門													929,619
95 非能源消費	246,700			39,371				207,329					19,220,355
96 工業、轉變及能源部門	246,700			39,371				207,329					19,220,355
97 (石化原料用)													(17,119,722)
98 運輸部門													
99 其他													
電能與熱能產出													
1 發電量(千度)	121,036,557		92,247,837		24,987,415					1,408,910	1,942,769	449,626	4,449,497
2 公用發電廠	92,767,238		67,779,822		24,987,415								3,586,105
3 自用發電廠	1,360,521		1,360,521										27,147
4 公用汽電共生廠	1,518,039		1,518,039										5,982
5 自用汽電共生廠	25,390,759		21,589,455							1,408,910	1,942,769	449,626	830,264
6 熱能(公噸)	24,982,263		23,727,086					441,773		651,605	161,798		2,130,512
7 汽電共生廠	24,982,263		23,727,086							441,773	651,605	161,798	2,130,512

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
原油 Crude Oil	煉油廠進料 Refinery Feedstocks	添加劑/含氧化合物 Additives/ Oxygenates	煉油廠 Refinery Gas	液化石油氣 LPG	(丙烷混合氣) (Propane Air)	天然汽油 Natural Gasoline	石油腦 Naphthas	車用汽油 Motor Gasoline	(無鉛汽油) (Unleaded Gasoline)	航空汽油 Aviation Gasoline	航空燃油-汽油型 Jet Fuel- Gasoline Type	航空燃油-煤油型 Jet Fuel- Kerosene Type	煤油 Kerosene	柴油 Diesel Oil
1,681 42,492,492	93,657	290,213 686,439		920,437			9,658,114 161,971	158,887 (3,392,992 (	158,887) 3,392,992)			73,060 888,898		39,905 8,533,299 136,403
-3,853 42,498,026	-2,000 95,657	-155,467 -240,759	-0 0	1,207 919,229			-58,207 9,554,350	3,222 (-3,237,327 (	3,222) -3,237,327)			1,808,782 -43,469 -2,581,152	-354 354	-104,478 -8,525,319
-83,100	0			146,088 5,300			1,938,473 67,258	125,702 (-75,803 (	125,702) -75,803)			13,053 525,514	1	115,737 -312,980
42,581,125	95,657	290,213	195,248	4,087										62,086
42,581,125	95,657	290,213												60,260 215 273 1,338
			195,248	4,087										
		573,999	2,427,467	1,258,287			9,184,269	10,820,065 (8,667,044 (	10,820,065) 8,667,044)			3,362,272 3,362,272	4,306 4,306	13,377,050 13,327,822
		573,999	2,427,467	1,153,101			9,184,269	2,153,021 (2,153,021 (	2,153,021) 2,153,021)					49,228
				105,187				2,992 (2,992 (	2,992) 2,992)				3	29,000
			2,097,615	187,946										
			2,097,615	187,946				1,693 (1,285 (	1,693) 1,285)				3	28,840
								0 14 (	 14)					151 9
		43,027	134,604	1,834,094			16,732,888	7,529,848 (7,529,848 (	7,529,848) 7,529,848)			242,554 242,554	4,656 4,656	4,957,886 4,957,886
		134,604	1,447,261					7,529,848 (4,259 (	7,529,848) 4,259)					
		134,604	272,607									3,075		100,912
			2,132											2,112
			19,219					59 (4 (	59) 4)					12,428
			9,527											459
			2,025											
			304					6 (36 (	6) 36)					12
			2,043											468
			2,300					6 (6 (	6) 6)					83
		134,604	151,273					6 (6 (	6) 6)			55		46,069
		134,478	37,238											44,495
		(134,478) (	21,193) 16,044)										(	44,495)
		126												69
			1,158					6 (6 (	6) 6)			55		1,505
			112,878											
			8,635					5 (9 (	5) 9)			60		1,501
			2,277											24
			9,495					16 (16 (	16) 16)			1		487
			7,843					19 (14 (	19) 14)					11,380
			109											10,217
			7,734					5 (5 (	5) 5)					1,164
		(5,958)											(	309)
		(1,776)					(5) (	(5)					(	789)
			17,703					228 (228 (	228) 228)			6 6		4,929 4,929
			9,851											
			7,852											
		(7,844)												
		20,382						1 (131 (	1) 131)			20 2,374		480 168
		3,936												
		3,421						209 (27) (	209) 27)				(	4,893)
		(1,740)						3,012 (3,012 (	3,012) 3,012)			556		1,958
		9,704												
		33												
		11						23 (348 (	23) 348)					13 1,911
								139 (139 (	139) 139)			3		11,521
				9,530				7,483,248 (7,483,248 (	7,483,248) 7,483,248)			68,735 68,735		4,059,453
				9,530										3,990,491 11,818
														57,144
								8,115 (8,115 (	8,115) 8,115)			160 160		410,222 58,032 352,190
				235,505				34,226 (34,226 (	34,226) 34,226)			170,584	4,656	387,298
			7											108,361
			231,723					117 (505 (	117) 505)				1,590 3,065	547 24,094
			765											153
								5,821 (532 (	5,821) 532)					1,706 151
				76				7,634 (633 (	7,634) 633)					10,792 4,853
			259											
			2					18,728 (257 (	18,728) 257)			170,584		186,229 50,413
			2,673											
			929,619											
		43,027		386,833			16,732,888							
		43,027		386,833			16,732,888							
			(386,833)			(16,732,888)								
			677,942											263,618 241,971 16,673 840
			677,942											4,134
			1,293,934				244,426							3,659
			1,293,934				244,426							3,659

29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
燃料油	白精油	潤滑油	柏油	溶劑油	石蠟	石油焦	其他石油產品	天然氣	(自產)天然氣	(進口)液化天然氣	生質能及廢棄物	生質能	固態生質能	液態生質能
Fuel Oil	White Spirits	Lubricants	Asphalts	Solvents	Paraffin Waxes	Petroleum Coke	Other Petroleum Products	Natural Gas	(Indigenous) Natural Gas	(Imported) LNG	Biomass and Waste	Biomasss	Solid Biomass	Liquid Biomass
								C38 ~ C39			C41 + C45	C42 ~ C44		
833,888		284,289	101,654	88,926	30,167	27,208	60,397	76,641	76,641		1,532,073	169,678	154,132	6
1,562,795	38	585,239	221,421	42,888	1,810	505,683	92,351	24,056,078		24,056,078	38	38		38
1,264,450														
32,363	-383	-5,753	2,501	1,494	-0	1,019	109,824	54,058	144,132	-90,074	-0	-0		-0
-2,025,719	345	-295,198	-122,268	44,544	28,357	-479,495	-141,778	24,078,660	-67,492	24,146,152	1,532,111	169,716	154,132	44
306,700	57	811		544			551	25,892,918		25,892,918	42	42		42
-488,919								54,427	575	53,851	0	0	0	0
900,015							874	19,016,787	1,269	19,015,518	1,108,389	41,782	26,678	
								54,684		54,684				
829,750								18,768,145		18,768,145				
2,831								31,046		31,046	15,104	15,104	396	
1,520								162,913	1,269	161,644	50,921	396		
65,913							874	26,155,479		24,407,705	1,042,363	26,281	26,281	
3,547,815	340	789,400	535,977	48,528		888,461	1,169,107	26,155,479	1,747,774	24,407,705				
3,547,815	340	789,400	535,977	48,528		888,461	1,119,042							
							50,066	26,155,479	1,747,774	24,407,705				
98,832						393,384	2,570	521,674	17,557	504,116				
95,549						393,384	2,570	520,547	17,427	503,120				
								48	48					
3,283								996		996				
								83	83	0				
705,468	628	493,391	413,709	92,528	28,357	15,582	1,023,334	4,748,334	1,660,881	3,087,453	423,680	127,892	127,454	2
705,468							9,923	4,748,334	1,660,881	3,087,453	423,680	127,892	127,454	2
524,307							9,923	3,577,024	667,542	2,909,482	423,678	127,890	127,454	
2,239								287,291	59,334	227,957	19,054	19,054	19,054	
20,010								193,252	72,708	120,544				
46,108								9,064	1,262	7,802				
1,673								4,558	1,839	2,719				
1,027								53,438	14,176	39,262	157,344	108,390	108,390	
34,137								5,850	2,245	3,605				
125								953,517	97,207	856,310	495	446	10	
145,822								611,511	16,087	595,425	436	436		
86,584								(195,492)	(8,314)	(187,178)				
(7,036)								(411,224)	(4,826)	(406,399)	(436)	(436)		
(79,456)								(4,794)	(2,947)	(1,848)				
(91)								61,366	31,379	29,987	10	10	10	
32,478								264,393	45,179	219,214	50			
26,759								16,247	4,564	11,683				
								86,457	31,433	55,025				
8,399								68,856	10,175	58,681				
1,800								189,703	29,888	159,815				
11,185														
142,851								298,453	144,513	153,940				
19,550								12,867	5,034	7,833				
123,301								285,586	139,479	146,106				
(11,597)								(133,662)	(104,915)	(28,747)				
(87,171)								(115,106)	(28,537)	(86,569)				
81,053							9,923	582,860	31,800	551,061				
52,699							9,923	498,095	20,081	478,014				
28,353								84,766	11,719	73,047				
(23,236)								(59,453)	(4,763)	(54,690)				
6,526								260,558	21,993	238,565				
1,839								11,485	7,192	4,293				
3,281								338,071	116,910	221,161				
(2,274)								(258,302)	(114,095)	(144,207)				
3,256								39,114	17,975	21,139				
								63	32	31				
865								180,598	5,751	174,847				
9,681								10,342		10,342	246,785			
2,429								129	55	74				
								3,365	1,054	2,311				
48,921											2	2		2
-0											2	2		2
48,921														
19,238								3,932		3,932				
1,505								3,932		3,932				
17,733														
113,002								396,809	289,432	107,377				
61,129								27,207	24,965	2,242				
1,652								235,436	168,129	67,307				
3,979								1,323	1,228	95				
								72	72					
								104	104					
3								1,530	1,515	15				
229								8,229	7,576	652				
1,522								54,710	38,891	15,819				
514								14,139	9,184	4,956				
43,974								54,058	37,768	16,291				
								770,569	703,906	66,663				
3,504,573							3,364	112,005,936	19,254	111,986,681	3,763,340	158,212	118,278	
3,344,134								111,060,029		111,060,029				
10,474											66,759	39,169		
5,142								100,472		100,472	148,115	1,199	1,199	
144,823							3,364	845,435	19,254	826,180	3,548,467	117,844	117,080	
586,298							2,193	427,351		427,351	788,215	25,582	25,582	
586,298							2,193	427,351		427,351	788,215	25,582	25,582	

44 氣體生質能 Biogas	45 廢棄物 Waste	46 核能 Nuclear	47 水力 Hydro	48 地熱 Geothermal	49 太陽光電 Solar PV	50 風力 Wind	51 電力 Electricity	52 太陽熱能 Solar Thermal	53 熱能 Heat	54 總計 Total C1+C13+C37+C46 +C46 ~ C53	Item
15,540	1,362,395	6,190,507	501,939	21,507	918,221	304,703				3,450,422	1 Indigenous Production
										122,765,690	2 + Import
										16,712,345	3 - Exports
										1,400,852	4 - International Marine Bunkers
										1,808,782	5 - International Civil Aviation
										276,820	6 - Stock Changes
15,540	1,362,395	6,190,507	501,939	21,507	918,221	304,703				106,017,313	7 = Total Primary Energy Supply
	-0						-78,552			28,540,676	8 - Transfers(Intput)
										715,574	9 - Statistical Differences
15,104	1,066,607	6,190,507	765,288	21,507	918,221	304,703				109,410,898	10 - Transformation Input
										5,415,083	11 - Coke Ovens
										4,485,802	12 - Blast Furnaces
										43,021,679	13 - Petroleum Refineries
											14 - Petrochemical Industry
		6,190,507	764,773	19,625	196,976	304,146				46,596,351	15 Public Electricity Plants
15,104			515	1,882	721,245	557				928,808	16 Autoproducer Electricity Plants
	50,525									508,214	17 Public Cogeneration Plants
0	1,016,082									8,454,960	18 Autoproducer Cogeneration Plants
			263,349				24,781,236		2,136,275	108,386,834	19 + Transformation Output Total
			263,349				24,781,236		2,136,275	79,873,853	20 Transformation Output
										28,512,980	21 Transfers(Output)
							1,632,983		496,370	6,535,353	22 - Energy Sector Own Use
											23 Coal Mines
										513,689	24 Coke Ovens
										558,294	25 Blast Furnaces
										4,000	26 Oil and Gas Extraction
							4,000			4,029,878	27 Petroleum Refineries
							862,633			863,966	28 Electricity Plants
							315,821			315,821	29 Electricity to Pump Up
							143,281		58,913	206,625	30 Cogeneration Plants
							42,975			43,080	31 Gas Companies
							826,882			920,122	32 - Losses
436	295,789						22,399,923		1,639,905	68,281,523	33 = Total Final Consumption
436	295,789						22,399,923		1,639,905	48,814,468	34 Energy Consumption
436	295,789						13,492,409		1,639,809	24,753,032	35 Industrial Sector
							23,672			30,155	36 Mining and Quarrying(excluding coal,oil and gas)
							407,628		10,402	782,869	37 Food, Beverage and Tobacco
							405,567		48,840	913,358	38 Textile,Wearing Apparel and Accessories
							12,611			25,373	39 Leather and Fur
							32,866			38,773	40 Wood, Bamboo and Furniture
	48,954						303,170		7,193	1,012,085	41 Pulp, Paper and Paper Products
							45,012			53,375	42 Printing
436	50						2,596,839		1,461,811	6,714,054	43 Chemical Materials
436							1,922,950		1,361,074	5,265,594	44 Basic Chemical Materials
(436)							(586,241)	(281,993)	(1,131,933)		45 (Basic Industrial Chemicals)
							(1,322,114)	(1,079,081)	(4,114,180)		46 (Petrochemical Materials)
							(14,595)	(19,481)	(19,481)		47 (Chemical Fertilizers)
							260,736		73,239	556,997	48 Artificial Fibers
							291,494		485	613,667	49 Resin, Plastics and Rubber
							121,659		27,012	277,796	50 Other Chemical Materials
							114,486		13,306	245,805	51 Chemical Products
							85,816			158,782	52 Rubber Products
							462,385		56,957	732,046	53 Plastic Products
							478,663			1,831,221	54 Non-metallic Mineral Products
							163,324			1,071,215	55 Cement and Cement Products
							315,339			760,006	56 Others
							(35,829)	(187,155)			57 (Pottery, China and Earthenware)
							(230,910)	(435,759)			58 (Glass and Glass Products)
							1,561,133	8,479		4,025,659	59 Basic Metal Industries
							1,371,441	4,517		3,711,035	60 Iron and Steel
							189,692	3,962		314,624	61 Others
							(71,369)	(3,962)	(165,863)		62 (Aluminum)
							606,409	1,185		895,561	63 Fabricated Metal Products
							244,798			264,732	64 Machinery and Equipments
							5,340,847			5,732,291	65 Electrical and Electronic Machinery
							(4,954,112)	(31,454)	(5,252,802)		66 (Electronic Parts)
							242,354			299,955	67 Transport Equipments
							99,732			99,828	68 Precision Instruments
							104,261		183	285,955	69 Miscellaneous Industries
							224,982			494,049	70 Water Supply and Remediation Activities
							99,175			113,742	71 Construction
										3,365	72 Non-Specified
							144,343			11,814,234	73 Transport Sector
										68,735	74 Domestic Air
							16,140			11,499,412	75 Road
							125,979			137,797	76 Rail
							2,225			2,225	77 Pipeline Transport
										106,065	78 Internal Navigation
											79 Non-Specified
							280,571			722,238	80 Agriculture Sector
							193,274			264,858	81 Agriculture, Animal Husbandry and Forestry
							87,297			457,379	82 Fishing and Aquaculture
							4,098,186		96	5,440,361	83 Service Sector
							986,838			1,183,543	84 Wholesale and Retail
							645,267		96	1,116,428	85 Hotels and Restaurants
							170,750			204,481	86 Transport Services
							110,502			110,727	87 Storage and Warehousing
							226,266			233,898	88 Communication
							188,750			190,965	89 Finance, Insurance and Real Estate
							152,668			179,628	90 Business Services
							818,116			880,093	91 Social and Personal Services
							391,151			781,345	92 Public Administration
							407,877			559,252	93 Activities Not Adequately Defined
							4,384,414			6,084,603	94 Residential Sector
										19,467,055	95 Non-Energy Use
										19,467,055	96 in Industry/Transf./Energy
										(17,119,722)	97 (Feedstocks)
											98 in Transport
											99 in Other Sectors
											Electricity and Heat Output
39,933	3,605,128	23,754,824	8,898,696	25,008	10,676,988	3,543,061				288,153,906	1 Electricity Generated (MWh)
		23,754,824	8,892,710	22,819	2,290,413	3,536,583				245,910,721	2 Public Electricity Plants
39,169	27,589		5,986	2,188	8,386,575	6,478				9,855,653	3 Autoproducer Electricity Plants
	146,916									1,772,607	4 Public Cogeneration Plants
764	3,430,623									30,614,925	5 Autoproducer Cogeneration Plants
	762,633									28,328,341	6 Heat Generated (MT)
	762,633									28,328,341	7 Cogeneration Plants

附件 3

我國能源部門燃料燃燒二氧化碳排放指標

年度	CO ₂ 排放量		碳排放密集度		人均排放	
	萬公噸	成長率(%)	公斤 CO ₂ /元	成長率(%)	公噸 CO ₂ /人	成長率(%)
1990	10,947	-	0.02121	-	5.41	-
1991	11,844	8.20	0.02118	-0.16	5.79	7.01
1992	12,606	6.43	0.02081	-1.74	6.10	5.41
1993	13,521	7.26	0.02090	0.41	6.49	6.26
1994	14,310	5.84	0.02057	-1.55	6.80	4.90
1995	15,081	5.39	0.02036	-1.04	7.11	4.49
1996	15,858	5.15	0.02016	-0.97	7.41	4.30
1997	17,084	7.73	0.02048	1.58	7.92	6.78
1998	18,152	6.25	0.02088	1.97	8.34	5.28
1999	19,045	4.92	0.02053	-1.70	8.68	4.08
2000	20,872	9.60	0.02116	3.09	9.43	8.74
2001	21,255	1.84	0.02186	3.28	9.54	1.14
2002	22,012	3.56	0.02146	-1.82	9.81	2.86
2003	22,984	4.41	0.02150	0.18	10.19	3.80
2004	23,993	4.39	0.02098	-2.40	10.59	4.00
2005	24,796	3.35	0.02058	-1.93	10.91	2.97
2006	25,533	2.97	0.02003	-2.64	11.19	2.55
2007	25,921	1.52	0.01903	-4.99	11.31	1.11
2008	24,754	-4.51	0.01803	-5.26	10.76	-4.84
2009	23,587	-4.71	0.01746	-3.15	10.22	-5.05
2010	25,171	6.72	0.01690	-3.20	10.88	6.43
2011	25,710	2.14	0.01665	-1.48	11.08	1.91
2012	25,320	-1.52	0.01605	-3.66	10.88	-1.84
2013	25,411	0.36	0.01571	-2.07	10.89	0.04
2014	25,848	1.72	0.01526	-2.86	11.04	1.46
2015	25,848	0.00	0.01504	-1.45	11.02	-0.25
2016	26,298	1.74	0.01498	-0.41	11.18	1.51
2017	26,946	2.46	0.01486	-0.82	11.44	2.29
2018	26,746	-0.74	0.01435	-3.43	11.34	-0.85
2019	25,908	-3.13	0.01348	-6.01	10.98	-3.20
2020	25,769	-0.54	0.01297	-3.79	10.93	-0.48
2021	26,728	3.72	0.01262	-2.72	11.39	4.22
2022	25,827	-3.37	0.01189	-5.81	11.08	-2.76
2023	25,065	-2.95	0.01139	-4.18	10.74	-3.04
年均成長率(%)						
2023 相較 2005	1.09		-44.64		-1.57	
2023 相較 2017	-6.28		-20.61		-5.33	
2023 相較 2022	-2.95		-4.18		-3.04	

註：本表排放指標係依據燃料燃燒二氧化碳排放量計算，未包括其他溫室氣體。

資料來源：經濟部能源署，2023 年燃料燃燒之二氧化碳排放量統計與分析，2024 年 8 月。

附件 4

歷年各部門燃料燃燒二氧化碳排放量（含間接排放）

單位：千公噸二氧化碳當量

年度	能源部門	工業部門	運輸部門	農業部門	服務業部門	住宅部門	總排放量
1990	15,569	50,485	19,729	3,601	9,414	10,667	109,465
1991	16,025	55,082	20,975	3,465	10,733	12,163	118,443
1992	15,742	58,902	24,138	3,405	10,966	12,906	126,058
1993	17,213	61,829	26,212	3,533	12,062	14,357	135,206
1994	19,122	64,214	27,645	3,586	13,509	15,028	143,103
1995	20,194	67,413	28,929	3,730	14,128	16,416	150,810
1996	21,152	70,273	29,920	3,843	15,749	17,641	158,579
1997	23,959	77,213	30,703	3,589	16,824	18,548	170,835
1998	25,615	80,660	32,035	3,079	18,624	21,507	181,518
1999	26,055	86,612	32,982	3,138	19,604	22,055	190,446
2000	28,541	97,283	33,452	3,576	21,935	23,936	208,724
2001	29,659	98,215	33,509	3,661	23,031	24,478	212,554
2002	29,296	102,966	34,799	3,718	24,112	25,234	220,123
2003	30,969	106,769	34,768	4,169	26,275	26,891	229,841
2004	32,735	112,782	36,144	4,355	27,055	26,859	239,929
2005	35,233	114,369	37,157	4,003	28,577	28,618	247,956
2006	36,815	119,780	37,103	3,102	29,750	28,781	255,330
2007	37,617	124,555	35,904	2,546	29,600	28,994	259,215
2008	34,128	118,534	33,847	2,980	29,429	28,619	247,537
2009	32,871	109,860	34,162	2,563	28,115	28,295	235,868
2010	34,734	122,639	35,288	2,503	28,601	27,943	251,708
2011	35,081	127,001	35,770	2,574	28,251	28,420	257,097
2012	34,627	125,706	34,956	2,687	27,754	27,471	253,201
2013	34,372	127,630	34,893	2,696	27,513	27,005	254,109
2014	37,286	127,370	35,375	2,805	27,910	27,734	258,480
2015	37,149	125,756	36,241	2,812	28,581	27,936	258,475
2016	37,282	127,008	37,336	2,817	29,022	29,518	262,982
2017	37,866	130,626	37,026	2,876	30,410	30,657	269,461
2018	37,963	132,865	36,008	3,085	28,544	28,994	267,458
2019	37,525	127,041	36,239	3,061	27,214	28,004	259,083
2020	36,197	125,933	36,506	2,966	26,785	29,307	257,693
2021	37,045	135,192	34,682	2,993	26,612	30,755	267,281
2022	36,641	126,752	35,514	2,977	27,076	29,311	258,271
2023	33,845	120,779	35,535	3,154	27,726	29,610	250,651

註：本表僅為燃料燃燒二氧化碳排放統計結果，不包含燃料燃燒甲烷、氧化亞氮排放與生質能燃燒溫室氣體排放。

資料來源：經濟部能源署，2023年燃料燃燒之二氧化碳排放量統計與分析，2024年8月。

歷年各部門燃料燃燒甲烷排放量（含間接排放）

單位：千公噸二氧化碳當量

年度	能源部門	工業部門	運輸部門	農業部門	服務業部門	住宅部門	總排放量
1990	8	63	170	11	17	14	284
1991	8	68	183	11	18	15	303
1992	8	72	209	10	16	15	331
1993	9	74	226	11	15	16	350
1994	10	77	242	11	18	17	374
1995	11	82	256	11	17	19	396
1996	11	86	268	11	20	20	417
1997	12	93	275	10	19	21	430
1998	13	98	288	8	22	23	453
1999	15	113	298	9	24	25	485
2000	17	128	303	10	26	27	511
2001	18	140	305	10	28	28	529
2002	18	143	312	10	30	29	541
2003	20	149	321	12	34	32	568
2004	21	155	331	12	35	31	585
2005	22	156	340	11	35	32	596
2006	22	162	334	7	37	32	594
2007	22	164	325	5	37	33	587
2008	20	158	309	7	38	33	565
2009	19	149	315	6	36	32	556
2010	19	162	319	5	36	32	572
2011	18	170	323	6	34	32	582
2012	18	167	318	6	34	31	574
2013	17	169	318	6	34	31	576
2014	19	167	320	6	34	31	577
2015	19	168	328	6	36	32	589
2016	18	167	338	6	35	33	597
2017	19	163	331	6	35	33	587
2018	18	155	321	7	33	32	567
2019	18	151	322	7	33	31	563
2020	17	150	325	6	32	32	564
2021	17	155	302	6	32	32	544
2022	16	157	310	6	27	26	542
2023	14	153	311	7	28	26	539

資料來源：經濟部能源署，2023年燃料燃燒之二氧化碳排放量統計與分析，2024年8月。

歷年各部門燃料燃燒氧化亞氮排放量（含間接排放）

單位：千公噸二氧化碳當量

年度	能源部門	工業部門	運輸部門	農業部門	服務業部門	住宅部門	總排放量
1990	25	138	259	8	26	23	478
1991	25	151	275	8	30	26	516
1992	27	170	315	8	33	30	583
1993	31	176	340	9	37	35	628
1994	35	18	357	9	41	37	664
1995	38	194	372	9	43	41	698
1996	43	211	381	10	51	48	743
1997	46	232	390	9	56	51	785
1998	51	247	406	8	61	61	834
1999	57	275	418	8	66	63	888
2000	69	316	424	10	76	72	966
2001	74	339	423	10	81	77	1,004
2002	76	354	442	10	88	82	1,051
2003	85	380	441	12	98	91	1,107
2004	87	402	457	12	99	89	1,147
2005	82	422	470	11	104	95	1,184
2006	88	441	470	9	108	96	1,213
2007	91	459	454	8	108	98	1,218
2008	82	443	428	9	107	95	1,164
2009	82	418	430	8	102	95	1,135
2010	80	448	446	8	99	90	1,170
2011	79	461	453	8	98	91	1,168
2012	77	457	445	8	97	88	1,170
2013	71	463	444	8	95	86	1,166
2014	76	456	449	8	94	87	1,169
2015	75	446	459	8	94	86	1,168
2016	74	445	471	8	96	91	1,185
2017	78	451	466	8	98	93	1,194
2018	78	456	456	9	93	89	1,181
2019	75	439	460	9	89	87	1,159
2020	74	432	463	9	85	89	1,152
2021	72	450	440	8	83	92	1,145
2022	69	434	449	8	78	80	1,117
2023	64	420	447	8	81	82	1,102

資料來源：經濟部能源署，2023年燃料燃燒之二氧化碳排放量統計與分析，2024年8月。

歷年各部門生質能燃燒二氧化碳排放量（含間接排放）

單位：千公噸二氧化碳當量

年度	能源部門	工業部門	運輸部門	農業部門	服務業部門	住宅部門	總排放量
1990	17	93	0	3	30	35	179
1991	21	120	0	4	40	44	229
1992	32	215	1	6	64	68	386
1993	32	205	1	6	64	67	375
1994	51	312	1	8	94	95	561
1995	78	486	1	12	148	150	876
1996	94	582	2	15	177	182	1,051
1997	122	1,279	3	19	243	233	1,899
1998	132	1,433	3	17	264	279	2,129
1999	194	1,934	5	27	400	405	2,965
2000	190	1,996	5	26	103	399	3,020
2001	258	2,410	6	32	514	509	3,729
2002	237	2,538	6	30	499	487	3,797
2003	326	3,109	8	41	677	663	4,824
2004	341	3,421	9	45	753	713	5,283
2005	346	3,525	10	44	780	749	5,454
2006	359	3,684	13	46	805	750	5,658
2007	361	3,729	19	46	789	745	5,689
2008	328	3,633	57	48	764	712	5,542
2009	305	3,237	83	48	714	690	5,078
2010	291	3,548	112	48	707	661	5,367
2011	282	3,411	140	51	685	654	5,222
2012	304	3,620	196	61	757	702	5,641
2013	305	3,744	223	65	769	714	5,820
2014	303	3,767	116	54	737	708	5,685
2015	314	3,871	88	54	784	741	5,852
2016	328	4,003	46	52	831	819	6,078
2017	318	3,781	34	49	775	763	5,721
2018	306	3,781	25	47	750	746	5,655
2019	322	3,836	26	50	767	775	5,776
2020	310	3,855	25	53	741	804	5,788
2021	277	3,804	23	49	669	774	5,597
2022	268	3,610	24	46	673	719	5,340
2023	294	3,461	30	52	770	820	5,427

資料來源：經濟部能源署，2023年燃料燃燒之二氧化碳排放量統計與分析，2024年8月。