



# 2024 Energy Info. Korea



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### 01

#### Changes in statistics of this book according to the revision of the energy balance

- The Korea Energy Economics Institute (KEEI) has completely revised Energy balance, which serves as a framework for producing energy statistics on energy supply and demand. The revised energy balance has been approved as the new method for compiling energy statistics (Oct.17, 2022).
  - Due to its partial modifications since its establishment in the 1980s, the existing energy balances (hereinafter referred to as the previous energy balance) had limitations in accurately reflecting the complex and diversified energy supply and demand situation in recent years.
  - Accordingly, the KEEI has established revised energy balances that incorporate international standards (IEA standards) while adopting a structure and compiling methodologies that can most realistically reflect the energy supply and demand of the country.
  - The revised energy balances address the issues of the previous energy balances by adding and disaggregating energy commodities and energy flows in a manner that adequately reflects the reality, thereby enhancing the accuracy of the statistics.
  - The revised energy balances comprise two types of balances: extended balances, which offer a detailed information of the supply and demand flows of energy commodities over a one-year period, and simple balances, which are aggregated monthly to provide a rapid assessment of the supply and demand flow of energy commodities.
    - Previous energy balances: 29 energy commodities, 41 energy flows
    - Revised energy balances (extended): 58 energy commodities, 88 energy flows
    - Revised energy balances (simple): 41 energy commodities, 48 energy flows
- With the approval of the revised energy balances, KEEI has incorporated the statistics compiled using the revised energy balances in the Monthly Energy Statistics Report for Dec. 2022 and the Yearbook of Energy Statistics for 2022.
  - The Monthly Energy Statistics Report and the Yearbook of Energy Statistics are compiled in the form of simple energy balances to ensure timeliness and enhance users' comprehension of the energy statistics.
  - Also this book is compiled in the form of simple energy balances.

**02**

Figures in this book are obtained from related agencies and institutions. And on the data source, see the notation in the table.

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**03**

The data can be revised by the agencies and institutions concerned.

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**04**

From 2007, figures are based on revised calorific value every 5 years.

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**05**

#### Abbreviation

TPES	Total Primary Energy Supply
TFC	Total Final Consumption
GDP	Gross Domestic Product
Pop.	Population
mil.	million
bil.	billion
tril.	trillion
Cons.	Consumption

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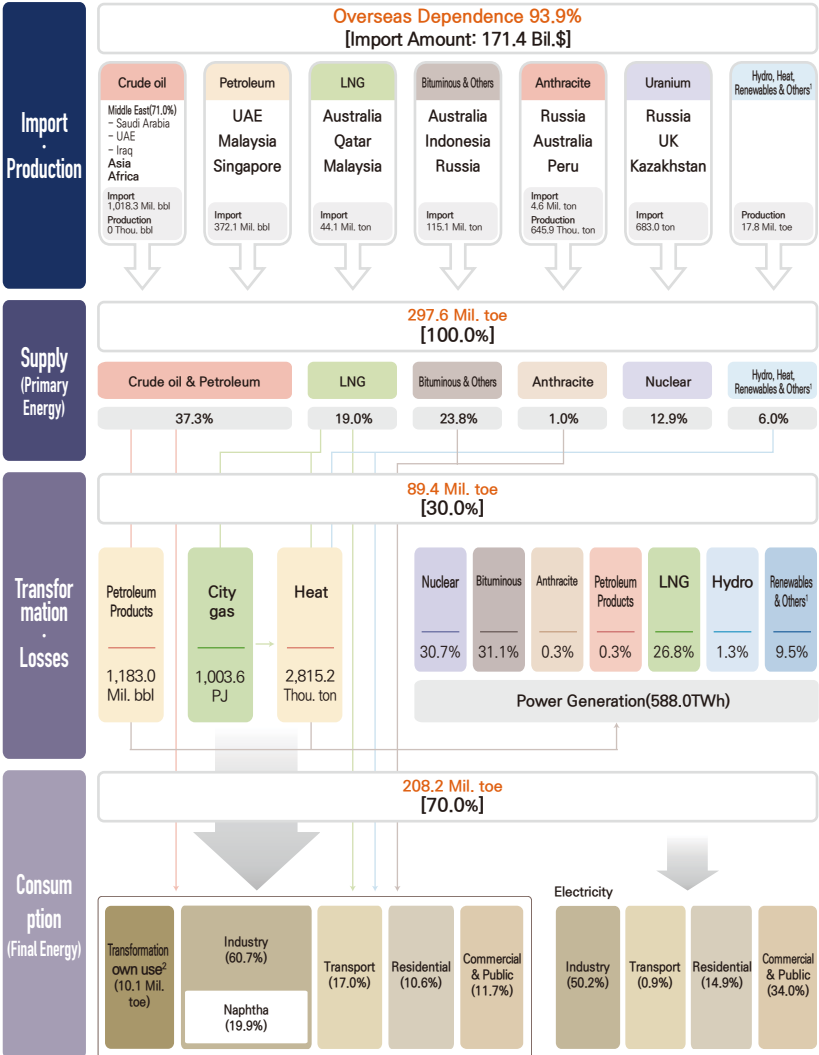
**06**

#### Symbols used in tables are as follow

-	Not reported
p	Preliminary
e	Estimate

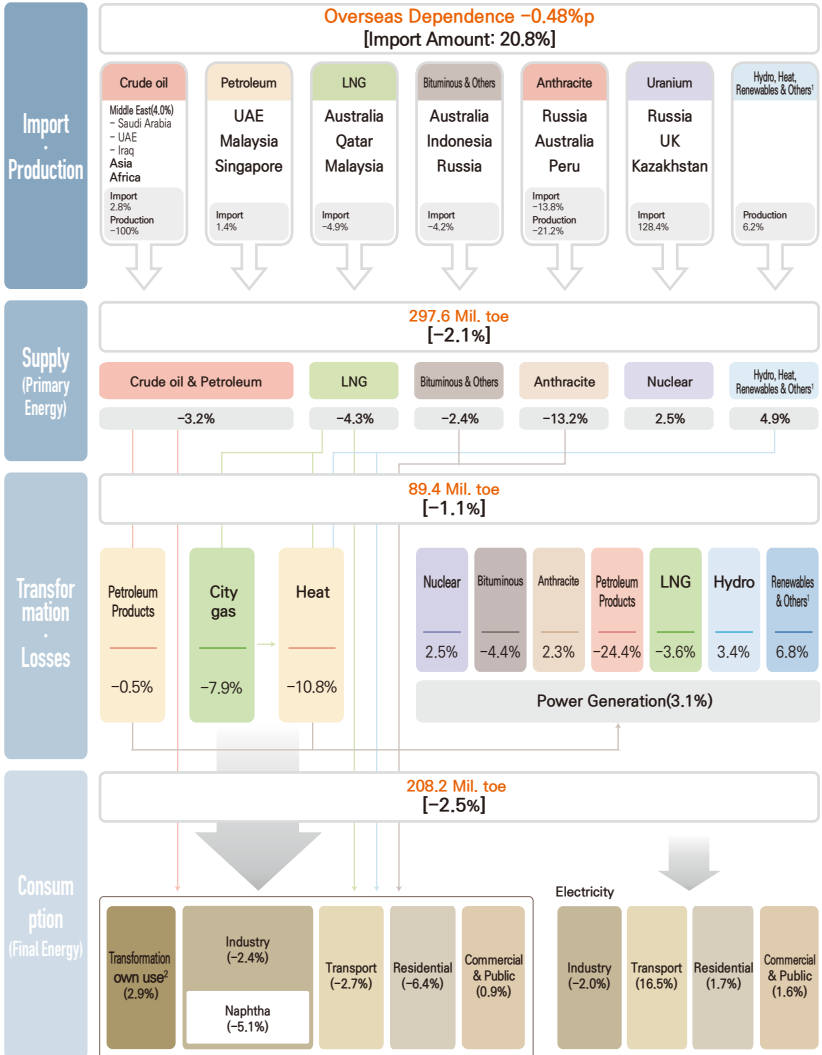


## Energy Flow



1. Renewables & Others: Biofuels and waste, Geothermal, solar, etc. Other sources

## ◦ Energy Flow (Year-Over-Year)



2. Transformation own use (energy industry own use) is distinct from the transformation process because it is not converted into other energy commodities and is not included in the final consumption, which is energy consumption for industrial activities.

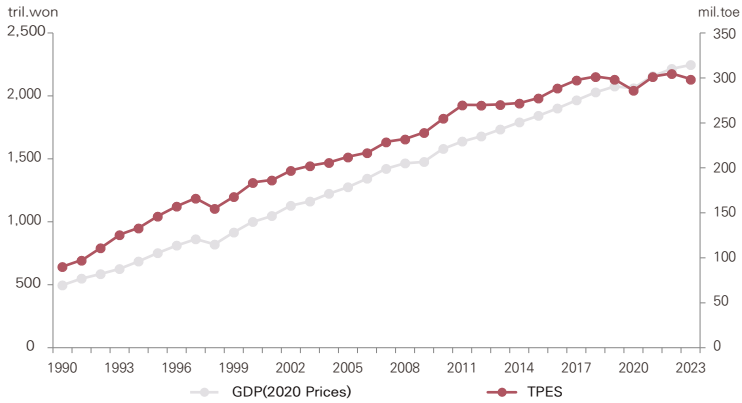


1. Major Energy Indicators
2. Transformation
3. Energy Production, Imports & Exports
4. Total Primary Energy Supply
5. Total Final Consumption

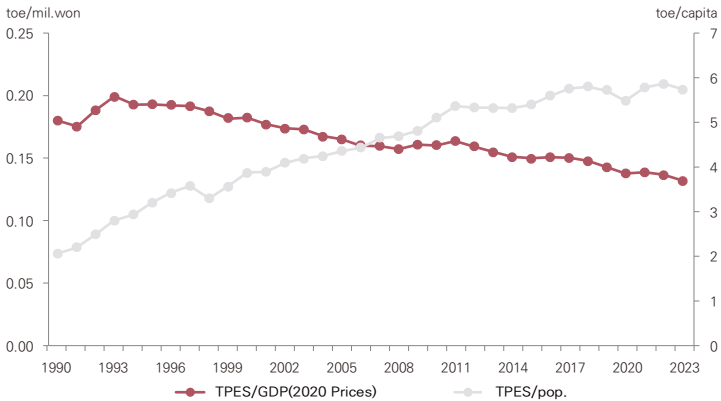


# 01 Major Energy Indicators

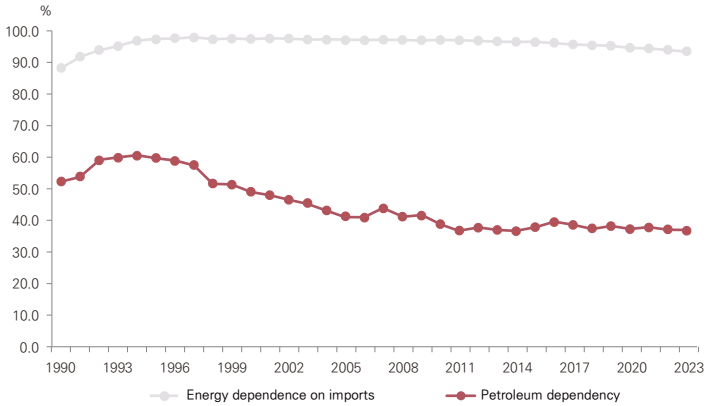
## ○ Trends in TPES and GDP



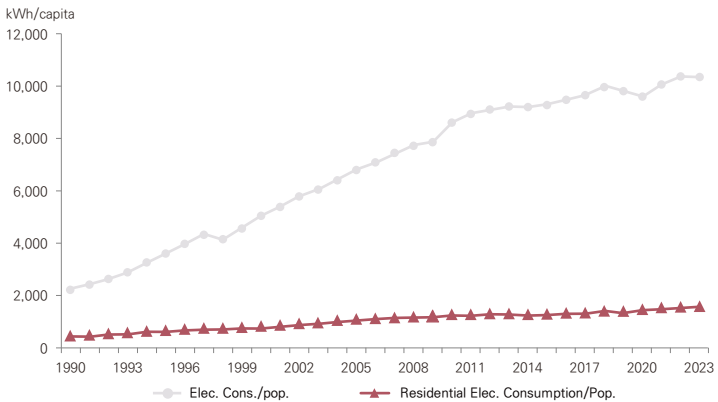
## ○ TPES per Capita and GDP



## ○ Energy Overseas Dependence and Petroleum Dependence



## ○ Electricity Consumption per Capita



# 01 Major Energy Indicators

## 1. Major Energy Indicators

	Population <sup>1</sup>	GDP (2020 prices)		Total Primary Energy Supply(TPES) <sup>2</sup>		Total Final Consumption(TFC) <sup>2</sup>		CO <sub>2</sub> Emissions	
	(thou. person)	(bil. won)	Growth Rates(%)	(mil. toe)	Growth Rates(%)	(mil. toe)	Growth Rates(%)	(mil. tCO <sub>2</sub> )	Growth Rates(%)
1990	42,869	495,738	10.0	89.7	-	71.1	-	231.8	14.1
1991	43,296	549,650	10.9	96.8	7.9	80.2	12.7	255.8	10.4
1992	43,748	584,561	6.4	110.5	14.2	90.0	12.2	275.9	7.9
1993	44,195	625,450	7.0	125.0	13.1	99.4	10.5	302.9	9.8
1994	44,642	684,066	9.4	132.5	6.0	109.3	10.0	327.4	8.1
1995	45,093	750,666	9.7	145.6	9.9	116.5	6.6	357.3	9.1
1996	45,525	810,647	8.0	156.8	7.7	125.6	7.8	381.7	6.8
1997	45,954	861,573	6.3	165.8	5.7	134.5	7.1	402.3	5.4
1998	46,287	819,021	-4.9	154.2	-7.0	122.0	-9.3	343.7	-14.6
1999	46,617	914,169	11.6	167.3	8.5	133.0	9.0	378.2	10.0
2000	47,008	998,289	9.2	183.1	9.4	141.0	6.0	422.5	11.7
2001	47,370	1,045,468	4.7	185.8	1.5	143.6	1.9	431.0	2.0
2002	47,645	1,126,429	7.7	196.5	5.7	150.4	4.7	433.9	0.7
2003	47,892	1,161,063	3.1	201.7	2.7	154.1	2.5	436.0	0.5
2004	48,083	1,221,249	5.2	205.2	1.7	156.6	1.6	459.8	5.5
2005	48,185	1,274,473	4.4	211.3	3.0	158.9	1.5	457.7	-0.5
2006	48,438	1,341,320	5.2	216.3	2.3	162.9	2.5	464.7	1.5
2007	48,684	1,419,679	5.8	228.1	5.5	167.6	2.9	477.4	2.7
2008	49,055	1,462,332	3.0	231.3	1.4	169.0	0.9	488.8	2.4
2009	49,308	1,474,321	0.8	238.5	3.1	170.1	0.6	502.1	2.7
2010	49,554	1,577,253	7.0	254.4	6.7	184.4	8.4	550.9	9.7
2011	49,937	1,635,423	3.7	269.2	5.8	193.6	5.0	573.8	4.1
2012	50,200	1,677,088	2.5	269.0	-0.1	193.6	0.0	575.5	0.3
2013	50,429	1,732,287	3.3	269.5	0.2	194.8	0.6	574.6	-0.2
2014	50,747	1,787,975	3.2	271.3	0.6	195.8	0.5	562.7	-2.1
2015	51,015	1,840,189	2.9	276.8	2.0	198.6	1.4	582.0	3.4
2016	51,218	1,898,551	3.2	288.0	4.1	206.7	4.1	588.8	1.2
2017	51,362	1,963,732	3.4	296.7	3.0	213.1	3.1	599.8	1.9
2018	51,585	2,026,102	3.2	300.8	1.4	214.4	0.6	605.5	0.9
2019	51,765	2,072,982	2.3	297.6	-1.0	212.1	-1.1	587.2	-3.0
2020	51,836	2,058,467	-0.7	285.6	-4.1	204.0	-3.9	546.8	-6.9
2021	51,770	2,153,423	4.6	300.5	5.3	216.2	6.0	558.6	2.2
2022	51,673	2,212,159	2.7	304.0	1.1	213.6	-1.2	548.6	-1.8
2023	51,713	2,243,220	1.4	297.6	-2.1	208.2	-2.5	549.6	0.2

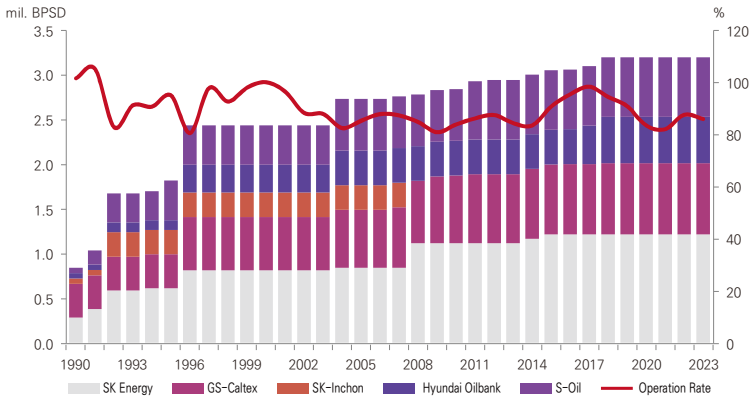
1. Mid-year estimates

2. From 2007, figures are based on revised calorific value every 5 years.

TPES /GDP		CO <sub>2</sub> Emissions/ GDP	TPES/ Population	CO <sub>2</sub> Emissions/ Population	Elec. Consumption/ Population	Residential Elec. Consumption/ Population	
(toe/mil. won)	(toe/1,000\$)	(tCO <sub>2</sub> /mil. won)	(toe/capita)	(tCO <sub>2</sub> /capita)	(kWh/capita)	(kWh/capita)	
0.181	0.213	0.47	2.09	5.41	2,169	414	1990
0.176	0.208	0.47	2.24	5.91	2,373	450	1991
0.189	0.223	0.47	2.53	6.31	2,592	498	1992
0.200	0.236	0.48	2.83	6.85	2,843	541	1993
0.194	0.229	0.48	2.97	7.33	3,229	595	1994
0.194	0.229	0.48	3.23	7.92	3,567	628	1995
0.193	0.228	0.47	3.45	8.38	3,940	673	1996
0.192	0.227	0.47	3.61	8.75	4,290	708	1997
0.188	0.222	0.42	3.33	7.43	4,116	711	1998
0.183	0.216	0.41	3.59	8.11	4,524	742	1999
0.183	0.216	0.42	3.89	8.99	5,015	789	2000
0.178	0.210	0.41	3.92	9.10	5,357	828	2001
0.174	0.206	0.39	4.12	9.11	5,756	887	2002
0.174	0.205	0.38	4.21	9.10	6,020	931	2003
0.168	0.198	0.38	4.27	9.56	6,373	1,011	2004
0.166	0.196	0.36	4.39	9.50	6,774	1,056	2005
0.161	0.190	0.35	4.46	9.59	7,064	1,084	2006
0.161	0.190	0.34	4.69	9.81	7,430	1,113	2007
0.158	0.187	0.33	4.72	9.97	7,696	1,146	2008
0.162	0.191	0.34	4.84	10.18	7,837	1,168	2009
0.161	0.190	0.35	5.13	11.12	8,587	1,235	2010
0.165	0.194	0.35	5.39	11.49	8,924	1,233	2011
0.160	0.189	0.34	5.36	11.46	9,095	1,266	2012
0.156	0.184	0.33	5.34	11.39	9,210	1,269	2013
0.152	0.179	0.31	5.35	11.09	9,189	1,235	2014
0.150	0.177	0.32	5.43	11.41	9,261	1,250	2015
0.152	0.179	0.31	5.62	11.50	9,465	1,292	2016
0.151	0.178	0.31	5.78	11.68	9,640	1,295	2017
0.148	0.175	0.30	5.83	11.74	9,949	1,370	2018
0.144	0.169	0.28	5.75	11.34	9,800	1,361	2019
0.139	0.164	0.27	5.51	10.55	9,586	1,429	2020
0.140	0.165	0.26	5.81	10.79	10,051	1,498	2021
0.137	0.162	0.25	5.88	10.62	10,361	1,520	2022
0.133	0.157	0.24	5.75	10.63	10,339	1,545	2023

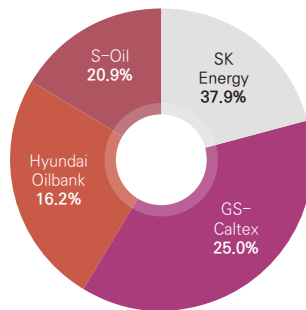
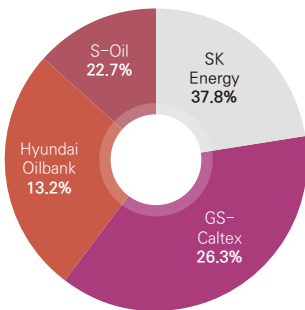
Source: IEA 「CO<sub>2</sub> Emissions from Fuel Combustion」, IEA 「World Energy Balance」, Statistics Korea, Bank of Korea

## ◦ Refinery Capacities



◦ 2013 2,949 thou. BPSD

◦ 2023 3,204 thou. BPSD

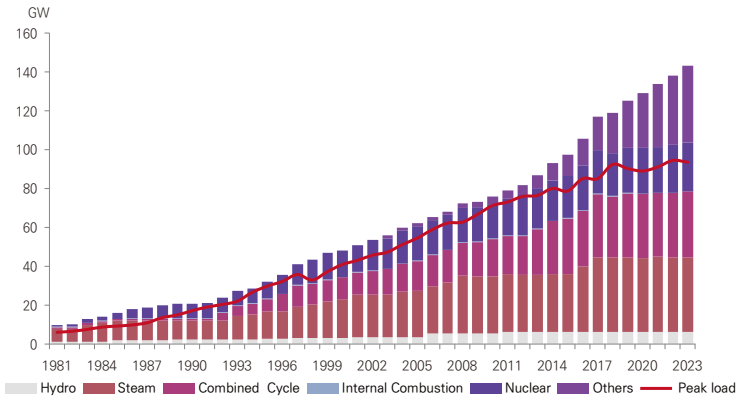


## 2-1. Refinery Capacities

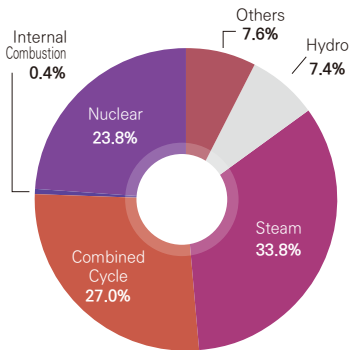
	Crude Oil refinery inputs	Product Production	Operation Rate	Refining Capacity(1,000 BPSD)					
	(1,000 Bbl)	(1,000 Bbl)	(%)	Total	SK Energy	GS-Caltex	SK-Inchon	Hyundai Oilbank	S-Oil
1990	313,973	300,671	101.78	840	280	380	60	60	60
1991	398,877	403,172	105.36	1,035	375	380	60	60	160
1992	510,450	498,179	82.97	1,675	585	380	275	110	325
1993	564,548	532,859	91.36	1,675	585	380	275	110	325
1994	576,085	568,034	90.87	1,700	610	380	275	110	325
1995	649,293	630,447	95.13	1,818	610	380	275	110	443
1996	734,715	711,091	80.70	2,438	810	600	275	310	443
1997	877,440	877,979	97.99	2,438	810	600	275	310	443
1998	833,014	831,686	92.81	2,438	810	600	275	310	443
1999	879,466	882,503	98.14	2,438	810	600	275	310	443
2000	897,543	898,150	100.26	2,438	810	600	275	310	443
2001	869,395	875,425	96.66	2,438	810	600	275	310	443
2002	809,469	818,580	88.47	2,438	810	600	275	310	443
2003	794,658	797,438	88.05	2,438	810	600	275	310	443
2004	832,238	841,987	82.61	2,735	840	650	275	390	580
2005	860,864	886,181	85.40	2,735	840	650	275	390	580
2006	881,453	894,250	87.99	2,735	840	650	275	390	580
2007	882,291	890,883	87.43	2,765	840	680	275	390	580
2008	863,787	875,161	84.93	2,785	1,115	700	-	390	580
2009	835,024	846,060	81.02	2,835	1,115	750	-	390	580
2010	869,469	900,247	84.00	2,845	1,115	760	-	390	580
2011	926,980	944,587	86.32	2,934	1,115	775	-	390	654
2012	955,613	978,095	87.65	2,949	1,115	775	-	390	669
2013	922,923	967,180	84.50	2,949	1,115	775	-	390	669
2014	939,156	988,461	83.62	3,009	1,165	785	-	390	669
2015	1,030,109	1,073,059	90.90	3,059	1,215	785	-	390	669
2016	1,085,610	1,118,794	95.61	3,064	1,215	790	-	390	669
2017	1,153,915	1,185,996	98.53	3,105	1,215	790	-	431	669
2018	1,175,276	1,207,900	94.60	3,204	1,215	800	-	520	669
2019	1,159,008	1,196,345	91.00	3,204	1,215	800	-	520	669
2020	1,089,285	1,112,863	83.60	3,204	1,215	800	-	520	669
2021	1,089,068	1,113,422	82.21	3,204	1,215	800	-	520	669
2022	1,155,425	1,189,404	87.74	3,204	1,215	800	-	520	669
2023	1,149,566	1,183,019	86.08	3,204	1,215	800	-	520	669

Source: Korea National Oil Corporation

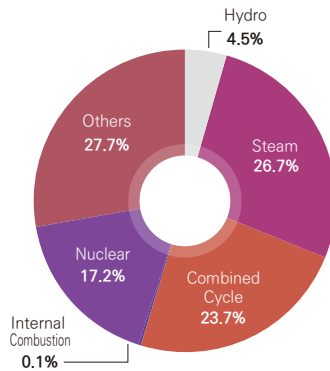
## Generating Facilities



○ 2013 86,969 MW



○ 2023 143,381 MW



## 2-2. Generating Facilities

Unit: MW

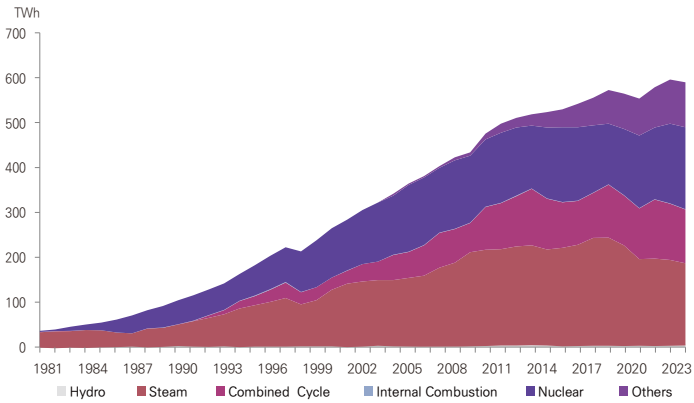
	Total	Hydro	Steam	Combined Cycle	Internal Combustion	Nuclear	Others	Peak load
1981	9,835	1,202	6,812	920	314	587	-	6,144
1982	10,304	1,202	6,722	920	194	1,266	-	6,661
1983	13,115	1,202	8,882	920	196	1,916	-	7,602
1984	14,190	1,202	9,942	920	211	1,916	-	8,811
1985	16,137	2,223	9,912	920	216	2,866	-	9,349
1986	18,060	2,225	9,912	920	238	4,766	-	9,915
1987	19,021	2,232	9,912	920	240	5,716	-	11,039
1988	19,944	2,236	9,912	895	235	6,666	-	13,658
1989	20,997	2,339	9,912	840	290	7,616	-	15,058
1990	21,021	2,340	9,912	840	313	7,616	-	17,252
1991	21,111	2,445	9,912	760	378	7,616	-	19,124
1992	24,120	2,498	9,912	3,706	388	7,616	-	20,438
1993	27,654	2,504	11,972	5,173	389	7,616	-	22,112
1994	28,750	2,493	13,032	5,334	275	7,616	-	26,696
1995	32,184	3,093	14,032	6,184	259	8,616	-	29,878
1996	35,715	3,094	14,022	8,719	264	9,616	-	32,282
1997	41,042	3,115	16,078	11,269	265	10,316	-	35,851
1998	43,406	3,131	17,209	10,785	265	12,016	-	32,996
1999	46,978	3,148	18,909	10,935	271	13,716	-	37,293
2000	48,451	3,149	20,059	11,257	271	13,716	-	41,007
2001	50,859	3,876	21,559	11,436	273	13,716	-	43,125
2002	53,801	3,876	21,749	12,186	275	15,716	-	45,773
2003	56,053	3,877	21,749	13,086	246	15,716	1,380	47,385
2004	59,961	3,879	23,311	14,313	252	16,716	1,489	51,264
2005	62,258	3,883	23,811	15,015	297	17,716	1,537	54,631
2006	65,514	5,485	24,391	16,004	297	17,716	1,622	58,994
2007	68,268	5,492	26,491	16,511	303	17,716	1,755	62,285
2008	72,491	5,505	29,731	17,044	307	17,716	2,188	62,794
2009	73,470	5,515	29,571	17,575	347	17,716	2,747	66,797
2010	76,078	5,525	29,571	19,100	351	17,716	3,816	71,308
2011	79,342	6,418	29,571	19,799	355	18,716	4,482	73,137
2012	81,806	6,446	29,371	19,799	367	20,716	5,106	75,987
2013	86,969	6,454	29,371	23,473	330	20,716	6,625	76,522
2014	93,216	6,467	29,611	27,296	330	20,716	8,796	80,154
2015	97,649	6,471	29,611	28,512	330	21,716	11,009	78,790
2016	105,866	6,485	33,746	28,512	329	23,116	13,677	85,183
2017	116,908	6,489	38,265	32,416	339	22,529	16,869	85,133
2018	119,092	6,490	38,358	31,224	339	21,850	20,830	92,478
2019	125,338	6,508	38,101	32,846	341	23,250	24,292	90,314
2020	129,191	6,506	37,951	33,013	176	23,250	28,296	89,091
2021	134,020	6,541	38,429	33,013	177	23,250	32,610	91,141
2022	138,195	6,513	38,269	33,013	137	24,650	35,613	94,509
2023	143,381	6,517	38,269	34,038	137	24,650	39,770	93,615

Note 1) Excludes non-utility in common use.

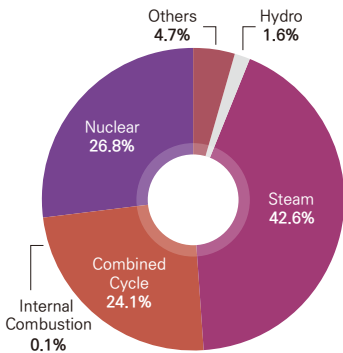
2) Others includes Group, Alternative Energy and Others.

Source: Korea Electric Power Corporation

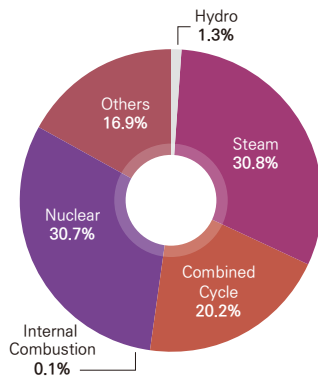
## Electric Power Generation by Facilities



○ 2013 509,574 GWh



○ 2023 588,047 GWh



## 2-3. Electric Power Generation by Facilities

Unit: GWh

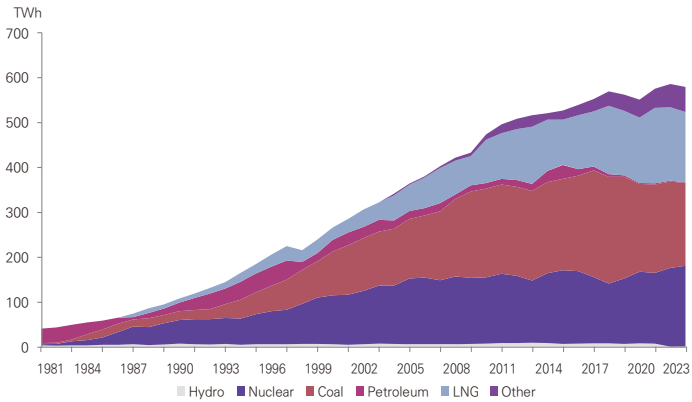
	Total	Hydro	Steam	Combined Cycle	Internal Combustion	Nuclear	Others
1981	40,207	2,709	34,305	258	38	2,897	-
1982	43,122	2,005	36,963	332	45	3,777	-
1983	48,850	2,723	36,906	214	42	8,965	-
1984	53,808	2,399	39,477	99	41	11,792	-
1985	58,007	3,659	37,484	58	61	16,745	-
1986	64,695	4,019	32,190	53	122	28,311	-
1987	73,992	5,344	29,097	66	171	39,314	-
1988	85,462	3,566	41,413	172	210	40,101	-
1989	94,472	4,558	42,075	221	253	47,365	-
1990	107,670	6,361	47,374	619	429	52,887	-
1991	118,619	5,051	56,000	785	472	56,311	-
1992	130,963	4,863	63,532	5,464	574	56,530	-
1993	144,437	6,006	70,465	9,188	640	58,138	-
1994	164,993	4,098	85,408	16,047	789	58,651	-
1995	184,661	5,478	90,808	20,521	825	67,029	-
1996	205,494	5,201	98,654	26,943	772	73,924	-
1997	224,445	5,404	106,813	34,424	718	77,086	-
1998	215,300	6,099	92,432	26,505	575	89,689	-
1999	239,325	6,066	101,138	28,675	382	103,064	-
2000	266,400	5,610	124,669	26,863	294	108,964	-
2001	285,224	4,151	139,582	29,033	325	112,133	-
2002	306,474	5,311	143,370	38,337	353	119,103	-
2003	322,452	6,887	145,148	40,375	370	129,672	-
2004	342,148	5,861	145,810	55,452	407	130,715	3,903
2005	364,639	5,189	151,477	57,457	575	146,779	3,163
2006	381,181	5,219	156,290	67,138	677	148,749	3,108
2007	403,125	5,042	174,245	76,405	578	142,937	3,916
2008	422,355	5,563	184,385	74,519	503	150,958	6,428
2009	433,604	5,641	207,391	64,486	697	147,771	7,618
2010	474,660	6,472	212,291	94,012	731	148,596	12,558
2011	496,893	7,831	212,018	101,479	821	154,723	20,021
2012	509,574	7,652	218,430	110,882	752	150,327	21,531
2013	517,148	8,394	220,266	124,400	741	138,784	24,563
2014	521,971	7,820	211,734	111,711	656	156,407	33,644
2015	528,091	5,796	216,955	100,598	643	164,762	39,337
2016	540,441	6,634	222,844	96,922	573	161,995	51,473
2017	553,530	6,995	237,636	99,619	513	148,427	60,340
2018	570,647	7,270	238,297	116,836	528	133,505	74,210
2019	563,040	6,247	222,065	110,289	579	145,910	77,951
2020	552,162	7,148	191,102	111,759	405	160,184	81,564
2021	576,809	6,737	192,599	130,358	491	158,015	88,609
2022	594,400	7,256	188,928	123,996	570	176,054	97,597
2023	588,047	7,500	181,274	118,801	390	180,494	99,588

Note 1) Excludes non-utility in common use.

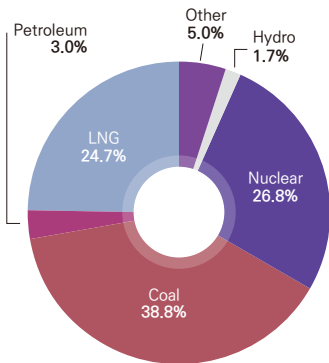
2) Others includes Group, Alternative Energy and Others.

Source: Korea Electric Power Corporation

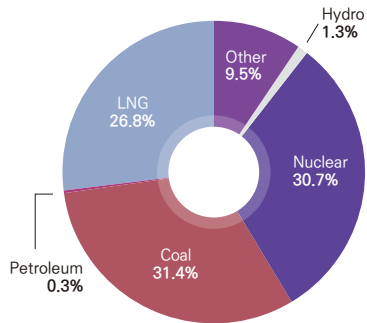
## Electric Power Generation by Energy Source



2013 517,148 GWh



2023 588,047 GWh



## 2-4. Electric Power Generation by Energy Source

Unit: GWh

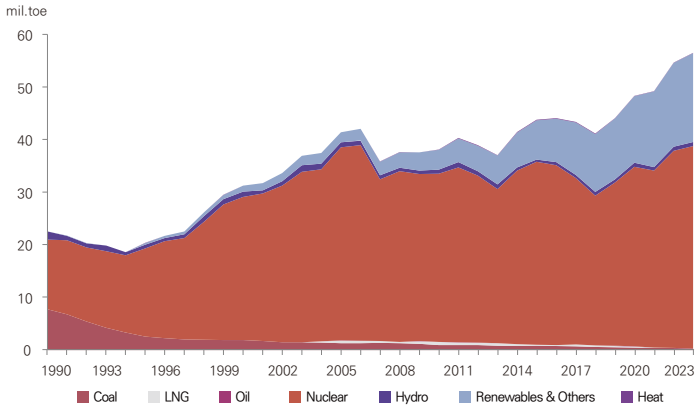
	Total	Hydro	Nuclear	Thermal			Others
				Coal	Petroleum	LNG	
1981	40,207	2,709	2,897	2,530	32,071	-	-
1982	43,122	2,005	3,777	2,612	34,728	-	-
1983	48,850	2,723	8,965	4,289	32,873	-	-
1984	53,808	2,399	11,792	13,383	26,234	-	-
1985	58,007	3,659	16,745	17,639	19,964	-	-
1986	64,695	4,019	28,311	18,220	13,895	250	-
1987	73,992	5,344	39,314	15,856	5,087	8,391	-
1988	85,462	3,566	40,101	19,840	11,523	10,432	-
1989	94,472	4,558	47,365	18,777	14,640	9,132	-
1990	107,670	6,361	52,887	19,961	18,856	9,604	-
1991	118,619	5,051	56,311	20,140	27,182	9,935	-
1992	130,963	4,863	56,530	22,072	35,311	12,187	-
1993	144,437	6,006	58,138	30,917	34,888	14,488	-
1994	164,993	4,098	58,651	41,835	40,363	20,046	-
1995	184,661	5,478	67,029	48,813	42,045	21,296	-
1996	205,494	5,201	73,924	56,881	42,436	27,050	-
1997	224,445	5,404	77,086	67,190	42,943	31,823	-
1998	215,300	6,099	89,689	75,498	17,712	26,302	-
1999	239,325	6,066	103,064	81,544	18,527	30,124	-
2000	266,400	5,610	108,964	97,538	26,142	28,146	-
2001	285,224	4,151	112,133	110,333	28,156	30,451	-
2002	306,474	5,311	119,103	118,022	25,095	38,943	-
2003	322,452	6,887	129,672	120,276	26,526	39,090	-
2004	342,148	5,861	130,715	127,158	18,511	55,999	3,904
2005	364,638	5,189	146,779	133,658	17,733	58,118	3,161
2006	381,181	5,219	148,749	139,205	16,598	68,302	3,108
2007	403,124	5,042	142,937	154,674	18,132	78,427	3,912
2008	422,355	5,561	150,958	173,508	10,094	75,809	6,425
2009	433,604	5,641	147,771	193,216	14,083	65,274	7,619
2010	474,660	6,472	148,596	197,916	12,878	96,734	12,064
2011	496,893	7,831	154,723	200,124	12,492	101,702	20,021
2012	509,574	7,652	150,327	198,831	15,156	113,984	23,624
2013	517,148	8,543	138,784	200,444	15,751	127,724	25,901
2014	521,971	7,820	156,407	203,446	24,950	114,654	14,695
2015	528,091	5,796	164,762	204,230	31,616	100,783	20,904
2016	540,441	6,634	161,995	213,803	14,221	120,852	22,936
2017	553,530	6,995	148,427	238,799	8,663	122,773	27,873
2018	570,647	7,270	133,505	238,967	5,740	152,924	32,239
2019	563,040	6,247	145,910	227,384	3,292	144,355	35,852
2020	552,162	7,148	160,184	196,333	2,255	145,911	40,331
2021	576,809	6,737	158,015	197,966	2,354	168,378	43,358
2022	594,400	7,256	176,054	193,231	1,966	163,575	52,318
2023	588,047	7,500	180,494	184,927	1,487	157,749	55,889

Note: Others includes Group, Alternative Energy and Others.

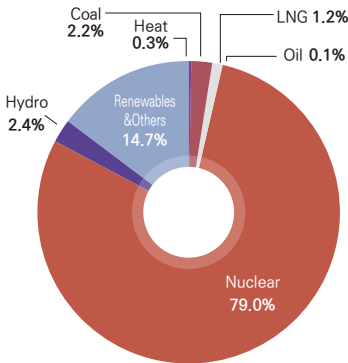
Source: Korea Electric Power Corporation

# 03 Energy Production, Imports & Exports

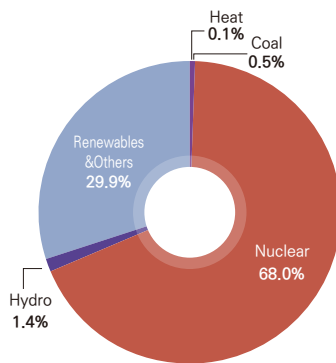
## ◦ Energy Production



◦ 2013 37,065 thousand toe



◦ 2023 56,517 thousand toe



### 3-1. Energy Production

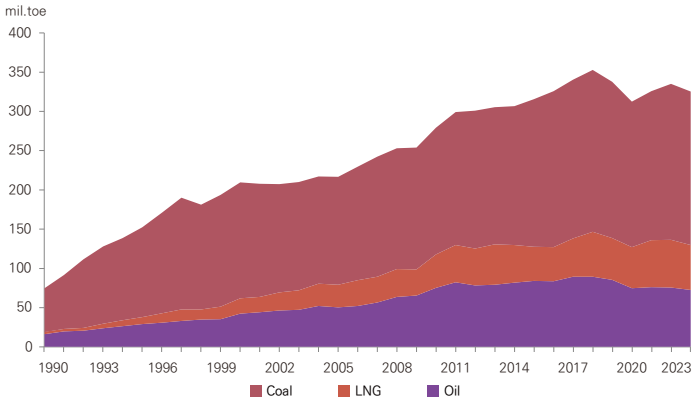
Unit: 1,000 toe

	Total	Coal	LNG	Oil	Nuclear	Hydro	Renewables&Others	Heat
1990	22,560	7,748	-	-	13,222	1,571	16	3
1991	21,749	6,776	-	-	14,078	872	21	3
1992	20,314	5,386	-	-	14,133	774	19	2
1993	19,865	4,249	-	-	14,535	1,057	22	3
1994	18,624	3,347	-	-	14,663	587	25	3
1995	20,362	2,574	-	-	16,757	690	337	3
1996	21,704	2,228	-	-	18,481	606	386	3
1997	22,524	2,030	-	-	19,271	703	517	2
1998	26,197	1,962	-	-	22,422	1,070	733	9
1999	29,494	1,889	-	-	25,766	1,040	793	7
2000	31,255	1,868	-	-	27,241	1,002	1,135	10
2001	31,754	1,718	-	-	28,033	582	1,407	13
2002	33,647	1,493	-	-	29,776	808	1,556	14
2003	36,943	1,484	-	-	32,418	1,226	1,796	20
2004	37,480	1,436	212	-	32,679	1,082	2,051	19
2005	41,419	1,274	518	55	36,695	919	1,946	12
2006	42,065	1,271	461	45	37,187	867	2,217	17
2007	35,823	1,342	353	35	30,731	781	2,568	14
2008	37,619	1,289	236	23	32,456	660	2,917	38
2009	37,603	1,171	498	47	31,771	616	3,452	49
2010	38,097	969	539	56	31,948	797	3,773	16
2011	40,336	969	451	42	33,265	989	4,485	135
2012	38,966	942	436	39	31,719	838	4,869	124
2013	37,065	817	463	42	29,283	906	5,440	113
2014	41,424	787	322	29	33,002	581	6,636	68
2015	43,798	794	188	17	34,765	454	7,455	125
2016	44,106	777	154	15	34,181	603	8,258	117
2017	43,378	702	341	32	31,615	601	9,960	127
2018	41,133	569	305	28	28,437	719	11,008	68
2019	44,078	513	259	23	31,079	594	11,544	66
2020	48,325	482	185	15	34,119	826	12,624	73
2021	49,234	425	55	5	33,657	651	14,373	68
2022	54,621	386	-	2	37,500	755	15,908	69
2023	56,517	304	-	-	38,445	792	16,902	73

Note : From 2007, figures are based on revised calorific value every 5 years.

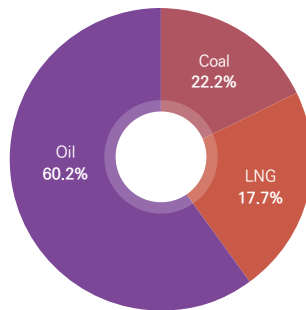
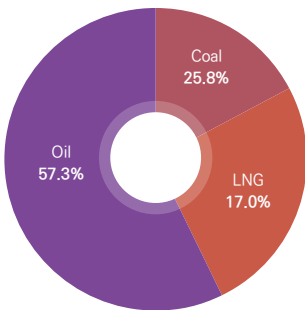
# 03 Energy Production, Imports & Exports

## ○ Energy Imports



○ 2013 306,375 thousand toe

○ 2023 326,760 thousand toe



### 3-2. Energy Imports & Exports

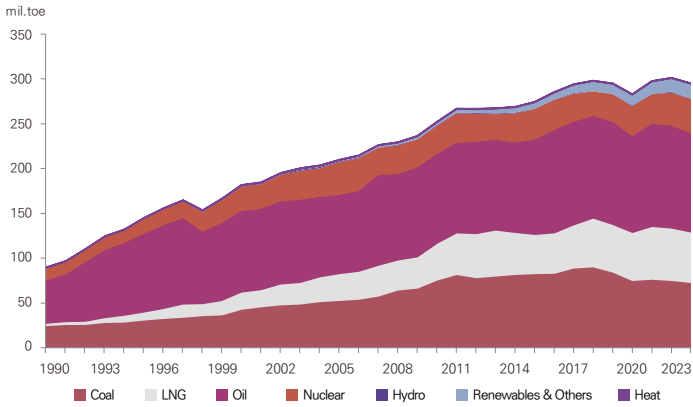
Unit: 1,000 toe

	Imports				Exports		
	Total	Coal	LNG	Oil	Total	Coal	Oil
1990	74,609	15,832	2,909	55,869	4,002	5	3,997
1991	91,662	19,331	3,243	69,088	10,422	4	10,418
1992	111,664	20,190	3,892	87,582	13,882	2	13,881
1993	128,363	23,567	5,797	98,999	15,480	0	15,480
1994	138,940	25,904	7,795	105,241	14,043	104	13,939
1995	152,793	28,942	8,782	115,069	17,783	4	17,780
1996	171,493	30,616	12,035	128,842	22,971	1	22,970
1997	190,741	32,774	14,912	143,055	33,463	53	33,410
1998	181,585	34,450	13,246	133,889	42,283	3	42,280
1999	194,268	35,229	15,970	143,068	42,594	1	42,593
2000	210,191	41,943	19,811	148,437	43,507	3	43,504
2001	208,280	43,822	19,913	144,544	41,898	1	41,897
2002	207,798	46,058	23,390	138,350	33,546	1	33,545
2003	210,798	47,109	25,101	138,588	29,226	1	29,225
2004	217,781	51,995	28,316	137,470	32,640	7	32,633
2005	217,485	50,266	29,013	138,206	38,088	12	38,076
2006	230,063	52,053	32,832	145,177	40,262	9	40,253
2007	243,214	56,340	33,240	153,635	40,063	9	40,055
2008	253,725	63,723	35,436	154,566	45,589	26	45,562
2009	254,840	65,216	33,568	156,055	44,630	4	44,626
2010	280,301	75,340	42,384	162,577	48,575	8	48,566
2011	300,431	82,125	47,690	170,616	56,548	41	56,507
2012	302,067	78,261	47,184	176,622	59,862	20	59,842
2013	306,375	78,923	51,998	175,454	60,318	40	60,278
2014	307,855	81,782	48,388	177,685	62,804	28	62,776
2015	316,749	84,123	43,509	189,117	66,736	12	66,725
2016	327,086	83,621	43,623	199,841	68,509	1	68,508
2017	341,836	89,227	49,023	203,585	71,507	86	71,421
2018	354,195	89,484	57,484	207,227	74,876	47	74,829
2019	338,899	85,586	53,217	200,096	72,524	12	72,512
2020	313,504	74,875	52,217	186,412	65,398	110	65,287
2021	326,860	76,172	59,987	190,702	62,374	217	62,158
2022	336,443	75,794	60,683	199,966	69,338	19	69,318
2023	326,760	72,434	57,705	196,621	68,758	0	68,757

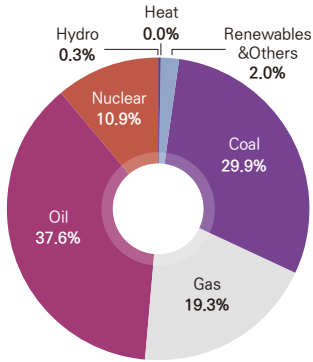
Note : From 2007, figures are based on revised calorific value every 5 years.

# 04 Total Primary Energy Supply

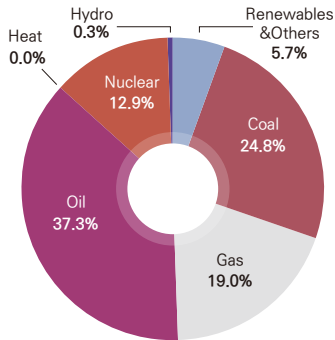
## ○ Total Primary Energy Supply



○ 2013 270 million toe



○ 2023 298 million toe



# 04 Total Primary Energy Supply

## 4. Total Primary Energy Supply

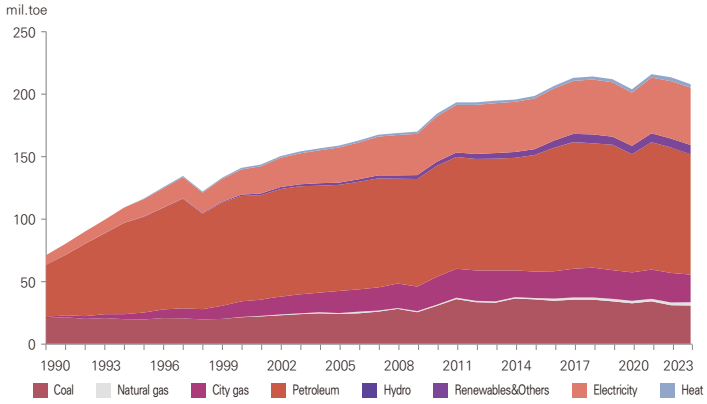
	Total	Growth Rate(%)	Coal			Gas
			Sub-Total	Anthracite	Bituminous & Others	
1990	89,680	-	24,523	9,339	15,183	2,958
1991	96,801	7.9	26,000	7,518	18,482	3,159
1992	110,524	14.2	25,880	6,176	19,703	3,946
1993	124,999	13.1	28,192	5,095	23,097	5,759
1994	132,512	6.0	28,757	3,377	25,380	7,717
1995	145,618	9.9	31,173	2,669	28,505	8,852
1996	156,834	7.7	32,647	2,557	30,090	11,690
1997	165,755	5.7	34,408	2,121	32,287	14,606
1998	154,234	-7.0	36,170	2,196	33,973	13,347
1999	167,342	8.5	37,011	2,369	34,642	15,955
2000	183,079	9.4	43,143	3,074	40,069	19,743
2001	185,810	1.5	45,838	3,673	42,165	19,722
2002	196,453	5.7	47,987	4,041	43,946	23,797
2003	201,738	2.7	49,135	4,529	44,606	24,272
2004	205,220	1.7	51,886	4,287	47,599	27,827
2005	211,345	3.0	52,975	4,708	48,267	30,367
2006	216,261	2.3	54,361	5,174	49,187	32,023
2007	228,129	5.5	58,149	5,560	52,589	34,665
2008	231,299	1.4	64,925	5,872	59,052	33,792
2009	238,482	3.1	67,094	5,673	61,420	35,203
2010	254,436	6.7	76,008	5,998	70,010	41,718
2011	269,200	5.8	82,386	6,796	75,591	47,318
2012	268,994	-0.1	79,059	5,021	74,038	49,554
2013	269,532	0.2	80,538	5,140	75,397	51,943
2014	271,253	0.6	82,764	4,867	77,897	47,409
2015	276,803	2.0	83,650	5,189	78,462	43,967
2016	288,048	4.1	83,989	5,348	78,640	45,552
2017	296,739	3.0	89,786	4,109	85,677	48,583
2018	300,754	1.4	90,965	4,644	86,321	55,105
2019	297,629	-1.0	85,048	3,956	81,092	53,891
2020	285,553	-4.1	75,983	3,605	72,377	53,956
2021	300,550	5.3	76,968	3,683	73,285	59,628
2022	303,980	1.1	75,869	3,349	72,520	59,203
2023	297,598	-2.1	73,700	2,908	70,793	56,648

Note : From 2007, figures are based on revised calorific value every 5 years.

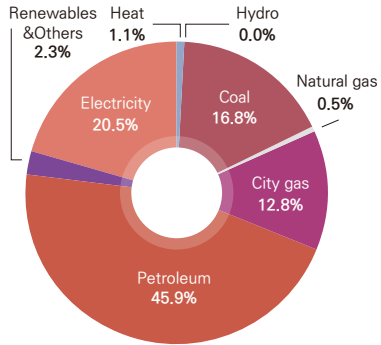
Unit: 1,000 toe

Sub-Total	Oil		Nuclear	Hydro	Renewables & Others	Heat	
	Crude oil & refinery feedstocks	Petroleum Products					
47,387	42,928	4,459	13,222	1,571	16	3	1990
52,669	54,452	-1,784	14,078	872	21	3	1991
65,770	69,709	-3,939	14,133	774	19	2	1992
75,432	77,181	-1,749	14,535	1,057	22	3	1993
80,761	79,088	1,672	14,663	587	25	3	1994
87,805	89,411	-1,607	16,757	690	337	3	1995
93,021	100,777	-7,755	18,481	606	386	3	1996
96,247	119,915	-23,668	19,271	703	517	2	1997
80,482	113,635	-33,153	22,422	1,070	733	9	1998
86,771	120,187	-33,417	25,766	1,040	793	7	1999
90,805	122,858	-32,053	27,241	1,002	1,135	10	2000
90,214	119,051	-28,836	28,033	582	1,407	13	2001
92,515	109,192	-16,677	29,776	808	1,556	14	2002
92,872	108,235	-15,363	32,418	1,226	1,796	20	2003
89,677	113,830	-24,153	32,679	1,082	2,051	19	2004
88,432	117,983	-29,552	36,695	919	1,946	12	2005
89,591	120,881	-31,290	37,187	867	2,214	17	2006
101,220	129,678	-28,458	30,731	781	2,569	14	2007
96,512	127,098	-30,586	32,456	660	2,917	38	2008
100,304	123,138	-22,835	31,771	616	3,447	49	2009
100,177	127,447	-27,269	31,948	797	3,773	16	2010
100,623	134,951	-34,328	33,265	989	4,483	135	2011
102,834	138,272	-35,438	31,719	838	4,867	124	2012
101,307	133,375	-32,069	29,283	906	5,442	113	2013
100,793	135,594	-34,801	33,002	581	6,636	68	2014
106,387	148,942	-42,554	34,765	454	7,455	125	2015
115,344	157,664	-42,320	34,181	603	8,261	117	2016
116,068	164,522	-48,454	31,615	601	9,959	127	2017
114,451	163,580	-49,129	28,437	719	11,009	68	2018
115,409	158,655	-43,245	31,079	594	11,541	66	2019
107,971	145,311	-37,340	34,119	826	12,625	73	2020
115,205	143,265	-28,060	33,657	651	14,373	68	2021
114,676	155,835	-41,159	37,500	755	15,909	69	2022
111,036	152,438	-41,402	38,445	792	16,903	73	2023

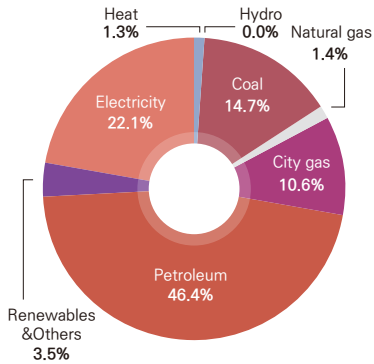
## ○ Total Final Consumption



○ 2013 195 million toe



○ 2023 208 million toe



## 5. Total Final Consumption

	Total	Growth Rate(%)	Coal			Natural gas
			Sub-Total	Anthracite	Bituminous	
1990	71,149	-	20,528	8,948	11,580	5
1991	80,179	12.7	21,164	7,267	13,897	6
1992	89,965	12.2	19,950	5,242	14,708	9
1993	99,399	10.5	20,571	3,807	16,765	18
1994	109,321	10.0	19,568	2,480	17,089	15
1995	116,507	6.6	19,422	1,713	17,708	12
1996	125,595	7.8	20,589	1,350	19,238	1
1997	134,487	7.1	20,341	1,020	19,321	0
1998	122,026	-9.3	19,415	986	18,429	0
1999	133,012	9.0	19,855	1,129	18,726	2
2000	140,956	6.0	21,217	1,759	19,457	207
2001	143,588	1.9	21,788	2,308	19,480	569
2002	150,380	4.7	22,827	2,741	20,086	623
2003	154,107	2.5	23,744	3,210	20,534	595
2004	156,559	1.6	24,394	3,132	21,262	765
2005	158,920	1.5	23,826	3,618	20,207	632
2006	162,883	2.5	24,264	4,068	20,195	1,318
2007	167,623	2.9	25,694	4,281	21,413	838
2008	169,049	0.9	27,864	4,530	23,334	714
2009	170,068	0.6	25,145	4,176	20,969	910
2010	184,372	8.4	30,256	4,602	25,654	960
2011	193,576	5.0	35,732	5,832	29,899	999
2012	193,602	0.0	33,267	4,202	29,065	1,060
2013	194,844	0.6	32,819	4,331	28,488	1,041
2014	195,827	0.5	36,317	3,889	32,428	1,018
2015	198,618	1.4	35,479	4,126	31,353	1,132
2016	206,742	4.1	34,307	3,848	30,459	1,783
2017	213,147	3.1	35,171	3,594	31,577	1,829
2018	214,407	0.6	35,377	4,140	31,237	1,785
2019	212,132	-1.1	34,046	3,371	30,676	1,927
2020	203,956	-3.9	32,387	3,124	29,263	2,078
2021	216,245	6.0	33,915	3,236	30,679	2,097
2022	213,572	-1.2	30,842	2,880	27,963	2,120
2023	208,172	-2.5	30,507	2,451	28,057	2,827

Note : From 2007, figures are based on revised calorific value every 5 years.

Unit: 1,000 toe

City gas	Petroleum Products	Hydro	Renewables & Others	Electricity	Heat	
1,012	41,591	-	16	7,997	-	1990
1,540	48,613	-	21	8,835	-	1991
2,216	58,021	-	19	9,751	-	1992
3,002	64,980	-	22	10,806	-	1993
4,029	73,286	-	25	12,398	-	1994
5,452	76,814	-	337	13,832	637	1995
6,929	81,458	-	386	15,425	809	1996
8,033	87,717	-	517	16,953	928	1997
8,370	76,238	-	733	16,386	884	1998
10,455	82,739	-	792	18,136	1,033	1999
12,510	84,409	-	1,132	20,273	1,208	2000
13,031	83,759	-	1,403	21,822	1,217	2001
14,305	86,294	-	1,523	23,584	1,224	2002
15,212	86,604	4	1,755	24,796	1,395	2003
15,912	85,685	5	1,996	26,353	1,449	2004
17,672	85,207	0	1,860	28,072	1,652	2005
17,963	86,255	0	2,108	29,427	1,549	2006
18,599	87,399	0	2,407	31,108	1,576	2007
19,632	84,044	0	2,659	32,467	1,669	2008
19,810	86,249	11	2,994	33,235	1,715	2009
22,361	88,981	5	3,261	36,595	1,953	2010
23,288	89,678	0	3,599	38,325	1,954	2011
24,464	89,321	0	4,140	39,264	2,085	2012
24,972	89,530	1	4,490	39,943	2,049	2013
21,488	90,177	1	4,785	40,103	1,938	2014
21,305	93,333	1	4,832	40,630	1,905	2015
21,928	99,092	3	5,863	41,692	2,075	2016
23,122	101,576	2	6,564	42,582	2,300	2017
23,793	99,734	3	7,040	44,139	2,535	2018
23,094	100,457	1	6,508	43,628	2,471	2019
22,632	94,865	0	6,668	42,733	2,592	2020
23,382	102,260	1	7,141	44,748	2,701	2021
23,837	100,520	1	7,265	46,041	2,946	2022
22,105	96,585	1	7,355	45,982	2,809	2023

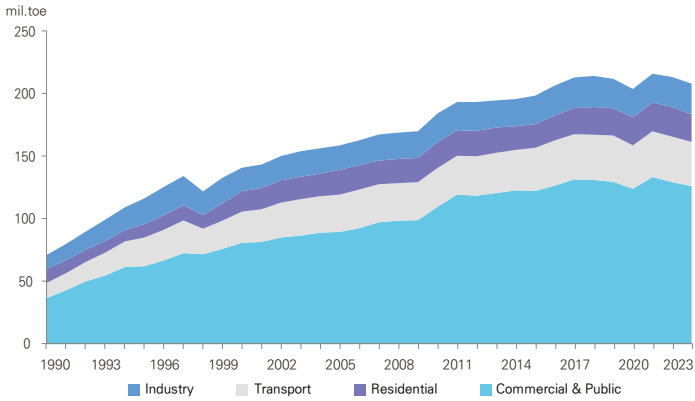


- 6. Total Final Consumption by Sector
- 7. Total Final Consumption by Source
- 8. Energy Balance
- 9. Energy Imports

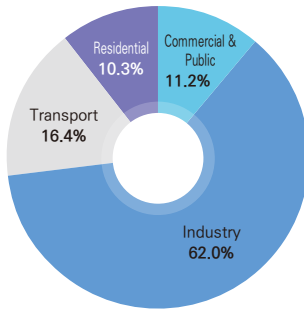


# 06 Total Final Consumption by Sector

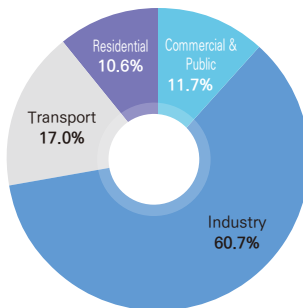
## o Total Final Consumption by Sector



○ 2013 195 million toe



○ 2023 208 million toe



# 06 Total Final Consumption by Sector

## 6. Total Final Consumption by Sector

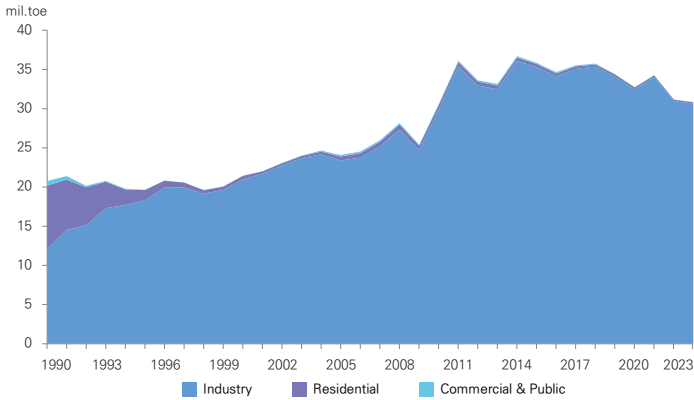
	Total Final Consumption(1,000 toe)				
	Total	Industry	Transport	Residential	Commercial & Public
1990	71,149	36,798	12,140	11,262	10,948
1991	80,179	43,113	13,703	10,300	13,063
1992	89,965	50,075	15,514	9,868	14,509
1993	99,399	54,749	18,319	9,477	16,855
1994	109,321	61,691	20,351	9,235	18,044
1995	116,507	62,275	22,920	10,712	20,600
1996	125,595	67,032	24,430	11,713	22,421
1997	134,487	72,649	26,202	12,075	23,560
1998	122,026	71,774	20,481	10,962	18,809
1999	133,012	76,172	22,373	13,837	20,630
2000	140,956	80,962	25,007	16,284	18,703
2001	143,588	81,672	26,225	17,020	18,671
2002	150,380	85,166	28,007	17,791	19,416
2003	154,107	86,781	29,001	17,877	20,448
2004	156,559	89,006	29,178	18,063	20,312
2005	158,920	89,812	29,729	19,754	19,625
2006	162,883	92,597	30,928	19,612	19,745
2007	167,623	97,376	30,496	18,872	20,879
2008	169,049	98,690	30,007	19,347	21,004
2009	170,068	99,033	30,389	19,349	21,297
2010	184,372	109,779	31,009	20,733	22,851
2011	193,576	119,520	31,016	20,490	22,550
2012	193,602	118,736	31,502	20,401	22,963
2013	194,844	120,846	32,017	20,166	21,816
2014	195,827	122,824	32,406	18,876	21,722
2015	198,618	122,434	34,509	18,939	22,735
2016	206,742	126,809	36,029	20,150	23,754
2017	213,147	131,574	36,260	20,927	24,386
2018	214,407	131,130	36,227	22,122	24,929
2019	212,132	129,609	37,193	21,560	23,770
2020	203,956	124,223	34,745	22,356	22,632
2021	216,245	133,541	36,636	22,940	23,128
2022	213,572	129,553	36,293	23,560	24,165
2023	208,172	126,412	35,316	22,058	24,385

Note : From 2007, figures are based on revised calorific value every 5 years.

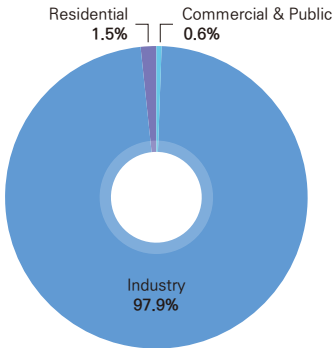
Transformation Own Use	Total Final Consumption(%)				
	Industry	Transport	Residential	Commercial & Public	
1,529	51.7	17.1	15.8	15.4	1990
1,448	53.8	17.1	12.8	16.3	1991
1,527	55.7	17.2	11.0	16.1	1992
1,816	55.1	18.4	9.5	17.0	1993
2,012	56.4	18.6	8.4	16.5	1994
2,389	53.5	19.7	9.2	17.7	1995
2,372	53.4	19.5	9.3	17.9	1996
6,233	54.0	19.5	9.0	17.5	1997
5,751	58.8	16.8	9.0	15.4	1998
6,198	57.3	16.8	10.4	15.5	1999
6,260	57.4	17.7	11.6	13.3	2000
6,133	56.9	18.3	11.9	13.0	2001
5,715	56.6	18.6	11.8	12.9	2002
5,883	56.3	18.8	11.6	13.3	2003
6,412	56.9	18.6	11.5	13.0	2004
6,345	56.5	18.7	12.4	12.3	2005
6,296	56.8	19.0	12.0	12.1	2006
6,423	58.1	18.2	11.3	12.5	2007
6,942	58.4	17.8	11.4	12.4	2008
6,773	58.2	17.9	11.4	12.5	2009
6,597	59.5	16.8	11.2	12.4	2010
7,291	61.7	16.0	10.6	11.6	2011
7,411	61.3	16.3	10.5	11.9	2012
7,057	62.0	16.4	10.3	11.2	2013
8,507	62.7	16.5	9.6	11.1	2014
8,084	61.6	17.4	9.5	11.4	2015
8,347	61.3	17.4	9.7	11.5	2016
8,051	61.7	17.0	9.8	11.4	2017
9,710	61.2	16.9	10.3	11.6	2018
9,939	61.1	17.5	10.2	11.2	2019
9,876	60.9	17.0	11.0	11.1	2020
10,009	61.8	16.9	10.6	10.7	2021
9,801	60.7	17.0	11.0	11.3	2022
10,087	60.7	17.0	10.6	11.7	2023

# 07 Total Final Consumption by Source

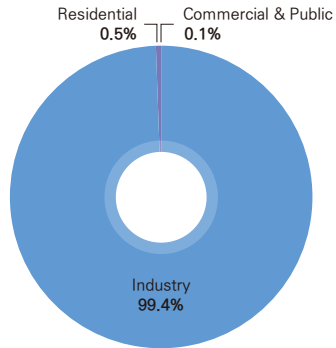
## ○ Coal



○ 2013 32,819 thousand toe



○ 2023 30,507 thousand toe



## 7-1. Coal

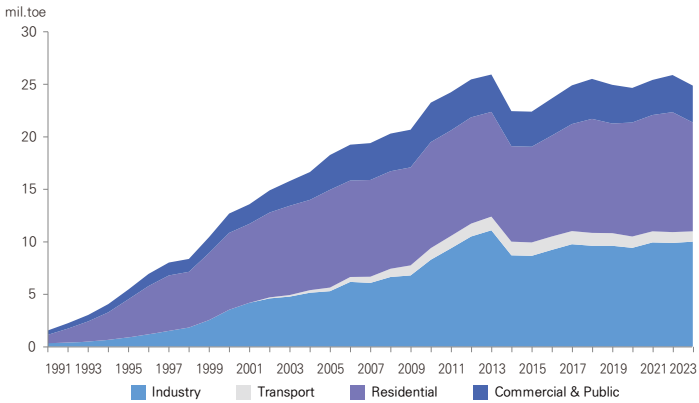
Unit: 1,000 toe

	TFC		Coal	Industry	Residential	Commercial & Public
		%				
1990	71,149	28.9	20,528	11,942	8,023	563
1991	80,179	26.4	21,164	14,371	6,347	446
1992	89,965	22.2	19,950	14,945	4,817	188
1993	99,399	20.7	20,571	17,100	3,341	130
1994	109,321	17.9	19,568	17,514	1,978	77
1995	116,507	16.7	19,422	18,091	1,327	5
1996	125,595	16.4	20,589	19,721	865	3
1997	134,487	15.1	20,341	19,727	612	2
1998	122,026	15.9	19,415	18,930	464	22
1999	133,012	14.9	19,855	19,414	422	20
2000	140,956	15.1	21,217	20,746	450	21
2001	143,588	15.2	21,788	21,464	288	35
2002	150,380	15.2	22,827	22,507	285	35
2003	154,107	15.4	23,744	23,430	280	34
2004	156,559	15.6	24,394	23,929	325	140
2005	158,920	15.0	23,826	23,151	483	191
2006	162,883	14.9	24,264	23,484	572	208
2007	167,623	15.3	25,694	24,951	557	186
2008	169,049	16.5	27,864	27,045	626	194
2009	170,068	14.8	25,145	24,437	550	157
2010	184,372	16.4	30,256	29,570	542	143
2011	193,576	18.5	35,732	35,042	525	165
2012	193,602	17.2	33,267	32,607	483	177
2013	194,844	16.8	32,819	32,125	487	207
2014	195,827	18.5	36,317	35,723	417	177
2015	198,618	17.9	35,479	34,940	379	161
2016	206,742	16.6	34,307	33,780	361	166
2017	213,147	16.5	35,171	34,710	316	145
2018	214,407	16.5	35,377	34,989	265	122
2019	212,132	16.0	34,046	33,740	280	26
2020	203,956	15.9	32,387	32,147	219	21
2021	216,245	15.7	33,915	33,704	193	18
2022	213,572	14.4	30,842	30,643	182	17
2023	208,172	14.7	30,507	30,324	168	16

Note : From 2007, figures are based on revised calorific value every 5 years.

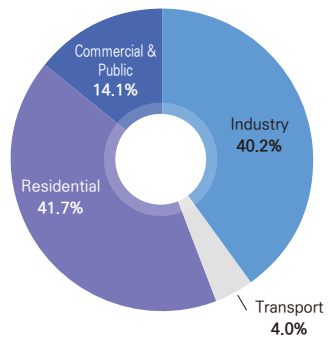
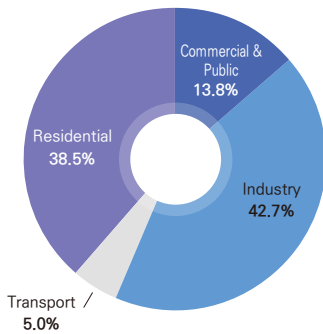
# 07 Total Final Consumption by Source

## ◦ LNG & City Gas



◦ 2013 26,013 thousand toe

◦ 2023 24,932 thousand toe



## 7-2. Natural Gas & City Gas

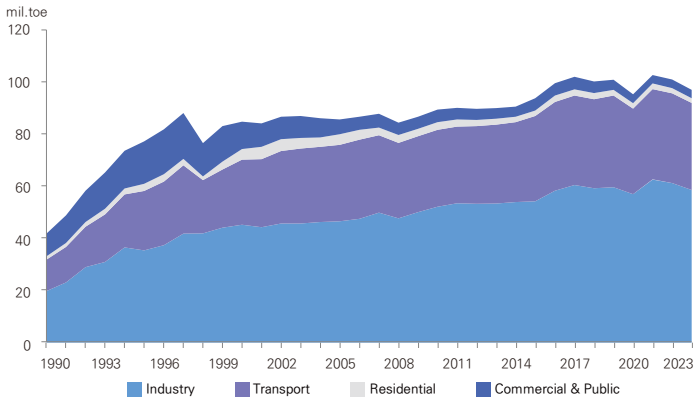
Unit: 1,000 toe

	TFC	%	Natural Gas & City Gas				
			Industry	Transport	Residential	Commercial & Public	
1990	71,149	1.4	1,016	239	-	454	323
1991	80,179	1.9	1,546	319	-	809	418
1992	89,965	2.5	2,225	386	-	1,335	503
1993	99,399	3.0	3,020	478	-	1,920	623
1994	109,321	3.7	4,045	617	-	2,658	770
1995	116,507	4.7	5,464	875	-	3,655	935
1996	125,595	5.5	6,929	1,159	-	4,610	1,161
1997	134,487	6.0	8,033	1,495	-	5,284	1,254
1998	122,026	6.9	8,370	1,813	-	5,330	1,227
1999	133,012	7.9	10,458	2,533	-	6,399	1,526
2000	140,956	9.0	12,717	3,516	-	7,353	1,849
2001	143,588	9.5	13,600	4,181	7	7,526	1,886
2002	150,380	9.9	14,928	4,607	80	8,109	2,132
2003	154,107	10.3	15,807	4,773	146	8,531	2,358
2004	156,559	10.7	16,677	5,148	237	8,636	2,656
2005	158,920	11.5	18,304	5,287	339	9,344	3,333
2006	162,883	11.8	19,281	6,165	475	9,232	3,409
2007	167,623	11.6	19,437	6,063	615	9,226	3,534
2008	169,049	12.0	20,345	6,647	777	9,330	3,592
2009	170,068	12.2	20,720	6,801	960	9,369	3,591
2010	184,372	12.6	23,321	8,289	1,112	10,135	3,785
2011	193,576	12.5	24,287	9,383	1,174	10,100	3,630
2012	193,602	13.2	25,524	10,503	1,246	10,147	3,628
2013	194,844	13.4	26,013	11,101	1,302	10,024	3,586
2014	195,827	11.5	22,506	8,702	1,306	9,141	3,357
2015	198,618	11.3	22,437	8,670	1,281	9,130	3,355
2016	206,742	11.5	23,710	9,239	1,270	9,647	3,555
2017	213,147	11.7	24,951	9,783	1,253	10,238	3,677
2018	214,407	11.9	25,579	9,628	1,238	10,901	3,812
2019	212,132	11.8	25,021	9,618	1,216	10,479	3,708
2020	203,956	12.1	24,710	9,423	1,099	10,900	3,289
2021	216,245	11.8	25,478	9,952	1,060	11,104	3,364
2022	213,572	12.2	25,957	9,904	1,025	11,469	3,558
2023	208,172	12.0	24,932	10,026	988	10,392	3,526

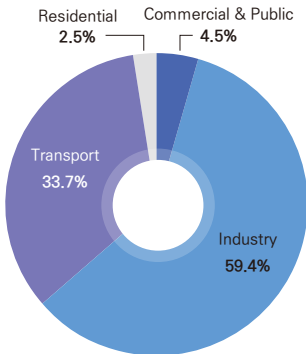
Note : From 2007, figures are based on revised calorific value every 5 years.

# 07 Total Final Consumption by Source

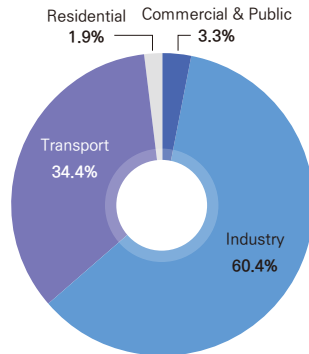
## ○ Petroleum Products



○ 2013 89,530 thousand toe



○ 2023 96,585 thousand toe



### 7-3. Petroleum Products

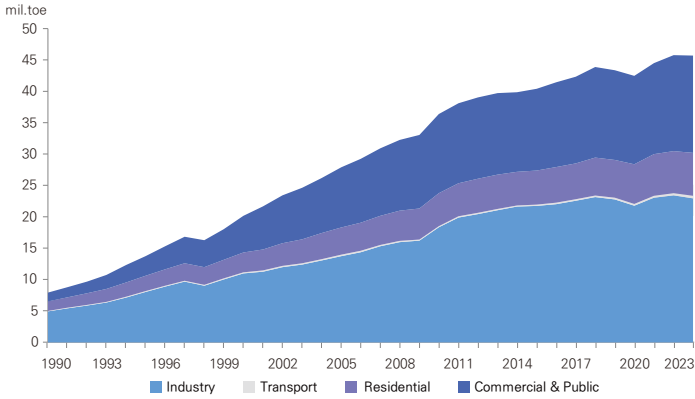
Unit: 1,000 toe

	TFC		Petroleum Products				
		%		Industry	Transport	Residential	Commercial & Public
1990	71,149	58.5	41,591	19,641	12,053	1,254	8,642
1991	80,179	60.6	48,613	22,958	13,609	1,462	10,584
1992	89,965	64.5	58,021	28,841	15,413	1,834	11,934
1993	99,399	65.4	64,980	30,769	18,211	2,150	13,850
1994	109,321	67.0	73,286	36,358	20,227	2,304	14,398
1995	116,507	65.9	76,814	35,192	22,765	2,656	16,201
1996	125,595	64.9	81,458	37,191	24,285	2,809	17,173
1997	134,487	65.2	87,717	41,643	26,051	2,442	17,581
1998	122,026	62.5	76,238	41,679	20,345	1,444	12,770
1999	133,012	62.2	82,739	43,862	22,225	3,021	13,631
2000	140,956	59.9	84,409	45,030	24,831	4,099	10,448
2001	143,588	58.3	83,759	44,081	26,024	4,658	8,996
2002	150,380	57.4	86,294	45,449	27,733	4,566	8,547
2003	154,107	56.2	86,604	45,465	28,655	4,010	8,474
2004	156,559	54.7	85,685	46,042	28,728	3,574	7,341
2005	158,920	53.6	85,207	46,354	29,166	4,024	5,663
2006	162,883	53.0	86,255	47,288	30,192	3,845	4,930
2007	167,623	52.1	87,399	49,601	29,577	2,968	5,254
2008	169,049	49.7	84,044	47,434	28,857	3,019	4,734
2009	170,068	50.7	86,249	49,849	28,981	2,815	4,604
2010	184,372	48.3	88,981	51,920	29,352	2,974	4,735
2011	193,576	46.3	89,678	53,194	29,302	2,757	4,426
2012	193,602	46.1	89,321	52,988	29,705	2,384	4,245
2013	194,844	45.9	89,530	53,151	30,154	2,199	4,027
2014	195,827	46.0	90,177	53,631	30,534	2,097	3,916
2015	198,618	47.0	93,333	53,966	32,596	2,064	4,706
2016	206,742	47.9	99,092	57,970	34,005	2,382	4,734
2017	213,147	47.7	101,576	60,217	34,196	2,323	4,841
2018	214,407	46.5	99,734	58,942	34,038	2,335	4,419
2019	212,132	47.4	100,457	59,336	35,021	2,152	3,948
2020	203,956	46.5	94,865	56,714	32,666	2,097	3,387
2021	216,245	47.3	102,260	62,312	34,554	2,096	3,299
2022	213,572	47.1	100,520	60,966	34,238	2,026	3,290
2023	208,172	46.4	96,585	58,334	33,226	1,832	3,193

Note : From 2007, figures are based on revised calorific value every 5 years.

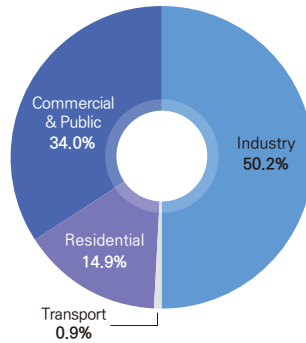
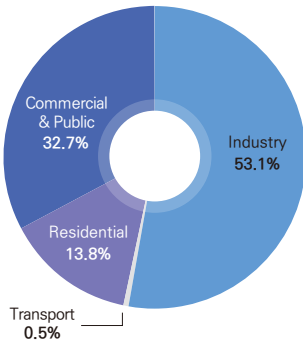
# 07 Total Final Consumption by Source

## ◦ Electricity



◦ 2013 39,943 thousand toe

◦ 2023 45,982 thousand toe



## 7-4. Electricity

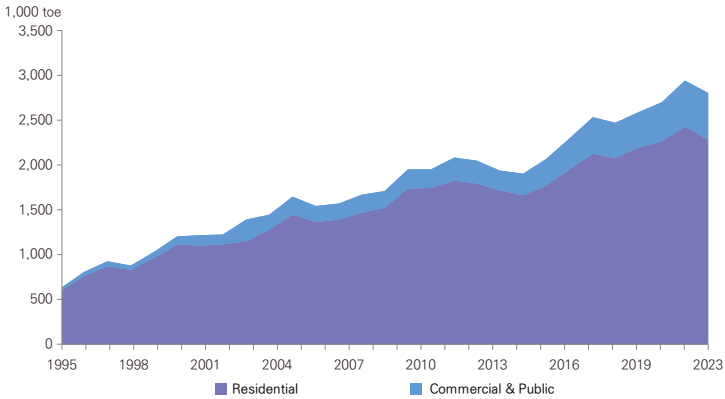
Unit: 1,000 toe

	TFC		Electricity				
		%		Industry	Transport	Residential	Commercial & Public
1990	71,149	11.2	7,997	4,975	87	1,525	1,409
1991	80,179	11.0	8,835	5,464	94	1,675	1,601
1992	89,965	10.8	9,751	5,904	101	1,874	1,872
1993	99,399	10.9	10,806	6,402	108	2,057	2,239
1994	109,321	11.3	12,398	7,203	124	2,284	2,787
1995	116,507	11.9	13,832	8,085	155	2,434	3,159
1996	125,595	12.3	15,425	8,949	145	2,635	3,696
1997	134,487	12.6	16,953	9,752	151	2,796	4,253
1998	122,026	13.4	16,386	9,107	136	2,830	4,313
1999	133,012	13.6	18,136	10,107	149	2,974	4,906
2000	140,956	14.4	20,273	11,047	175	3,191	5,860
2001	143,588	15.2	21,822	11,335	194	3,372	6,921
2002	150,380	15.7	23,584	12,060	195	3,636	7,693
2003	154,107	16.1	24,796	12,480	200	3,833	8,283
2004	156,559	16.8	26,353	13,130	213	4,181	8,829
2005	158,920	17.7	28,072	13,830	224	4,375	9,643
2006	162,883	18.1	29,427	14,458	218	4,517	10,234
2007	167,623	18.6	31,108	15,426	209	4,659	10,814
2008	169,049	19.2	32,467	16,089	196	4,836	11,346
2009	170,068	19.5	33,235	16,316	187	4,953	11,779
2010	184,372	19.8	36,595	18,449	188	5,263	12,694
2011	193,576	19.8	38,325	20,018	193	5,295	12,819
2012	193,602	20.3	39,264	20,562	194	5,464	13,044
2013	194,844	20.5	39,943	21,194	186	5,501	13,061
2014	195,827	20.5	40,103	21,788	172	5,390	12,754
2015	198,618	20.5	40,630	21,880	191	5,486	13,073
2016	206,742	20.2	41,692	22,165	231	5,691	13,605
2017	213,147	20.0	42,582	22,710	246	5,720	13,906
2018	214,407	20.6	44,139	23,289	265	6,079	14,506
2019	212,132	20.6	43,628	22,925	271	6,059	14,372
2020	203,956	21.0	42,733	21,908	285	6,370	14,169
2021	216,245	20.7	44,748	23,182	318	6,670	14,578
2022	213,572	21.6	46,041	23,570	349	6,756	15,367
2023	208,172	22.1	45,982	23,088	406	6,870	15,618

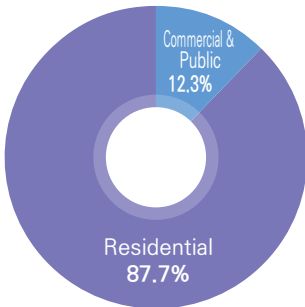
Note : From 2007, figures are based on revised calorific value every 5 years.

# 07 Total Final Consumption by Source

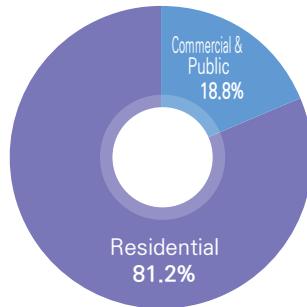
## ◦ Heat Energy



◦ 2013 2,049 thousand toe



◦ 2023 2,809 thousand toe



## 7-5. Heat Energy

Unit: 1,000 toe

	Transformation processes	TFC		
			Residential	Commercial & Public
1990	76	-	-	-
1991	107	-	-	-
1992	151	-	-	-
1993	290	-	-	-
1994	480	-	-	-
1995	1,172	637	603	34
1996	1,418	809	761	48
1997	1,542	928	871	57
1998	1,515	884	829	55
1999	1,905	1,033	960	72
2000	1,267	1,208	1,113	95
2001	1,277	1,217	1,102	115
2002	1,340	1,224	1,118	106
2003	1,419	1,395	1,151	244
2004	1,447	1,449	1,283	166
2005	2,287	1,652	1,449	202
2006	2,104	1,549	1,367	182
2007	2,118	1,576	1,391	185
2008	2,237	1,669	1,472	198
2009	2,239	1,715	1,525	189
2010	2,001	1,953	1,742	211
2011	2,411	1,954	1,743	211
2012	2,688	2,085	1,832	252
2013	2,346	2,049	1,797	252
2014	2,376	1,938	1,720	218
2015	2,325	1,905	1,663	242
2016	2,507	2,075	1,771	304
2017	2,717	2,300	1,955	345
2018	2,891	2,535	2,125	410
2019	3,095	2,471	2,080	391
2020	3,210	2,592	2,200	393
2021	3,022	2,701	2,265	435
2022	3,156	2,946	2,432	514
2023	2,815	2,809	2,281	528

2013

	Coal (1,000 ton)	Natural Gas (1,000 ton)	City Gas (10 <sup>6</sup> m <sup>3</sup> )	Crude oil & refinery feedstocks (1,000 Bbl)
Production	1,815	355	-	290
Imports	126,996	39,876	-	918,634
Exports	-62	-	-	-1,988
International Marine Bunkers	-	-	-	-
International Aviation Bunkers	-	-	-	-
Stock changes	1,261	-397	-	-6,060
Total primary energy supply	130,010	39,834	-	910,875
Transfers	-	-	-	7,414
Statistical differences	3,218	372	606	4,702
Total primary energy consumption	133,228	40,205	606	922,992
Transformation processes	-81,421	-39,264	23,337	-922,923
Electricity-only plants	-81,421	-15,663	-	-
CHP plants	-	-4,201	-644	-
Heat-only plants	-	-	-375	-
Petroleum Products	-	-	-	-922,923
Gas manufacturing	-	-19,400	24,356	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-	-
Transformation Own Use	-	-144	-	-69
Losses	-	-	-	-
Total final consumption	51,807	798	23,943	-
Industry	50,283	798	9,646	-
Agriculture/Forestry	511	-	4	-
Fishing	-	-	-	-
Mining and quarrying	-	-	0	-
Manufacturing	49,769	798	9,641	-
Food and tobacco	61	-	666	-
Textile and leather	1,813	-	359	-
Wood and wood products	-	-	49	-
Paper, pulp and print	26	-	418	-
Chemical and petrochemical	3,868	-	3,107	-
memo: petrochemical feedstock	-	-	-	-
Non-metallic minerals	4,647	-	588	-
Iron and steel	33,638	601	1,319	-
Non-ferrous metals	732	-	276	-
Machinery	-	-	777	-
Transport Equipment	-	2	955	-
Other manufacturing	4,984	194	1,127	-
Other energy	-	-	-	-
Construction	3	-	0	-
Transport	-	-	1,248	-
Rail	-	-	-	-
Road	-	-	1,248	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	1,071	-	9,611	-
Commercial	452	-	3,198	-
Public services	1	-	240	-

Note : Domestic anthracite consumption for the commercial sector is included in the residential sector.

Petroleum (1,000 Bbl)	Nuclear (GWh)	Hydro (GWh)	Renewables (1,000 toe)	Electricity (GWh)	Heat (1,000 toe)	Total (1,000 toe)
-	138,784	4,295	5,440	-	113	37,065
329,205	-	-	-	-	-	306,375
-429,291	-	-	-	-	-	-60,318
-53,651	-	-	-	-	-	-8,421
-31,896	-	-	-	-	-	-4,427
-1,133	-	-	2	-	-	-742
-186,766	138,784	4,295	5,442	-	113	269,532
-9,625	-	-	-	-	-	1
-3,901	-	-	0	-	-	3,513
-200,292	138,784	4,295	5,442	-	113	273,047
941,855	-138,784	-4,289	-953	513,146	2,346	-69,322
-22,726	-138,784	-4,289	-1,027	488,583	-113	-63,114
-235	-	-	-44	24,563	2,260	-1,858
-1,274	-	-	-5	-	199	-398
967,180	-	-	-	-	-	-4,075
-1,090	-	-	-	-	-	0
-	-	-	-	-	-	-
-	-	-	122	-	-	122
-38,481	-	-	-	-32,267	-	-7,057
-	-	-	-	-16,428	-411	-1,824
703,082	-	5	4,490	464,451	2,049	194,844
422,641	-	-	3,275	246,444	-	120,846
9,011	-	-	20	10,659	-	2,438
6,392	-	-	0	2,402	-	1,113
711	-	-	0	1,478	-	228
390,614	-	-	3,255	231,904	-	114,609
766	-	-	57	10,018	-	1,759
588	-	-	151	12,429	-	2,797
112	-	-	158	1,859	-	386
395	-	-	646	10,170	-	2,030
367,616	-	-	321	41,612	-	54,825
346,229	-	-	-	-	-	42,063
3,380	-	-	899	11,236	-	5,855
916	-	-	4	38,033	-	28,116
326	-	-	0	8,536	-	1,480
1,282	-	-	74	72,345	-	7,279
2,183	-	-	4	22,976	-	3,289
7,785	-	-	3	2,119	-	5,046
5,266	-	-	936	570	-	1,746
15,914	-	-	-	-	-	2,458
230,691	-	-	375	2,168	-	32,017
1,087	-	-	-	2,168	-	342
221,001	-	-	375	-	-	30,446
3,239	-	-	-	-	-	483
5,364	-	-	-	-	-	745
18,004	-	-	157	63,970	1,797	20,166
22,958	-	-	182	125,060	201	17,481
8,788	-	5	501	26,810	51	4,335

2013

	Coal	Natural Gas	City Gas	Crude oil & refinery feedstocks
Production	817	463	-	42
Imports	78,923	51,998	-	134,607
Exports	-40	-	-	-369
International Marine Bunkers	-	-	-	-
International Aviation Bunkers	-	-	-	-
Stock changes	837	-518	-	-905
Total primary energy supply	80,538	51,943	-	133,375
Transfers	-	-	-	1,381
Statistical differences	2,089	485	632	882
Total primary energy consumption	82,627	52,428	632	135,638
Transformation processes	-49,808	-51,200	24,340	-135,626
Electricity-only plants	-49,808	-20,424	-	-
CHP plants	-	-5,478	-672	-
Heat-only plants	-	-	-391	-
Petroleum Products	-	-	-	-135,626
Gas manufacturing	-	-25,297	25,403	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-	-
Transformation Own Use	-	-187	-	-12
Losses	-	-	-	-
Total final consumption	32,819	1,041	24,972	-
Industry	32,125	1,041	10,060	-
Agriculture/Forestry	220	-	4	-
Fishing	-	-	-	-
Mining and quarrying	-	-	0	-
Manufacturing	31,904	1,041	10,056	-
Food and tobacco	38	-	695	-
Textile and leather	1,117	-	374	-
Wood and wood products	-	-	52	-
Paper, pulp and print	16	-	436	-
Chemical and petrochemical	2,382	-	3,240	-
memo: petrochemical feedstock	-	-	-	-
Non-metallic minerals	2,863	-	613	-
Iron and steel	22,574	784	1,376	-
Non-ferrous metals	413	-	288	-
Machinery	-	-	811	-
Transport Equipment	-	3	996	-
Other manufacturing	2,502	253	1,175	-
Other energy	-	-	-	-
Construction	1	-	0	-
Transport	-	-	1,302	-
Rail	-	-	-	-
Road	-	-	1,302	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	487	-	10,024	-
Commercial	206	-	3,336	-
Public services	1	-	250	-

Note : Domestic anthracite consumption for the commercial sector is included in the residential sector.

Unit: 1,000 toe

Petroleum	Nuclear	Hydro	Renewables	Electricity	Heat	Total
-	29,283	906	5,440	-	113	37,065
40,847	-	-	-	-	-	306,375
-59,909	-	-	-	-	-	-60,318
-8,421	-	-	-	-	-	-8,421
-4,427	-	-	-	-	-	-4,427
-159	-	-	2	-	-	-742
-32,069	29,283	906	5,442	-	113	269,532
-1,379	-	-	-	-	-	1
-575	-	-	0	-	-	3,513
-34,022	29,283	906	5,442	-	113	273,047
127,636	-29,283	-905	-953	44,131	2,346	-69,322
-3,571	-29,283	-905	-1,027	42,018	-113	-63,114
-37	-	-	-44	2,112	2,260	-1,858
-201	-	-	-5	-	199	-398
131,551	-	-	-	-	-	-4,075
-106	-	-	-	-	-	0
-	-	-	-	-	-	-
-	-	-	122	-	-	122
-4,083	-	-	-	-2,775	-	-7,057
-	-	-	-	-1,413	-411	-1,824
89,530	-	1	4,490	39,943	2,049	194,844
53,151	-	-	3,275	21,194	-	120,846
1,277	-	-	20	917	-	2,438
906	-	-	0	207	-	1,113
101	-	-	0	127	-	228
48,411	-	-	3,255	19,944	-	114,609
107	-	-	57	862	-	1,759
87	-	-	151	1,069	-	2,797
16	-	-	158	160	-	386
58	-	-	646	875	-	2,030
45,303	-	-	321	3,579	-	54,825
42,063	-	-	-	-	-	42,063
514	-	-	899	966	-	5,855
106	-	-	4	3,271	-	28,116
45	-	-	0	734	-	1,480
173	-	-	74	6,222	-	7,279
310	-	-	4	1,976	-	3,289
931	-	-	3	182	-	5,046
761	-	-	936	49	-	1,746
2,456	-	-	-	-	-	2,458
30,154	-	-	375	186	-	32,017
156	-	-	-	186	-	342
28,769	-	-	375	-	-	30,446
483	-	-	-	-	-	483
745	-	-	-	-	-	745
2,199	-	-	157	5,501	1,797	20,166
2,801	-	-	182	10,755	201	17,481
1,226	-	1	501	2,306	51	4,335

2023

	Coal (1,000 ton)	Natural Gas (1,000 ton)	City Gas (10 <sup>6</sup> m <sup>3</sup> )	Crude oil & refinery feedstocks (1,000 Bbl)
Production	646	-	-	-
Imports	119,761	44,117	-	1,018,299
Exports	-1	-	-	-2,515
International Marine Bunkers	-	-9	-	-
International Aviation Bunkers	-	-	-	-
Stock changes	1,500	-799	-	4,688
Total primary energy supply	121,906	43,309	-	1,020,472
Transfers	-	-	-	132,952
Statistical differences	-2,274	612	176	-3,364
Total primary energy consumption	119,632	43,921	176	1,150,059
Transformation processes	-72,046	-39,747	22,087	-1,149,566
Electricity-only plants	-72,046	-15,134	-	-
CHP plants	-	-6,485	-262	-
Heat-only plants	-	-0	-271	-
Petroleum Products	-	-	-	-1,149,566
Gas manufacturing	-	-18,129	23,525	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-904	-
Transformation Own Use	-	-2,020	-571	-494
Losses	-	7	-	-
Total final consumption	47,585	2,162	21,693	-
Industry	47,196	2,162	7,065	-
Agriculture/Forestry	73	-	4	-
Fishing	-	-	-	-
Mining and quarrying	-	-	-	-
Manufacturing	47,123	2,162	7,061	-
Food and tobacco	7	-	861	-
Textile and leather	1,541	-	173	-
Wood and wood products	-	-	28	-
Paper, pulp and print	-	381	277	-
Chemical and petrochemical	5,423	153	1,554	-
memo: petrochemical feedstock	-	82	-	-
Non-metallic minerals	3,479	-	482	-
Iron and steel	32,879	808	1,067	-
Non-ferrous metals	818	280	476	-
Machinery	296	330	1,352	-
Transport Equipment	-	29	637	-
Other manufacturing	2,680	180	154	-
Other energy	-	-	-	-
Construction	0	-	-	-
Transport	-	-	969	-
Rail	-	-	-	-
Road	-	-	969	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	356	-	10,198	-
Commercial	33	-	3,401	-
Public services	0	-	59	-

Note : Domestic anthracite consumption for the commercial sector is included in the residential sector.

Petroleum (1,000 Bbl)	Nuclear (GWh)	Hydro (GWh)	Renewables (1,000 toe)	Electricity (GWh)	Heat (1,000 toe)	Total (1,000 toe)
-	180,494	3,720	16,902	-	73	56,517
372,054	-	-	-	-	-	326,760
-494,404	-	-	-	-	-	-68,758
-72,136	-	-	-	-	-	-11,241
-40,268	-	-	-	-	-	-5,583
-6,174	-	-	1	-	-	-98
-240,928	180,494	3,720	16,903	-	73	297,598
-133,361	-	-	-	-	-	7,108
3,926	-	-	-1	-	-	-406
-370,363	180,494	3,720	16,902	-	73	304,300
1,175,749	-180,494	-3,716	-9,547	584,440	2,815	-84,747
-2,678	-180,494	-3,716	-10,840	536,480	-73	-66,157
-529	-	-	-192	47,959	2,440	-2,440
-1,388	-	-	-41	-	448	-64
1,183,019	-	-	-	-	-	-16,692
-2,674	-	-	-	-	-	-0
-	-	-	212	-	-	212
-	-	-	1,313	-	-	392
-39,205	-	-	-	-35,537	-	-10,087
-	-	-	-	-14,225	-79	-1,293
766,182	-	4	7,355	534,678	2,809	208,172
473,704	-	-	4,640	268,462	-	126,412
2,891	-	-	157	15,790	-	1,941
5,762	-	-	-	2,987	-	1,072
535	-	-	0	1,709	-	228
451,071	-	-	4,470	247,976	-	121,088
346	-	-	125	13,996	-	2,250
116	-	-	180	7,849	-	1,950
44	-	-	107	1,648	-	284
221	-	-	849	8,833	-	2,417
421,536	-	-	1,507	53,391	-	62,121
386,145	-	-	-	-	-	46,248
3,422	-	-	779	11,438	-	4,809
581	-	-	12	24,288	-	26,370
349	-	-	-	8,764	-	2,120
608	-	-	327	90,707	-	10,189
2,249	-	-	104	23,645	-	3,128
9,584	-	-	480	3,417	-	3,668
12,014	-	-	1	-	-	1,781
13,445	-	-	13	-	-	2,083
250,712	-	-	696	4,720	-	35,316
401	-	-	-	2,766	-	295
240,784	-	-	696	1,955	-	33,664
3,051	-	-	-	-	-	460
6,476	-	-	-	-	-	898
15,045	-	-	516	79,886	2,281	22,058
18,496	-	-	187	149,228	451	18,999
8,225	-	4	1,316	32,381	77	5,386

2023

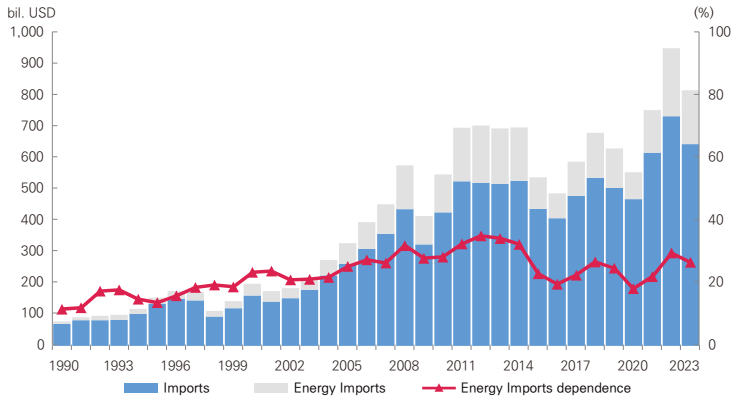
	Coal	Natural Gas	City Gas	Crude oil & refinery feedstocks
Production	304	-	-	-
Imports	72,434	57,705	-	152,166
Exports	-0	-	-	-466
International Marine Bunkers	-	-12	-	-
International Aviation Bunkers	-	-	-	-
Stock changes	963	-1,045	-	738
Total primary energy supply	73,700	56,648	-	152,438
Transfers	-	-	-	24,755
Statistical differences	-1,216	801	180	-523
Total primary energy consumption	72,484	57,449	180	176,670
Transformation processes	-41,977	-51,989	22,507	-176,579
Electricity-only plants	-41,977	-19,795	-	-
CHP plants	-	-8,482	-267	-
Heat-only plants	-	-0	-277	-
Petroleum Products	-	-	-	-176,579
Gas manufacturing	-	-23,712	23,971	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-921	-
Transformation Own Use	-	-2,642	-582	-92
Losses	-	10	-	-
Total final consumption	30,507	2,827	22,105	-
Industry	30,324	2,827	7,199	-
Agriculture/Forestry	18	-	4	-
Fishing	-	-	-	-
Mining and quarrying	-	-	-	-
Manufacturing	30,306	2,827	7,195	-
Food and tobacco	4	-	877	-
Textile and leather	903	-	177	-
Wood and wood products	-	-	29	-
Paper, pulp and print	-	498	282	-
Chemical and petrochemical	3,178	201	1,583	-
memo: petrochemical feedstock	-	108	-	-
Non-metallic minerals	2,039	-	491	-
Iron and steel	22,067	1,057	1,088	-
Non-ferrous metals	468	366	485	-
Machinery	174	432	1,377	-
Transport Equipment	-	38	649	-
Other manufacturing	1,474	235	157	-
Other energy	-	-	-	-
Construction	0	-	-	-
Transport	-	-	988	-
Rail	-	-	-	-
Road	-	-	988	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	168	-	10,392	-
Commercial	16	-	3,466	-
Public services	0	-	60	-

Note : Domestic anthracite consumption for the commercial sector is included in the residential sector.

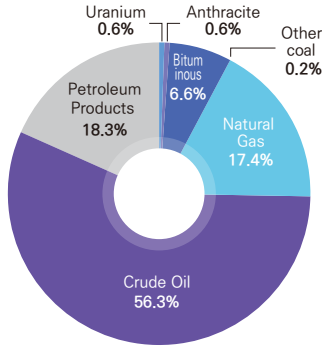
Unit: 1,000 toe

Petroleum	Nuclear	Hydro	Renewables	Electricity	Heat	Total
-	38,445	792	16,902	-	73	56,517
44,455	-	-	-	-	-	326,760
-68,292	-	-	-	-	-	-68,758
-11,229	-	-	-	-	-	-11,241
-5,583	-	-	-	-	-	-5,583
-754	-	-	1	-	-	-98
-41,402	38,445	792	16,903	-	73	297,598
-17,648	-	-	-	-	-	7,108
354	-	-	-1	-	-	-406
-58,696	38,445	792	16,902	-	73	304,300
158,996	-38,445	-792	-9,547	50,262	2,815	-84,747
-373	-38,445	-792	-10,840	46,137	-73	-66,157
-64	-	-	-192	4,125	2,440	-2,440
-194	-	-	-41	-	448	-64
159,887	-	-	-	-	-	-16,692
-259	-	-	-	-	-	-0
-	-	-	212	-	-	212
-	-	-	1,313	-	-	392
-3,715	-	-	-	-3,056	-	-10,087
-	-	-	-	-1,223	-79	-1,293
96,585	-	1	7,355	45,982	2,809	208,172
58,334	-	-	4,640	23,088	-	126,412
405	-	-	157	1,358	-	1,941
815	-	-	-	257	-	1,072
81	-	-	0	147	-	228
54,964	-	-	4,470	21,326	-	121,088
40	-	-	125	1,204	-	2,250
15	-	-	180	675	-	1,950
6	-	-	107	142	-	284
29	-	-	849	760	-	2,417
51,061	-	-	1,507	4,592	-	62,121
46,140	-	-	-	-	-	46,248
517	-	-	779	984	-	4,809
58	-	-	12	2,089	-	26,370
47	-	-	-	754	-	2,120
78	-	-	327	7,801	-	10,189
304	-	-	104	2,033	-	3,128
1,029	-	-	480	294	-	3,668
1,780	-	-	1	-	-	1,781
2,070	-	-	13	-	-	2,083
33,226	-	-	696	406	-	35,316
58	-	-	-	238	-	295
31,811	-	-	696	168	-	33,664
460	-	-	-	-	-	460
898	-	-	-	-	-	898
1,832	-	-	516	6,870	2,281	22,058
2,046	-	-	187	12,834	451	18,999
1,148	-	1	1,316	2,785	77	5,386

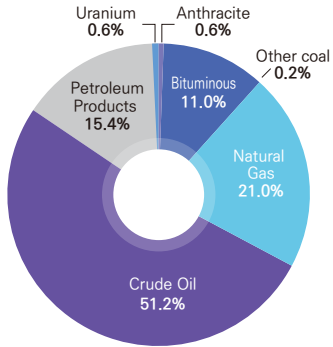
## ◦ Energy Imports



○ 2013 176,561 million USD



○ 2023 171,437 million USD



## 9-1. Energy Imports

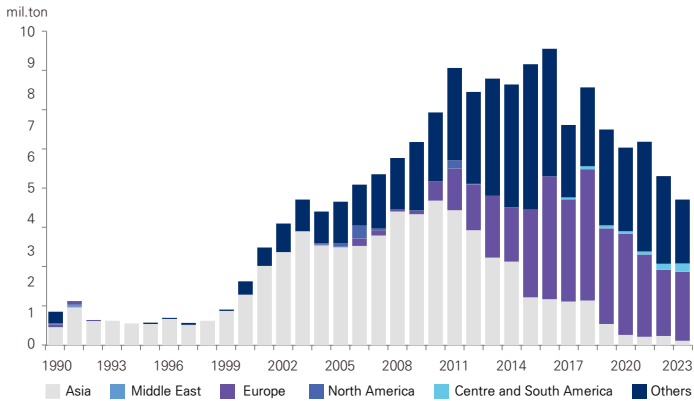
	Total Imports (CIF) (A)	Energy Imports				
		Total (B)	Coal			Natural Gas
			Anthracite	Bituminous	Others	
1990	69,844	8,209	52	1,217	19	460
1991	81,525	9,921	66	1,514	20	485
1992	81,775	14,281	42	1,535	39	562
1993	83,800	14,969	40	1,642	50	781
1994	102,348	15,228	33	1,695	48	961
1995	135,119	18,643	35	1,992	54	1,275
1996	150,339	24,003	46	2,251	40	1,878
1997	144,616	26,981	38	2,301	60	2,296
1998	93,282	18,092	36	2,147	46	1,549
1999	119,752	22,543	46	1,866	53	1,973
2000	160,481	37,622	72	2,033	80	3,882
2001	141,098	33,652	118	2,157	72	3,990
2002	152,126	31,997	148	2,254	72	4,120
2003	178,827	37,982	177	2,266	109	5,082
2004	224,463	49,075	233	3,891	314	6,552
2005	261,238	66,238	429	4,803	211	8,646
2006	309,383	84,905	407	4,700	211	11,925
2007	356,846	94,306	447	5,675	323	12,653
2008	435,275	139,288	991	11,156	653	19,806
2009	323,085	90,259	672	8,997	326	13,875
2010	425,212	120,478	1,016	11,425	690	17,006
2011	524,413	170,497	1,774	16,052	651	23,859
2012	519,584	182,252	1,361	14,221	488	27,364
2013	515,586	176,561	1,143	11,624	307	30,645
2014	525,515	170,117	921	10,723	471	31,403
2015	436,499	100,440	813	8,675	474	18,779
2016	406,193	79,953	759	8,168	383	12,170
2017	478,478	107,921	933	13,481	765	15,616
2018	535,202	143,285	1,199	14,668	835	23,189
2019	503,343	124,777	927	13,062	219	20,567
2020	467,633	85,444	611	8,805	181	15,716
2021	615,093	135,935	889	13,485	325	25,453
2022	731,370	216,409	1,661	26,231	441	50,022
2023	642,572	171,437	1,005	18,893	280	36,049

Source : Korea International Trade Association

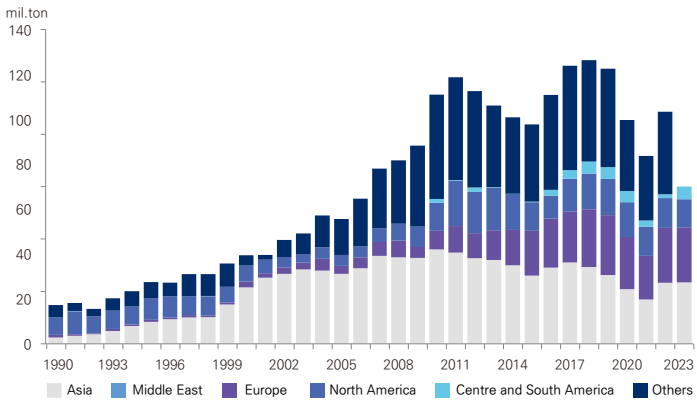
Unit: Million USD

Energy Imports			Energy/Imports B/A(%)	Energy Imports Growth Rate (%)	
Petroleum		Uranium			
Crude Oil	Petroleum Products				
6,462	-	-	11.8	-	1990
7,835	-	0	12.2	20.8	1991
9,522	2,582	-	17.5	44.0	1992
9,432	2,989	35	17.9	4.8	1993
9,233	3,152	105	14.9	1.7	1994
11,266	3,999	22	13.8	22.4	1995
14,924	4,863	0	16.0	28.7	1996
17,879	4,325	82	18.7	12.4	1997
11,302	2,860	152	19.4	-32.9	1998
14,943	3,492	170	18.8	24.6	1999
25,414	6,001	138	23.4	66.9	2000
21,620	5,477	218	23.9	-10.6	2001
19,449	5,690	262	21.0	-4.9	2002
23,394	6,710	243	21.2	18.7	2003
30,100	7,670	315	21.9	29.2	2004
43,088	8,796	265	25.4	35.0	2005
56,065	11,287	311	27.4	28.2	2006
60,609	14,152	446	26.4	11.1	2007
85,184	20,831	667	32.0	47.7	2008
50,880	14,826	684	27.9	-35.2	2009
68,897	20,880	564	28.3	33.5	2010
100,335	27,078	748	32.5	41.5	2011
107,070	31,113	635	35.1	6.9	2012
99,490	32,376	976	34.2	-3.1	2013
94,512	31,401	688	32.4	-3.6	2014
54,916	15,967	817	23.0	-41.0	2015
44,540	13,397	536	19.7	-20.4	2016
60,075	16,110	941	22.6	35.0	2017
80,521	22,335	538	26.8	32.8	2018
70,430	18,865	707	24.8	-12.9	2019
44,791	14,615	725	18.3	-31.5	2020
68,771	26,268	744	22.1	59.1	2021
107,255	30,348	451	29.6	59.2	2022
87,734	26,375	1,101	26.7	-20.8	2023

## Imports of Anthracite Coal by Origin



## Imports of Bituminous Coal by Origin



## 9-2. Imports of Anthracite and Bituminous Coal by Origin

	Anthracite Coal						
	Total	Asia	Middle East	Europe	North America	Centre and South America	Others <sup>2</sup>
1990	1,072	580	-	85	36	-	371
1991	1,410	1,212	79	119	-	-	-
1992	809	779	-	30	-	-	-
1993	783	783	-	-	-	-	-
1994	699	699	-	-	0	-	-
1995	723	688	-	-	-	-	35
1996	875	842	-	-	0	-	32
1997	722	651	-	10	-	-	60
1998	789	789	-	-	-	-	-
1999	1,139	1,096	-	-	-	-	43
2000	2,038	1,616	-	-	-	-	422
2001	3,110	2,530	-	-	-	-	580
2002	3,879	2,966	-	0	-	-	913
2003	4,640	3,629	-	-	-	-	1,011
2004	4,251	3,180	-	33	33	-	1,006
2005	4,567	3,119	-	16	104	-	1,328
2006	5,113	3,168	-	233	408	-	1,304
2007	5,444	3,491	-	175	45	7	1,726
2008	5,955	4,253	-	71	0	-	1,631
2009	6,468	4,168	-	124	-	0	2,176
2010	7,406	4,603	-	620	-	-	2,183
2011	8,816	4,294	-	1,326	261	-	2,934
2012	8,055	3,660	-	1,457	22	-	2,916
2013	8,482	2,791	-	1,966	-	-	3,725
2014	8,294	2,667	-	1,724	-	-	3,903
2015	8,938	1,529	-	2,787	-	-	4,622
2016	9,424	1,472	-	3,904	-	-	4,048
2017	7,003	1,388	21	3,232	-	65	2,297
2018	8,201	1,432	-	4,166	-	95	2,507
2019	6,858	688	-	3,031	-	98	3,041
2020	6,286	333	-	3,211	-	88	2,655
2021	6,475	275	-	2,617	-	92	3,491
2022	5,384	301	-	2,107	-	191	2,785
2023	4,639	150	-	2,195	-	256	2,038

1. Coking coal, other bituminous and sub-bituminous coal.

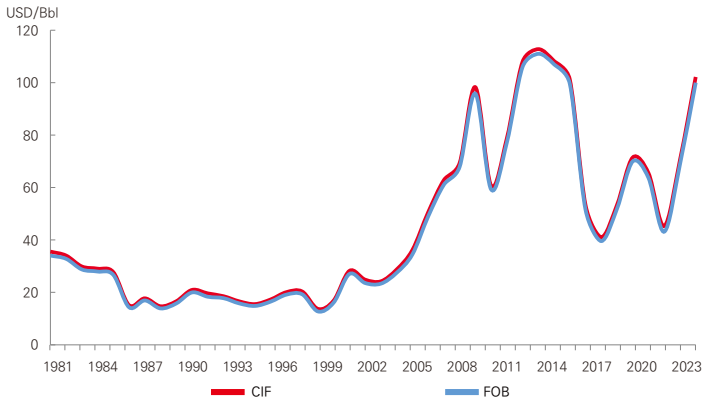
2. Africa, Oceania, Others

Source: Korea International Trade Association.

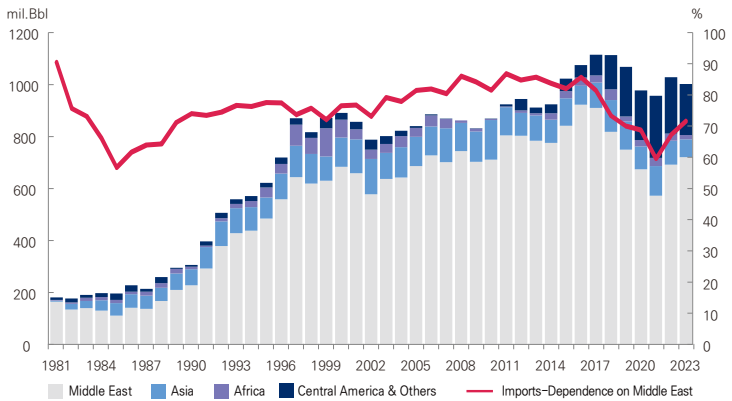
Unit: 1,000 ton

Bituminous Coal <sup>1</sup>							
Total	Asia	Middle East	Europe	North America	Centre and South America	Others <sup>2</sup>	
22,846	2,778	-	1,065	7,821	-	11,182	1990
27,849	3,426	141	549	10,260	112	13,361	1991
29,321	4,200	-	359	7,618	-	17,144	1992
34,191	5,581	-	952	8,201	-	19,457	1993
37,854	7,848	-	674	7,946	-	21,385	1994
42,359	9,719	-	888	9,668	-	22,085	1995
45,160	10,863	-	813	9,477	-	24,008	1996
48,237	11,682	-	1,089	8,368	-	27,098	1997
50,566	11,821	-	649	8,669	65	29,361	1998
51,101	17,456	-	844	7,006	-	25,794	1999
59,601	25,098	-	2,565	7,163	-	24,774	2000
61,857	29,392	-	1,947	6,093	-	24,425	2001
64,640	31,085	-	2,937	4,543	-	26,074	2002
65,318	33,063	-	3,070	3,853	-	25,333	2003
72,103	32,557	-	5,280	5,135	-	29,131	2004
69,330	31,090	-	3,547	4,913	-	29,779	2005
70,888	33,675	-	4,799	4,814	-	27,600	2006
79,355	39,101	-	6,181	6,276	-	27,797	2007
90,469	38,522	-	7,450	7,519	-	36,978	2008
92,952	38,229	-	4,796	9,051	72	40,804	2009
106,096	41,992	-	8,281	12,572	1,696	41,555	2010
116,118	40,580	-	11,883	20,167	306	43,183	2011
114,645	38,066	-	11,243	18,371	1,936	45,029	2012
116,222	37,231	-	13,291	18,944	324	46,432	2013
117,873	34,952	-	15,748	16,116	9	51,048	2014
119,322	30,388	-	19,978	12,744	173	56,038	2015
118,468	33,887	-	21,818	10,310	2,619	49,835	2016
131,464	36,094	111	22,845	14,508	3,786	54,120	2017
131,520	34,201	-	25,679	15,953	5,439	50,247	2018
132,667	30,599	-	26,660	16,153	5,255	54,000	2019
115,373	24,262	-	23,285	15,571	4,898	47,358	2020
117,106	19,634	-	19,489	13,027	2,793	62,162	2021
117,752	27,061	118	24,469	13,240	1,751	51,113	2022
112,932	27,272	-	24,575	12,599	5,594	42,893	2023

## ○ Crude Oil Price



## ○ Crude Oil Imports by Region



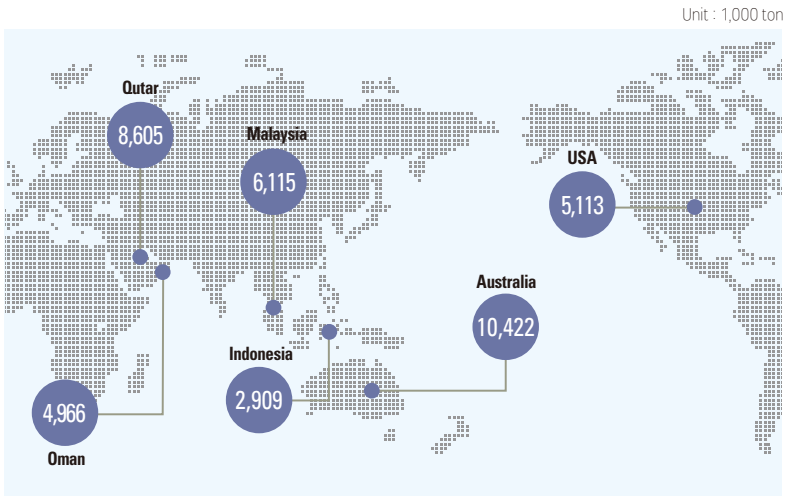
## 9-3. Crude Oil Imports by Region and Prices

	By Region(1,000 bbl)			
	Total	Middle East	Asia	Africa
1981	182,814	165,858	5,141	1,467
1982	178,369	135,527	21,942	6,415
1983	192,969	141,816	27,367	12,053
1984	199,681	132,467	39,329	11,705
1985	198,313	113,013	47,996	11,912
1986	230,063	142,423	52,128	9,912
1987	216,163	138,659	51,265	15,141
1988	261,079	168,479	50,980	17,775
1989	296,411	211,819	63,585	17,180
1990	308,368	229,017	62,530	9,689
1991	399,303	294,357	82,695	5,551
1992	509,378	380,452	95,033	12,822
1993	560,563	430,839	96,233	15,790
1994	573,714	439,330	91,083	23,225
1995	624,945	486,528	82,050	37,911
1996	721,927	561,098	98,631	37,024
1997	873,415	645,678	121,372	82,126
1998	819,094	622,005	113,494	61,907
1999	874,090	632,067	93,517	109,560
2000	893,943	686,916	112,669	67,749
2001	859,367	661,649	130,033	39,155
2002	790,992	579,865	136,756	35,877
2003	804,809	639,453	100,721	34,156
2004	825,790	645,183	116,287	42,874
2005	843,203	689,356	111,937	34,424
2006	888,794	730,843	110,306	42,814
2007	872,541	704,020	131,273	35,557
2008	864,872	746,458	108,482	9,932
2009	835,085	705,363	116,379	11,608
2010	872,415	713,647	152,354	4,592
2011	927,044	807,908	108,402	2,772
2012	947,292	805,971	88,190	9,233
2013	915,075	786,813	97,047	8,096
2014	927,524	778,923	88,623	25,301
2015	1,026,107	844,637	106,263	26,691
2016	1,078,119	926,201	72,756	30,496
2017	1,118,167	913,446	97,233	28,189
2018	1,116,281	820,994	122,832	40,901
2019	1,071,923	752,564	107,943	19,928
2020	980,259	676,409	88,493	24,549
2021	960,147	574,430	113,932	32,000
2022	1,031,283	695,122	91,418	27,703
2023	1,005,770	723,134	69,224	16,048

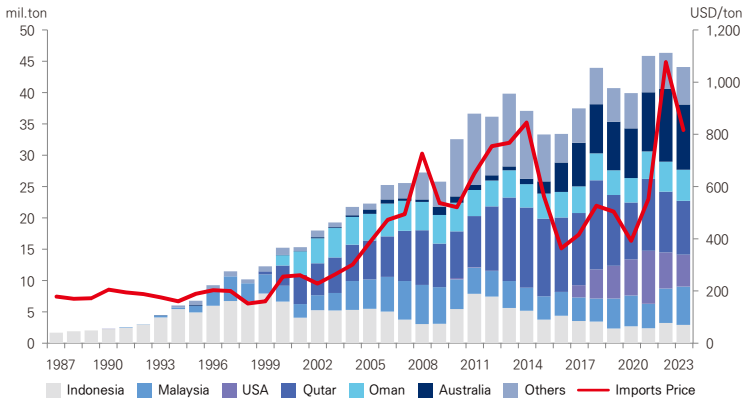
Source: Korea National Oil Corporation

	Imports-Dependence on Middle East (%)	Imports Price(CIF) (US\$/bbl)	Imports Price(FOB) (US\$/bbl)	
Central America & Others				
10,348	90.7	35.6	34.1	1981
14,486	76.0	34.1	32.8	1982
11,734	73.5	29.9	28.8	1983
16,180	66.3	29.1	28.0	1984
25,392	57.0	27.7	26.7	1985
25,601	61.9	15.1	14.3	1986
11,098	64.1	17.7	16.9	1987
23,845	64.5	14.7	13.9	1988
3,826	71.5	16.6	15.8	1989
7,132	74.3	21.0	20.0	1990
16,701	73.7	19.6	18.4	1991
21,071	74.7	18.5	17.8	1992
17,702	76.9	16.6	15.8	1993
20,075	76.6	15.5	14.8	1994
18,456	77.9	17.3	16.5	1995
25,174	77.7	20.1	19.2	1996
24,240	73.9	20.3	19.3	1997
21,689	75.9	13.7	12.7	1998
38,946	72.3	16.9	16.1	1999
26,610	76.8	28.2	27.0	2000
28,530	77.0	24.9	23.6	2001
38,494	73.3	24.2	23.3	2002
30,479	79.5	28.7	27.5	2003
21,447	78.1	36.2	34.5	2004
7,487	81.8	50.5	48.9	2005
4,831	82.2	62.8	61.1	2006
1,690	80.7	69.4	67.9	2007
-	86.3	98.3	95.8	2008
1,734	84.5	60.8	59.3	2009
1,823	81.8	78.7	77.1	2010
7,962	87.1	108.0	106.0	2011
43,899	85.1	112.8	111.0	2012
23,119	86.0	108.3	107.0	2013
34,678	84.0	101.2	99.6	2014
48,516	82.3	53.3	51.5	2014
48,667	85.9	41.1	39.6	2016
79,300	81.7	53.4	51.9	2017
131,554	73.5	71.5	70.0	2018
191,489	70.2	65.5	63.7	2019
190,808	69.0	45.3	43.2	2020
239,785	59.8	70.5	68.8	2021
217,040	67.4	102.2	100.0	2022
197,364	71.9	85.9	83.6	2023

## ◦ LNG Imports by Region 2023



## ◦ LNG Imports & Prices



## 9-4. LNG Imports by Region and Prices

	Imports Price (USD/ton)	Import(1,000 ton)			
		Total	Indonesia	Malaysia	USA
1986	143	117	117	-	-
1987	179	1,682	1,682	-	-
1988	170	1,898	1,898	-	-
1989	172	2,015	2,015	-	-
1990	205	2,237	2,237	-	0
1991	195	2,494	2,436	58	-
1992	188	2,994	2,935	58	-
1993	175	4,459	4,112	290	-
1994	160	5,996	5,433	292	-
1995	189	6,756	4,892	1,040	-
1996	203	9,258	5,975	2,573	0
1997	200	11,471	6,730	3,928	-
1998	152	10,189	6,736	2,851	-
1999	161	12,284	7,943	3,046	0
2000	255	15,239	6,633	2,529	0
2001	260	15,318	4,055	2,175	0
2002	229	17,993	5,256	2,400	0
2003	263	19,308	5,200	2,798	-
2004	301	21,781	5,290	4,638	0
2005	387	22,317	5,502	4,688	-
2006	472	25,256	5,060	5,546	-
2007	495	25,569	3,755	6,161	0
2008	727	27,259	3,053	6,247	-
2009	537	25,822	3,084	5,874	-
2010	522	32,603	5,451	4,745	232
2011	650	36,685	7,894	4,144	113
2012	756	36,184	7,445	4,082	57
2013	769	39,876	5,627	4,314	-
2014	846	37,107	5,176	3,673	-
2015	563	33,366	3,776	3,698	-
2016	364	33,453	4,362	3,813	28
2017	416	37,537	3,542	3,749	1,959
2018	527	44,015	3,447	3,702	4,658
2019	505	40,748	2,336	4,802	5,226
2020	393	39,982	2,699	4,918	5,762
2021	554	45,932	2,387	3,906	8,478
2022	1,078	46,394	3,226	5,516	5,759
2023	817	44,117	2,909	6,115	5,113

Source: Korea International Trade Association

Import(1,000 ton)				
Qatar	Oman	Australia	Others	
-	-	-	-	1986
-	-	-	-	1987
-	-	-	-	1988
-	-	-	-	1989
-	-	-	-	1990
-	-	-	-	1991
-	-	-	-	1992
-	-	57	-	1993
-	-	-	271	1994
-	-	114	710	1995
-	-	56	654	1996
-	-	-	813	1997
-	-	-	602	1998
480	-	-	815	1999
3,251	1,619	54	1,153	2000
4,655	3,784	57	591	2001
5,123	3,970	176	1,068	2002
5,694	4,714	123	779	2003
5,818	4,411	285	1,339	2004
6,211	4,244	748	925	2005
6,458	5,221	701	2,270	2006
8,031	4,792	422	2,407	2007
8,744	4,544	398	4,273	2008
6,973	4,551	1,314	4,026	2009
7,449	4,557	1,030	9,140	2010
8,153	4,195	787	11,398	2011
10,278	4,127	832	9,362	2012
13,354	4,331	620	11,629	2013
12,853	3,726	836	10,842	2014
12,442	3,990	1,952	7,507	2015
11,880	4,081	4,695	4,595	2016
11,554	4,231	6,997	5,505	2017
14,245	4,282	7,871	5,811	2018
11,311	3,946	7,775	5,353	2019
9,087	3,900	7,972	5,646	2020
11,464	4,415	9,465	5,818	2021
9,727	4,757	11,651	5,758	2022
8,605	4,966	10,422	5,987	2023



10. Prices

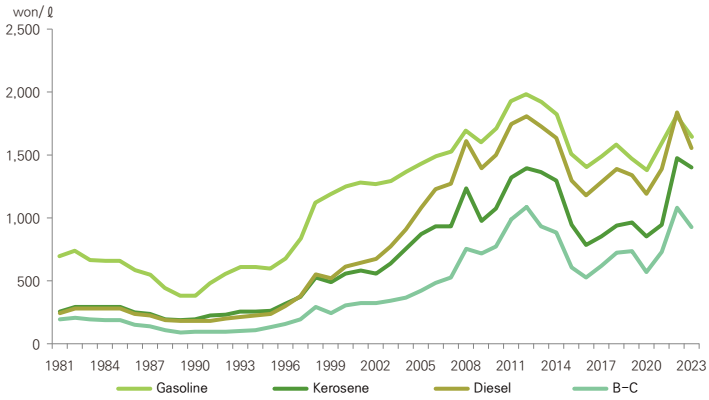
11. Energy Map

12. Energy Consumption  
in the Korean Peninsula

13. World Energy Statistics



## ○ Petroleum Products



## ○ LPG

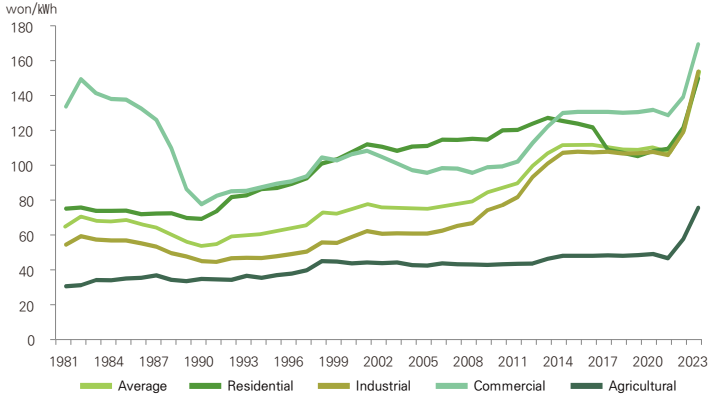


## 10-1. Prices of Major Petroleum Products

	Gasoline	Kerosene	Diesel	B-C	Propane	Butane
	(won/ℓ)				(won/kg)	
1981	697.7	257.7	245.9	193.1	848.0	-
1982	740.0	292.0	278.0	208.1	836.3	-
1983	667.9	292.3	278.3	194.9	747.7	-
1984	660.0	291.0	277.0	186.6	740.0	-
1985	660.0	291.0	277.0	185.8	740.0	-
1986	587.5	249.2	238.3	147.9	605.9	-
1987	547.0	234.7	225.1	136.7	556.4	-
1988	445.6	194.7	187.3	105.0	458.6	-
1989	379.8	186.0	179.0	89.1	514.0	-
1990	383.5	191.3	182.0	95.3	415.0	-
1991	480.7	226.9	182.0	94.7	430.4	-
1992	555.8	231.1	198.7	97.5	449.4	-
1993	610.0	254.0	214.0	102.5	460.0	-
1994	611.0	252.3	227.1	106.5	475.0	-
1995	598.0	261.6	239.4	129.5	489.7	-
1996	675.8	314.3	300.8	156.7	510.0	-
1997	838.7	373.5	376.2	195.9	599.0	-
1998	1,122.6	524.2	553.5	292.1	815.0	-
1999	1,191.9	491.2	521.8	242.3	678.3	-
2000	1,248.4	559.6	612.8	304.1	809.3	-
2001	1,280.0	580.2	644.6	320.5	919.0	1,138.9
2002	1,269.1	554.4	677.6	322.8	887.3	1,108.1
2003	1,294.8	638.8	772.0	339.2	980.0	1,193.3
2004	1,365.3	752.2	907.9	367.1	1,050.2	1,234.5
2005	1,432.3	871.0	1,079.7	420.1	1,131.5	1,305.1
2006	1,492.4	931.9	1,228.2	483.0	1,242.7	1,392.3
2007	1,525.9	932.2	1,272.7	526.6	1,330.6	1,453.7
2008	1,692.1	1,238.7	1,614.4	757.1	1,789.9	1,898.2
2009	1,600.7	976.2	1,397.5	718.7	1,577.2	1,885.0
2010	1,710.4	1,076.0	1,502.8	772.3	1,812.7	2,072.0
2011	1,929.3	1,321.2	1,745.7	987.2	2,034.0	2,277.3
2012	1,985.8	1,394.1	1,806.3	1,088.7	2,105.9	2,352.0
2013	1,924.5	1,366.7	1,729.6	935.1	2,085.3	2,337.6
2014	1,827.3	1,296.7	1,636.7	885.5	2,112.9	2,369.3
2015	1,510.4	947.4	1,299.6	604.2	1,801.3	2,033.9
2016	1,402.6	784.5	1,182.5	523.8	1,689.1	1,913.5
2017	1,491.3	853.1	1,282.5	619.8	1,833.8	2,074.7
2018	1,581.4	942.3	1,391.9	724.3	1,920.4	2,177.4
2019	1,472.4	961.7	1,340.5	733.6	1,869.9	2,140.4
2020	1,381.4	853.8	1,189.7	570.1	1,851.2	2,148.0
2021	1,590.6	946.8	1,391.4	731.6	2,092.3	2,415.1
2022	1,812.8	1,473.9	1,842.9	1,082.2	2,478.1	2,854.7
2023	1,643.0	1,403.0	1,558.3	924.4	2,372.7	2,774.2

Note: Butane is for residential and commercial

## ○ Average Revenues per kWh Sold

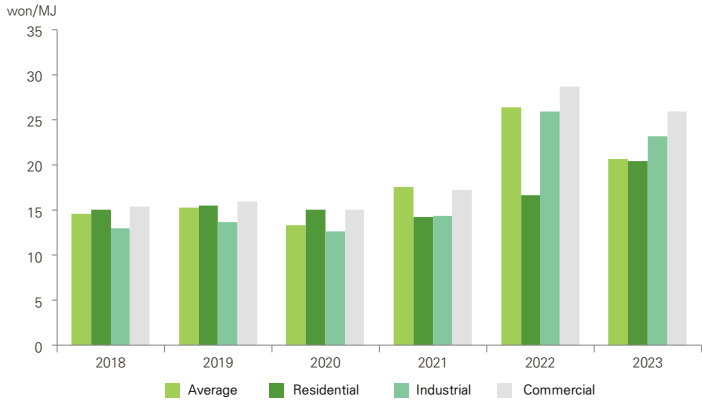


## 10-2. Average Revenues per kWh Sold

Unit: won/kWh

	Average	Residential	Industrial	Commercial	Agricultural
1981	64.31	74.61	53.84	133.53	29.74
1982	69.87	75.19	58.61	149.32	30.38
1983	67.71	73.26	56.79	141.25	33.42
1984	67.42	73.33	56.27	137.89	33.19
1985	67.92	73.42	56.21	137.53	34.26
1986	65.51	71.33	54.54	132.31	34.69
1987	63.48	71.75	52.59	125.78	36.04
1988	59.49	71.94	48.91	109.53	33.48
1989	55.43	69.13	46.94	85.93	32.70
1990	52.94	68.66	44.33	77.12	34.06
1991	54.23	73.03	43.84	81.91	33.80
1992	58.09	81.22	46.00	84.60	33.56
1993	58.90	82.29	46.20	84.90	35.82
1994	60.22	85.95	46.14	86.92	34.59
1995	61.28	86.47	47.14	89.00	36.17
1996	62.99	88.95	48.37	90.32	37.11
1997	65.26	92.05	49.86	93.19	38.96
1998	72.08	100.62	55.01	104.16	44.31
1999	71.59	103.07	54.78	102.45	44.04
2000	74.65	107.30	58.30	106.04	43.04
2001	77.06	111.71	61.56	107.99	43.51
2002	75.21	110.31	60.08	104.42	43.16
2003	74.68	107.96	60.30	100.59	43.45
2004	74.58	110.41	60.23	96.85	41.95
2005	74.46	110.82	60.25	95.24	41.67
2006	76.43	114.33	61.92	97.91	42.96
2007	77.85	114.31	64.56	97.68	42.45
2008	78.76	114.97	66.24	95.30	42.38
2009	83.59	114.45	73.69	98.50	42.13
2010	86.12	119.85	76.63	98.93	42.54
2011	89.32	119.99	81.23	101.69	42.72
2012	99.10	123.69	92.83	112.50	42.90
2013	106.33	127.02	100.70	121.98	45.51
2014	111.28	125.14	106.83	129.75	47.31
2015	111.57	123.69	107.41	130.46	47.31
2016	111.23	121.52	107.11	130.41	47.41
2017	109.53	108.50	107.41	130.42	47.57
2018	108.75	106.87	106.46	129.97	47.43
2019	108.66	104.95	106.56	130.33	47.74
2020	109.80	107.89	107.35	131.60	48.45
2021	108.11	109.16	105.48	128.47	45.95
2022	120.51	121.32	118.66	139.10	56.89
2023	152.80	149.75	153.71	169.46	75.10

## ○ City Gas



### 10-3. City Gas Prices

Unit: won/m<sup>3</sup>, won/MJ

	Average	Residential	Industrial	Commercial
1987	378.40	351.60	332.80	332.80
1988	271.00	326.30	292.70	292.70
1989	234.40	287.90	227.00	232.10
1990	220.20	284.85	206.80	214.46
1991	217.53	284.85	199.11	211.34
1992	232.71	290.16	193.99	220.85
1993	232.71	295.47	193.99	230.36
1994	235.97	296.16	196.70	230.90
1995	245.73	300.56	196.70	237.25
1996	245.73	301.90	196.70	242.39
1997	334.70	325.74	206.63	266.23
1998	353.20	432.39	283.47	377.93
1999	348.00	404.11	248.21	356.72
2000	418.36	463.96	294.45	416.57
2001	464.99	497.99	369.43	495.54
2002	415.58	422.51	323.03	439.52
2003	417.15	451.86	357.11	468.87
2004	493.47	473.95	379.94	490.96
2005	487.44	485.65	396.20	502.66
2006	570.35	568.77	485.57	585.78
2007	631.37	598.97	509.44	615.98
2008	657.00	643.26	549.71	662.11
2009	707.72	690.28	629.12	744.49
2010	704.94	716.55	661.83	785.14
2011	815.78	783.68	724.16	837.55
2012	19.66	847.76	792.62	891.44
2013	20.63	20.83	19.48	21.68
2014	21.75	22.18	20.71	22.91
2015	17.24	18.56	16.39	19.03
2016	14.25	15.14	12.56	15.65
2017	13.82	15.72	13.30	16.12
2018	14.58	15.05	13.01	15.43
2019	15.21	15.54	13.66	15.98
2020	13.30	15.07	12.61	15.06
2021	17.51	14.22	14.34	17.22
2022	26.43	16.61	25.92	28.69
2023	20.71	20.39	23.22	25.96

Note 1) The Price is based on MJ since July 2012.

2) The Price is retail prices in Seoul.

Source: Korea City Gas Association



## 11-2. Establishment of a Hydrogen-production Infrastructure Based on LNG Terminals

### Establishment of a Hydrogen-production Infrastructure Based on LNG Terminals

#### Establishment of blending process in pipelines based on receiving terminals (four locations)

Construction of hydrogen production terminals for pipeline blending in receiving terminal sites  
**Production goal: 400,000 tons/yr.**

Total project cost: **KRW 1,080 billion**

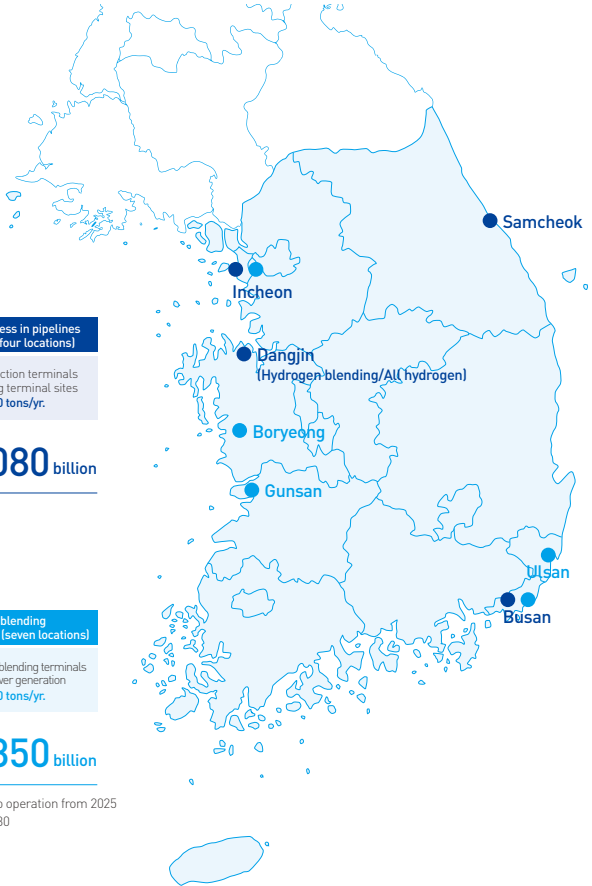
- [2025-] Operation in Incheon
- [2026-] Operation in Dangjin
- [2028-] Operation in Samcheok
- [2030-] Operation in Busan

#### Hydrogen and hydrogen-blending power-generation infrastructure (seven locations)

Construction of hydrogen/hydrogen-blending terminals where there is a demand for power generation  
**Production goal: 400,000 tons/yr.**

Total project cost: **KRW 1,350 billion**

- [Hydrogen blending] Step-by-step operation from 2025
- [All hydrogen] Operation from 2030



## 11-3. Nationwide Pipeline Network

### Nationwide Pipeline Network

(As of January 1, 2022)



#### Incheon LNG Terminal

- Storage tanks: 100,000 kl x 10, 140,000 kl x 2, 200,000 kl x 11
- Berthing and loading facilities: 1 berth with 75,000-ton capacity, 1 berth with 127,000-ton capacity
- Boil off gas transmission capacity: 6,210 ton/hr

#### Pyeongtaek LNG Terminal

- Storage tanks: 100,000 kl x 10, 140,000 kl x 4, 200,000 kl x 9
- Berthing and loading facilities: 1 berth with 75,000-ton capacity, 1 berth with 127,000-ton capacity
- Boil off gas transmission capacity: 4,680 ton/hr

#### Samcheok LNG Terminal

- Storage tanks: 200,000 kl x 9, 270,000 kl x 3
- Berthing and loading facilities: 1 berth with 127,000-ton capacity
- Boil off gas transmission capacity: 1,320 ton/hr

#### Tongyeong LNG Terminal

- Storage tanks: 140,000 kl x 13, 200,000 kl x 4
- Berthing and loading facilities: 1 berth with 75,000-ton capacity, 1 berth with 127,000-ton capacity
- Boil off gas transmission capacity: 3,030 ton/hr

#### Jeju LNG Terminal

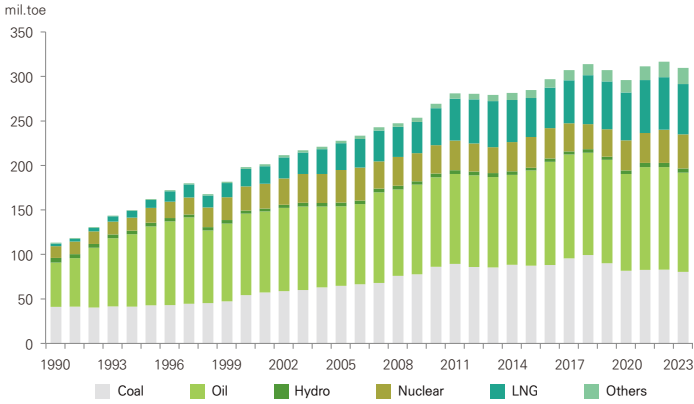
- Storage tanks: 45,000 kl x 2
- Berthing and loading facilities: 1 berth with 65,000-ton capacity
- Boil off gas transmission capacity: 120 ton/hr

Source: Korea Gas Corporation



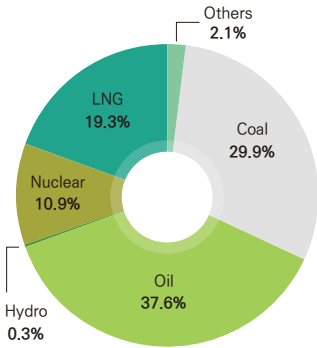
# 12 Energy Consumption in the Korean Peninsula

## ○ Total Primary Energy Supply of Korean Peninsula

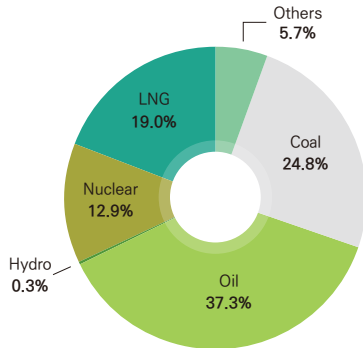


## Republic of Korea

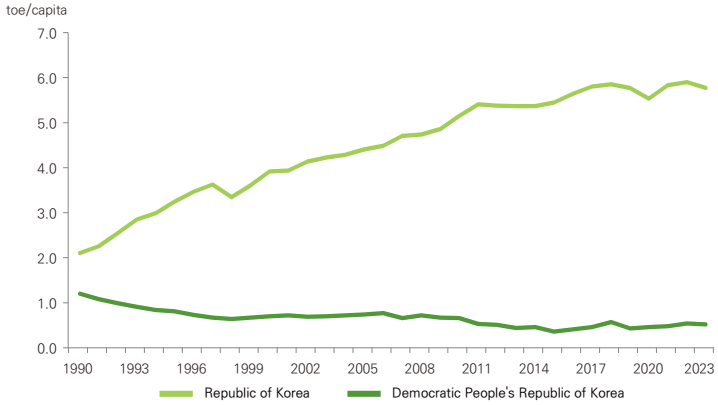
○ 2013 269,531 thou. toe



○ 2023 297,599 thou. toe



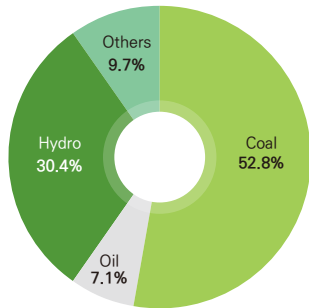
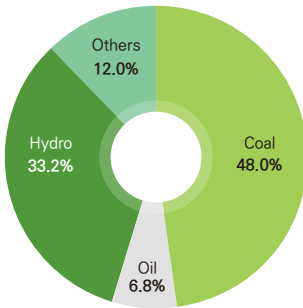
## TPES/Population



## Democratic People's Republic of Korea

2013 10,480 thou. toe

2023 12,980 thou. toe



# 12 Energy Consumption in the Korean Peninsula

## 12-1. Total Primary Energy Supply

	Republic of Korea						
	Total	Coal	Oil	Hydro	Nuclear	LNG	Others
1990	89,680	24,523	47,387	1,571	13,222	2,958	20
1991	96,801	26,000	52,668	872	14,078	3,159	23
1992	110,524	25,880	65,770	774	14,133	3,946	21
1993	124,999	28,192	75,432	1,057	14,535	5,759	24
1994	132,512	28,757	80,761	587	14,663	7,717	28
1995	145,618	31,173	87,804	690	16,757	8,852	341
1996	156,834	32,647	93,021	606	18,481	11,690	389
1997	165,754	34,408	96,246	703	19,271	14,606	519
1998	154,233	36,170	80,482	1,070	22,422	13,347	742
1999	167,341	37,011	86,770	1,040	25,766	15,954	800
2000	183,078	43,143	90,804	1,002	27,241	19,743	1,145
2001	185,809	45,838	90,213	582	28,033	19,722	1,420
2002	196,452	47,987	92,515	808	29,776	23,797	1,570
2003	201,738	49,135	92,871	1,226	32,418	24,272	1,816
2004	205,220	51,886	89,676	1,082	32,679	27,827	2,070
2005	211,344	52,975	88,431	919	36,695	30,367	1,958
2006	216,261	54,361	89,590	867	37,187	32,024	2,231
2007	228,129	58,149	101,219	781	30,731	34,665	2,583
2008	231,298	64,925	96,511	660	32,456	33,792	2,955
2009	238,416	67,094	100,303	616	31,771	35,138	3,495
2010	254,399	76,008	100,177	797	31,948	41,681	3,788
2011	269,199	82,386	100,622	989	33,265	47,318	4,619
2012	268,993	79,059	102,833	838	31,719	49,554	4,990
2013	269,531	80,538	101,306	906	29,283	51,943	5,555
2014	271,252	82,764	100,792	581	33,002	47,409	6,704
2015	276,793	83,650	106,386	454	34,765	43,958	7,580
2016	288,018	83,989	115,343	603	34,181	45,524	8,379
2017	296,719	89,786	116,067	601	31,615	48,564	10,086
2018	300,738	90,965	114,450	719	28,437	55,090	11,078
2019	297,612	85,048	115,408	594	31,079	53,875	11,608
2020	285,512	75,983	107,970	826	34,119	53,915	12,698
2021	300,515	76,968	115,204	651	33,657	59,594	14,440
2022	303,954	75,869	114,675	755	37,500	59,176	15,978
2023	297,599	73,700	111,037	792	38,445	56,648	16,976

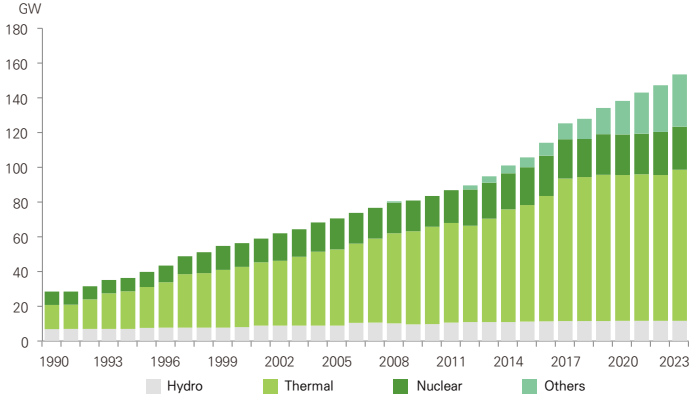
Source : Statistics Korea

Unit: 1,000 toe

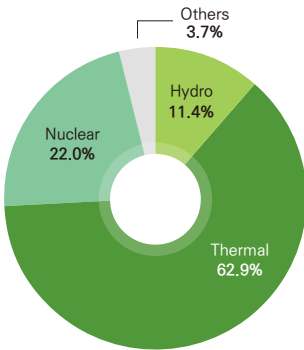
Democratic People's Republic of Korea					toe per capita		
Total	Coal	Oil	Hydro	Others	R.O.K	D.P.R.K	
23,963	16,575	2,520	3,748	1,120	2.09	1.19	1990
21,920	15,500	1,890	3,750	780	2.24	1.07	1991
20,450	14,600	1,520	3,550	780	2.53	0.98	1992
19,013	13,550	1,360	3,304	799	2.83	0.90	1993
17,870	12,700	910	3,475	785	2.97	0.83	1994
17,280	11,850	1,100	3,535	795	3.23	0.80	1995
15,836	10,500	1,436	3,109	791	3.45	0.72	1996
14,746	10,300	1,006	2,656	784	3.61	0.66	1997
14,030	9,300	1,400	2,554	776	3.33	0.63	1998
14,955	10,500	881	2,794	780	3.59	0.66	1999
15,687	11,250	1,117	2,540	780	3.90	0.69	2000
16,230	11,550	1,250	2,650	780	3.92	0.71	2001
15,638	10,950	1,253	2,655	780	4.12	0.68	2002
16,079	11,150	1,219	2,930	780	4.21	0.69	2003
16,535	11,400	1,230	3,125	780	4.27	0.71	2004
17,127	12,030	1,034	3,283	780	4.39	0.73	2005
17,955	12,340	790	3,155	1,670	4.47	0.76	2006
15,594	10,060	944	3,320	1,270	4.69	0.65	2007
16,980	11,236	967	3,517	1,260	4.72	0.71	2008
15,914	10,800	738	3,116	1,260	4.84	0.66	2009
15,662	10,347	704	3,352	1,260	5.13	0.65	2010
12,598	7,275	763	3,300	1,260	5.39	0.52	2011
12,284	6,970	684	3,370	1,260	5.36	0.50	2012
10,480	5,030	710	3,480	1,260	5.35	0.43	2013
11,060	5,820	730	3,250	1,260	5.35	0.45	2014
8,700	3,930	1,010	2,500	1,260	5.43	0.35	2015
9,910	4,280	1,170	3,200	1,260	5.62	0.40	2016
11,240	6,030	970	2,980	1,260	5.78	0.45	2017
13,960	8,550	950	3,200	1,260	5.83	0.56	2018
10,560	5,400	1,150	2,750	1,260	5.75	0.42	2019
11,380	5,860	1,060	3,200	1,260	5.51	0.45	2020
11,910	6,000	630	4,020	1,260	5.81	0.47	2021
13,490	7,370	710	4,150	1,260	5.88	0.53	2022
12,980	6,850	920	3,950	1,260	5.75	0.51	2023

# 12 Energy Consumption in the Korean Peninsula

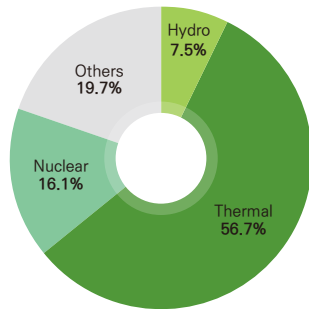
## Electric Power Generating Facility



2013 94,212 MW



2023 152,711 MW



## 12-2. Generating Facilities

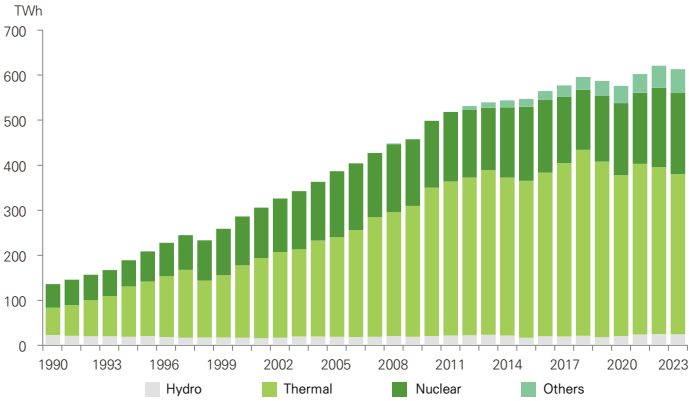
Unit: MW

	Republic of Korea					Democratic People's Republic of Korea		
	Total	Hydro	Thermal	Nuclear	Others	Total	Hydro	Thermal
1990	21,021	2,340	11,065	7,616	-	7,142	4,292	2,850
1991	21,111	2,445	11,050	7,616	-	7,142	4,292	2,850
1992	24,120	2,498	14,006	7,616	-	7,142	4,292	2,850
1993	27,654	2,504	17,534	7,616	-	7,142	4,292	2,850
1994	28,750	2,493	18,641	7,616	-	7,237	4,337	2,900
1995	32,184	3,093	20,475	8,616	-	7,237	4,337	2,900
1996	35,715	3,094	23,005	9,616	-	7,387	4,437	2,950
1997	41,042	3,115	27,611	10,316	-	7,387	4,437	2,950
1998	43,406	3,131	28,259	12,016	-	7,387	4,437	2,950
1999	46,978	3,148	30,114	13,716	-	7,387	4,437	2,950
2000	48,451	3,149	31,586	13,716	-	7,552	4,592	2,960
2001	50,859	3,876	33,267	13,716	-	7,752	4,792	2,960
2002	53,801	3,876	34,209	15,716	-	7,772	4,812	2,960
2003	56,053	3,877	36,460	15,716	-	7,772	4,812	2,960
2004	59,961	3,879	39,366	16,716	-	7,772	4,812	2,960
2005	62,258	3,883	40,659	17,716	-	7,822	4,812	3,010
2006	65,514	5,485	42,313	17,716	-	7,822	4,812	3,010
2007	68,268	5,492	45,060	17,716	-	7,952	4,942	3,010
2008	72,491	5,505	48,542	17,716	728	7,497	4,487	3,010
2009	73,470	5,515	50,239	17,716	-	6,928	3,918	3,010
2010	76,078	5,525	52,838	17,716	-	6,968	3,958	3,010
2011	79,342	6,418	54,208	18,716	-	6,920	3,960	2,960
2012	81,806	6,446	52,306	20,716	2,338	7,220	4,260	2,960
2013	86,969	6,454	56,280	20,716	3,519	7,243	4,283	2,960
2014	93,216	6,468	61,558	20,716	4,474	7,253	4,293	2,960
2015	97,649	6,471	63,813	21,716	5,649	7,427	4,467	2,960
2016	105,866	6,485	68,788	23,116	7,477	7,661	4,701	2,960
2017	116,908	6,489	78,703	22,529	9,187	7,721	4,761	2,960
2018	119,092	6,490	79,128	21,850	11,624	8,150	4,790	3,360
2019	125,338	6,508	80,418	23,250	15,162	8,150	4,790	3,360
2020	129,191	6,506	80,270	23,250	19,165	8,225	4,865	3,360
2021	134,020	6,541	80,699	23,250	23,530	8,225	4,865	3,360
2022	138,195	6,513	80,249	24,650	26,783	8,270	4,890	3,380
2023	144,421	6,517	83,216	24,650	30,038	8,290	4,910	3,380

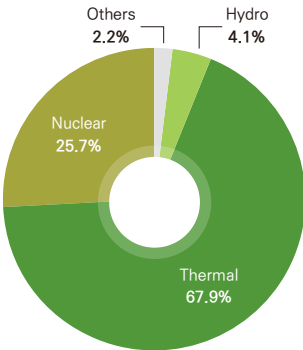
Source: Statistics Korea(KOSIS)

# 12 Energy Consumption in the Korean Peninsula

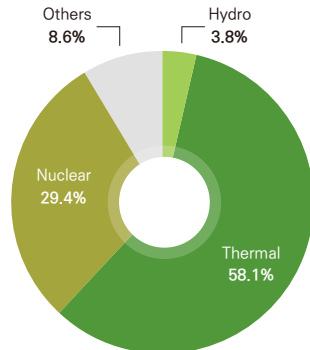
## Electric Power Generation by Facility



### 2013 539 TWh



### 2023 613 TWh



### 12-3. Electric Power Generation by Facility

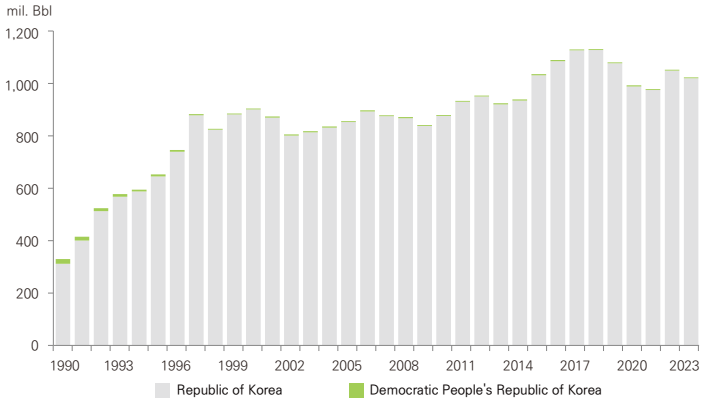
Unit: TWh

	Republic of Korea					Democratic People's Republic of Korea		
	Total	Hydro	Thermal	Nuclear	Others	Total	Hydro	Nuclear
1990	108	6	48	53	-	28	16	12
1991	119	5	57	56	-	26	15	11
1992	131	5	70	57	-	25	14	11
1993	144	6	80	58	-	22	13	9
1994	165	4	102	59	-	23	14	9
1995	185	6	112	67	-	23	14	9
1996	206	5	126	74	-	21	13	9
1997	224	5	142	77	-	19	11	9
1998	215	6	120	90	-	17	10	7
1999	239	6	130	103	-	19	10	8
2000	266	6	152	109	-	19	10	9
2001	285	4	169	112	-	20	11	10
2002	307	5	182	119	-	19	11	8
2003	323	7	186	130	-	20	12	8
2004	342	6	206	131	-	21	13	8
2005	365	5	213	147	-	22	13	8
2006	381	5	227	149	-	23	13	10
2007	403	5	255	143	-	24	13	10
2008	422	6	265	151	1	26	14	11
2009	434	6	280	148	-	24	13	11
2010	475	7	320	149	-	24	13	10
2011	497	8	334	155	-	21	13	8
2012	510	8	343	150	9	22	14	8
2013	517	8	358	139	12	22	14	8
2014	522	8	343	156	15	22	13	9
2015	528	6	340	165	17	19	10	9
2016	540	7	352	162	20	24	13	11
2017	554	7	374	148	24	24	12	12
2018	571	7	402	134	28	25	13	12
2019	563	6	377	146	34	24	11	13
2020	552	7	347	160	38	24	13	11
2021	577	7	370	158	42	26	16	9
2022	594	7	362	176	49	26	17	10
2023	588	8	347	181	53	25	16	9

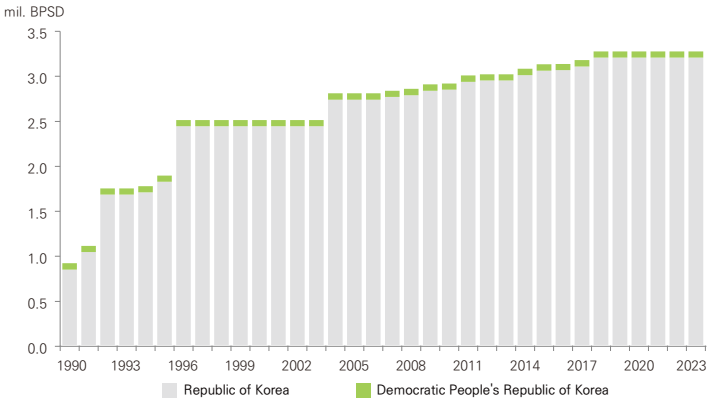
Source: Statistics Korea(KOSIS)

# 12 Energy Consumption in the Korean Peninsula

## ○ Crude Oil Imports



## ○ Refinery Capacity



## 12-4. Refinery Capacity

	Republic of Korea			Democratic People's Republic of Korea		
	Crude oil Imports		Refining Capacity	Crude oil Imports		Refining Capacity
	(1,000 Bbl)	(1,000 kℓ)	(1,000 BPSD)	(1,000 Bbl)	(1,000 kℓ)	(1,000 BPSD)
1990	310,494	49,365	840	18,472	2,937	70
1991	399,976	63,591	1,035	13,854	2,203	70
1992	512,082	81,415	1,675	11,142	1,771	70
1993	566,233	90,024	1,675	9,969	1,585	70
1994	586,912	93,312	1,700	6,670	1,060	70
1995	644,020	102,391	1,818	8,063	1,282	70
1996	737,722	117,289	2,438	6,861	1,091	70
1997	877,676	139,540	2,438	3,709	590	70
1998	822,564	130,777	2,438	3,694	587	70
1999	881,320	140,119	2,438	2,325	370	70
2000	899,809	143,058	2,438	2,851	453	70
2001	868,237	138,039	2,438	4,244	675	70
2002	800,488	127,268	2,438	4,376	696	70
2003	812,494	129,176	2,438	4,207	669	70
2004	830,674	132,067	2,735	3,900	620	70
2005	851,327	135,350	2,735	3,834	610	70
2006	892,296	141,864	2,735	3,841	611	70
2007	873,674	138,903	2,765	3,834	610	70
2008	866,659	137,788	2,785	3,878	617	70
2009	837,008	133,074	2,835	3,812	606	70
2010	874,666	139,061	2,845	3,870	615	70
2011	928,736	147,657	2,934	3,856	613	70
2012	949,058	150,888	2,949	3,834	610	70
2013	918,634	146,051	2,949	4,237	674	70
2014	933,736	148,452	3,009	3,885	618	70
2015	1,030,315	163,807	3,059	3,885	618	70
2016	1,084,066	172,353	3,064	3,885	618	70
2017	1,124,938	178,851	3,105	3,885	618	70
2018	1,126,403	179,084	3,204	3,885	618	70
2019	1,075,973	171,066	3,204	3,885	618	70
2020	987,422	156,988	3,204	3,885	618	70
2021	973,734	154,812	3,204	3,885	618	70
2022	1,047,685	166,569	3,204	3,885	618	70
2023	1,018,299	161,897	3,204	3,885	618	70

Source: Statistics Korea(KOSIS)

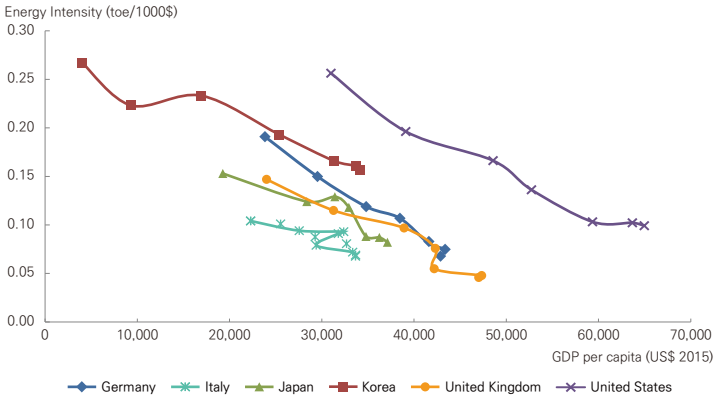
## 13-1. Energy Indicators(2022)

	Population (mil.person)	GDP	GDP(ppp)	Energy Prod.	Net Imports	TPES	Elec. Cons.	CO <sub>2</sub> Emis
		(bil. USD (2015))			(mil. toe)		(TWh)	(Mt of CO <sub>2</sub> )
Australia	26.01	1458.56	1314.72	434.37	-301.16	127.20	258.41	354.78
Austria	9.05	422.28	476.53	11.65	24.16	31.11	74.69	56.80
Belgium	11.68	516.39	581.88	16.33	43.90	50.61	85.06	78.81
Canada	38.94	1,761.11	1,804.55	560.43	-260.60	297.17	568.17	523.33
Chile	19.83	279.14	466.53	14.55	27.53	41.41	86.47	86.59
Columbia	50.50	354.62	761.70	105.00	-64.87	40.13	80.12	73.29
Czech Rep.	10.69	215.93	410.65	25.34	17.49	41.59	67.91	90.70
Denmark	5.91	356.23	328.16	9.53	7.36	15.52	34.65	26.77
Estonia	1.33	28.52	47.82	4.69	0.33	4.80	8.72	9.92
Finland	5.56	259.24	257.44	19.34	13.36	31.57	81.95	34.02
France	68.46	2,637.67	2,940.19	104.03	114.77	211.16	454.50	282.96
Germany	83.79	3633.90	4209.84	95.73	194.40	271.23	526.69	612.00
Greece	10.58	211.56	313.12	4.98	19.01	20.46	50.39	50.82
Hungary	9.68	157.53	332.06	10.77	16.55	25.67	45.15	42.54
Iceland	0.37	22.09	20.53	5.33	1.10	6.06	19.58	1.59
Ireland	5.12	499.02	555.57	3.04	11.65	13.55	31.65	32.96
Israel	9.55	408.20	404.32	19.36	6.19	23.86	65.40	59.60
Italy	59.01	1966.69	2400.00	31.95	119.02	142.32	307.80	310.29
Japan	124.95	4529.93	5300.36	49.54	352.94	392.37	976.38	973.67
<b>Korea</b>	<b>51.63</b>	<b>1740.89</b>	<b>2296.40</b>	<b>57.80</b>	<b>239.10</b>	<b>279.72</b>	<b>593.87</b>	<b>549.31</b>
DPR of Korea	26.07	28.57	107.28	16.04	0.83	16.86	21.85	56.61
Latvia	1.89	31.98	57.94	2.92	1.75	4.24	6.95	5.98
Luxembourg	0.66	71.66	73.30	0.32	3.50	3.18	7.60	6.75
Mexico	128.58	1285.06	2446.09	157.64	29.72	182.60	302.45	379.68
Netherlands	17.70	894.81	995.86	23.87	62.63	63.30	112.68	121.49
New Zealand	5.14	215.54	208.61	14.14	5.51	19.09	41.44	28.69
Norway	5.46	433.49	352.05	216.04	-189.59	25.27	127.55	35.60
Poland	37.83	629.86	1346.38	58.99	48.27	103.23	169.26	284.99
Portugal	10.30	230.34	354.98	5.89	16.58	20.33	53.06	35.71
Slovak Rep.	5.49	102.55	188.07	6.94	11.57	16.77	26.93	28.13
Slovenia	2.11	53.55	81.08	3.08	3.45	6.42	14.22	11.95
Spain	47.81	1323.71	1795.07	34.72	95.29	115.00	247.52	217.10
Sweden	10.49	586.16	558.54	35.74	13.01	45.37	130.23	32.45
Switzerland	8.78	790.56	615.82	11.94	11.67	22.74	64.16	31.84
Turkey	84.98	1194.06	2795.50	51.10	113.78	156.50	302.04	389.98
United Kingdom	67.79	3210.18	3034.15	103.30	60.45	153.01	293.08	309.42
United States	333.57	21236.52	21236.52	2318.51	-141.27	2172.99	4331.59	4607.59

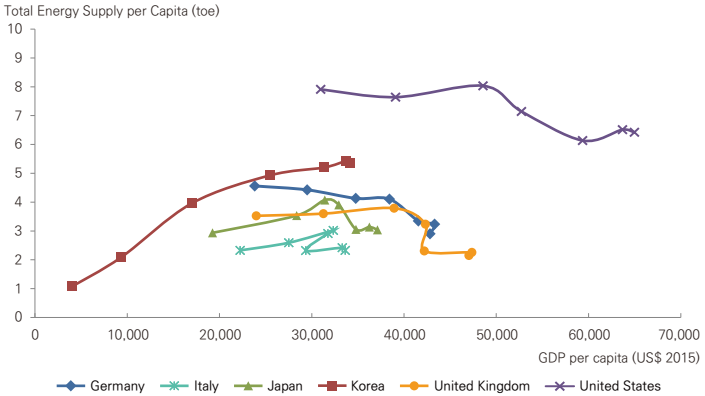
Note: CO<sub>2</sub> emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 1996 IPCC Guidelines.  
Source : OECD Data explorer

TPES/Pop.	TPES/GDP	TPES/ GDP(PPP)	Elec. Cons./ Pop.	CO <sub>2</sub> /TPES	CO <sub>2</sub> /Pop.	CO <sub>2</sub> /GDP	CO <sub>2</sub> / GDP(PPP)	
(toe/capita)	(toe/1,000USD)		(kWh/ capita)	(tCO <sub>2</sub> /toe)	(tCO <sub>2</sub> / capita)	(kgCO <sub>2</sub> /USD)		
4.89	0.09	0.10	9,828	2.79	13.64	0.24	0.27	Australia
3.44	0.07	0.07	8,382	1.83	6.27	0.13	0.12	Austria
4.33	0.10	0.09	7,283	1.56	6.75	0.15	0.14	Belgium
7.63	0.17	0.16	14,591	1.76	13.44	0.30	0.29	Canada
2.09	0.15	0.09	4,361	2.09	4.37	0.31	0.19	Chile
0.79	0.11	0.05	1,587	1.83	1.45	0.21	0.10	Columbia
3.89	0.19	0.10	6,353	2.18	8.49	0.42	0.22	Czech Rep.
2.63	0.04	0.05	5,867	1.72	4.53	0.08	0.08	Denmark
3.60	0.17	0.10	6,546	2.07	7.45	0.35	0.21	Estonia
5.68	0.12	0.12	14,747	1.08	6.12	0.13	0.13	Finland
3.08	0.08	0.07	6,638	1.34	4.13	0.11	0.10	France
3.24	0.07	0.06	6,285	2.26	7.30	0.17	0.15	Germany
1.93	0.10	0.07	4,763	2.48	4.80	0.24	0.16	Greece
2.65	0.16	0.08	4,662	1.66	4.39	0.27	0.13	Hungary
16.38	0.27	0.30	52,920	0.26	4.30	0.07	0.08	Iceland
2.65	0.03	0.02	6,187	2.43	6.44	0.07	0.06	Ireland
2.50	0.06	0.06	6,847	2.50	6.24	0.15	0.15	Israel
2.41	0.07	0.06	5,216	2.18	5.26	0.16	0.13	Italy
3.14	0.09	0.07	7,814	2.48	7.79	0.21	0.18	Japan
<b>5.42</b>	<b>0.16</b>	<b>0.12</b>	<b>11,503</b>	<b>1.96</b>	<b>10.64</b>	<b>0.32</b>	<b>0.24</b>	<b>Korea</b>
0.65	0.59	0.16	838	3.36	2.17	1.98	0.53	DPR of Korea
2.25	0.13	0.07	3,684	1.41	3.17	0.19	0.10	Latvia
4.85	0.04	0.04	11,597	2.12	10.30	0.09	0.09	Luxembourg
1.42	0.14	0.07	2,352	2.08	2.95	0.30	0.16	Mexico
3.58	0.07	0.06	6,365	1.92	6.86	0.14	0.12	Netherlands
3.71	0.09	0.09	8,060	1.50	5.58	0.13	0.14	New Zealand
4.63	0.06	0.07	23,374	1.41	6.52	0.08	0.10	Norway
2.73	0.16	0.08	4,475	2.76	7.53	0.45	0.21	Poland
1.97	0.09	0.06	5,152	1.76	3.47	0.16	0.10	Portugal
3.05	0.16	0.09	4,906	1.68	5.12	0.27	0.15	Slovak Rep.
3.04	0.12	0.08	6,741	1.86	5.66	0.22	0.15	Slovenia
2.41	0.09	0.06	5,177	1.89	4.54	0.16	0.12	Spain
4.33	0.08	0.08	12,418	0.72	3.09	0.06	0.06	Sweden
2.59	0.03	0.04	7,310	1.40	3.63	0.04	0.05	Switzerland
1.84	0.13	0.06	3,554	2.49	4.59	0.33	0.14	Turkey
2.26	0.05	0.05	4,323	2.02	4.56	0.10	0.10	United Kingdom
6.51	0.10	0.10	12,986	2.12	13.81	0.22	0.22	United States

## Energy Intensity by Country



## Total Energy Supply per Capita by Country



## 13-2. Energy Indicators of Major Countries

		1980	1990	2000	2010	2020	2022	2023 <sup>a</sup>
<b>Germany</b>								
Population	millions	78.30	79.36	81.46	80.28	83.16	83.80	84.52
GDP	bil. 2015 US\$	1,867.70	2,344.47	2,835.71	3,088.45	3,459.86	3,633.90	3,622.81
GDP/Pop.	2015 US\$	23,852.3	29,540.7	34,812.4	38,469.1	41,604.4	43,365.0	42,865.9
TES	Mtoe	357.19	351.23	336.60	329.55	278.52	271.23	245.44
TES/Pop.	toe/capita	4.56	4.43	4.13	4.11	3.35	3.24	2.90
TES/GDP	toe/thou. US\$	0.19	0.15	0.12	0.11	0.08	0.08	0.07
<b>Italy</b>								
Population	millions	56.43	56.72	56.94	59.82	59.44	59.01	58.99
GDP	bil. 2015 US\$	1,257.32	1,562.08	1,842.33	1,900.54	1,746.19	1,966.69	1,984.80
GDP/Pop.	2015 US\$	22,279.4	27,540.7	32,354.4	31,771.5	29,377.9	33,325.8	33,644.2
TES	Mtoe	130.84	146.57	171.54	173.74	137.49	142.32	136.73
TES/Pop.	toe/capita	2.32	2.58	3.01	2.90	2.31	2.41	2.32
TES/GDP	toe/thou. US\$	0.10	0.09	0.09	0.09	0.08	0.07	0.07
<b>Japan</b>								
Population	millions	117.06	123.61	126.83	128.04	125.71	124.95	124.35
GDP	bil. 2015 US\$	2,258.34	3,509.48	3,986.73	4,218.89	4,375.03	4,529.93	4,617.04
GDP/Pop.	2015 US\$	19,292.1	28,391.3	31,433.4	32,949.0	34,803.1	36,254.8	37,128.8
TES	Mtoe	344.52	436.91	515.88	499.54	384.72	392.37	378.61
TES/Pop.	toe/capita	2.94	3.54	4.07	3.90	3.06	3.14	3.05
TES/GDP	toe/thou. US\$	0.15	0.12	0.13	0.12	0.09	0.09	0.08
<b>Korea</b>								
Population	millions	38.12	42.87	47.01	49.55	51.84	51.63	51.69
GDP	bil. 2015 US\$	154.65	401.55	798.93	1,261.42	1,626.53	1,740.89	1,764.51
GDP/Pop.	2015 US\$	4,056.4	9,366.9	16,995.5	25,455.5	31,378.5	33,719.8	34,137.1
TES	Mtoe	41.26	89.51	185.79	243.82	269.34	279.72	276.72
TES/Pop.	toe/capita	1.08	2.09	3.95	4.92	5.20	5.42	5.35
TES/GDP	toe/thou. US\$	0.27	0.22	0.23	0.19	0.17	0.16	0.16
<b>United Kingdom</b>								
Population	millions	56.33	57.24	58.89	62.76	67.08	67.79	68.35
GDP	bil. 2015 US\$	1,352.29	1,790.13	2,292.53	2,656.29	2,830.92	3,210.18	3,214.83
GDP/Pop.	2015 US\$	24,006.5	31,275.1	38,931.6	42,324.6	42,201.5	47,354.0	47,034.9
TES	Mtoe	198.44	205.94	222.99	203.05	154.72	153.01	147.04
TES/Pop.	toe/capita	3.52	3.60	3.79	3.24	2.31	2.26	2.15
TES/GDP	toe/thou. US\$	0.15	0.12	0.10	0.08	0.06	0.05	0.05
<b>United States</b>								
Population	millions	227.73	250.18	282.40	309.84	331.80	333.57	335.21
GDP	bil. 2015 US\$	7,062.50	9,785.11	13,717.44	16,339.03	19,691.11	21,236.52	21,774.02
GDP/Pop.	2015 US\$	31,013.1	39,112.1	48,574.8	52,733.9	59,346.3	63,664.7	64,956.7
TES	Mtoe	1,804.81	1,914.47	2,272.86	2,215.78	2,035.04	2,172.99	2,152.96
TES/Pop.	toe/capita	7.93	7.65	8.05	7.15	6.13	6.51	6.42
TES/GDP	toe/thou. US\$	0.26	0.20	0.17	0.14	0.10	0.10	0.10

Source : IEA, World Energy Balance

## 1. Energy Conversion Factors/Oil Equivalent

Energy by Source		Unit	Gross Calorific Values(㎥)							
			1980	1981	1987	1990	2007	2012	2017	2022
Petroleum	Crude Oil	kg	10,000	10,000	10,000	10,000	10,750	10,730	10,750	10,920
	Gasoline	ℓ	8,300	8,300	8,300	8,300	8,000	7,780	7,810	7,750
	Kerosene	ℓ	8,700	8,700	8,700	8,700	8,800	8,790	8,770	8,740
							8,950			
	Diesel	ℓ	9,200	9,200	9,200	9,200	9,050	9,010	9,030	9,020
	Bio-Diesel	ℓ	-	-	-	-	-	-	-	8,280
	Bunker-A	ℓ	9,500	9,400	9,400	9,400	9,300	9,290	9,310	9,310
	Bunker-B	ℓ	9,200	9,700	9,700	9,700	9,650	9,670	9,670	9,690
	Bunker-C	ℓ	9,900	9,900	9,900	9,900	9,900	9,950	9,960	9,980
	Propane	kg	12,000	12,000	12,000	12,000	12,050	12,050	12,040	12,000
	Butane	kg	11,800	11,800	11,800	11,800	11,850	11,850	11,820	11,790
	Naphtha	ℓ	8,000	8,000	8,000	8,000	8,050	7,710	7,710	7,700
	Solvent	ℓ	-	-	-	(8,200)	7,950	7,950	7,830	7,830
	Jet-Oil(JA-1)	ℓ	-	8,700	8,700	8,700	8,750	8,730	8,720	8,720
	Jet-Oil(JA-4)	ℓ	-	8,500	8,500	8,500				
	Jet-Oil(AVI-G)	ℓ	-	8,700	8,700	8,700				
	Asphalt	kg	-	-	-	(10,000)	9,900	9,910	9,890	9,880
	Lubricants	ℓ	-	-	-	(9,400)	9,250	9,500	9,550	9,450
	Pet. Coke	kg	-	-	-	(10,800)	8,100	8,000	8,360	8,330
Gas	LNG	kg	-	9,500	12,980	13,000	13,000	13,040	13,060	13,080
	City Gas(LNG)	Nm <sup>3</sup>	7,000	7,000	7,000	10,500	10,550	10,430	10,290	10,190
	City Gas(LPG)	Nm <sup>3</sup>	-	-	-	15,000	15,000	15,000	15,190	15,150
Coal	Domestic Anthracite	kg	4,600	4,600	4,500	4,500	4,650	4,500	4,730	4,710
	Import Anthracite (Steam)	kg	-	-	-	6,000	6,550	5,020	5,060	5,500
	Import Anthracite (Coking)	kg	-	-	-	-	-	5,900	6,020	6,170
	Bituminous (Steam)	kg	6,600	6,600	6,600	6,600	6,200	5,020	5,920	5,860
		kg					7,000	7,000	6,970	7,030
	Sub-bituminous Coal	kg	-	-	-	-	5,350	5,420	5,110	4,920
	Cokes	kg	6,500	6,500	6,500	6,500	7,050	6,960	6,930	6,840
Electricity	Electricity (Generation)	kWh	2,500	2,500	2,500	2,500	2,150	2,110	2,130	2,130
	Electricity (Consumption)	kWh	-	-	-	-	-	2,300	2,290	2,290

Note: Electricity conversion factor for final consumption: 1kWh=860kcal

## 2. Unit Conversion Factors

### o Energy

Units	TJ	Gcal	Mtoe	MBtu	GWh
TJ	1	238.8	$2.388 \times 10^{-5}$	947.8	0.2778
Gcal	$4.1868 \times 10^{-3}$	1	$10^{-7}$	3.968	$1.163 \times 10^{-3}$
Mtoe	$4.1868 \times 10^{-4}$	107	1	$3.968 \times 10^{-7}$	1.163
MBtu	$1.0551 \times 10^{-3}$	0.252	$2.52 \times 10^{-8}$	1	$2.931 \times 10^{-4}$
GWh	3.6	860	$8.6 \times 10^{-5}$	3412	1

### o Mass

Units	kg	tonne	Long ton(lt)	Short ton(st)	pound(lb)
kg	1	0.001	$9.84 \times 10^{-4}$	$1.102 \times 10^{-3}$	2.2046
tonne	1000	1	0.984	1.1023	2204.6
Long ton(lt)	1016	1.016	1	1.12	2240
Short ton(st)	907.2	0.9072	0.893	1	2000
pound(lb)	0.454	$4.54 \times 10^{-4}$	$4.46 \times 10^{-4}$	$5.0 \times 10^{-4}$	1

### o Volume

Units	m <sup>3</sup>	liter	ft <sup>3</sup>	gal(U.S)	gal(U.K)	bbl
m <sup>3</sup>	1	10 <sup>3</sup>	35.3146	264.1721	219.969	6.2892
liter	10 <sup>-3</sup>	1	0.0353	0.2641	0.2199	$6.2892 \times 10^{-3}$
ft <sup>3</sup>	$2.8316 \times 10^{-2}$	28.3168	1	7.4805	6.2288	0.178
gal(U.S)	$3.7854 \times 10^{-3}$	3.7854	0.1336	1	0.8326	0.0238
gal(U.K)	0.004561	4.5461	0.1605	1.2009	1	0.0285
bbl	0.1589	158.988	5.6146	42	34.9726	1

