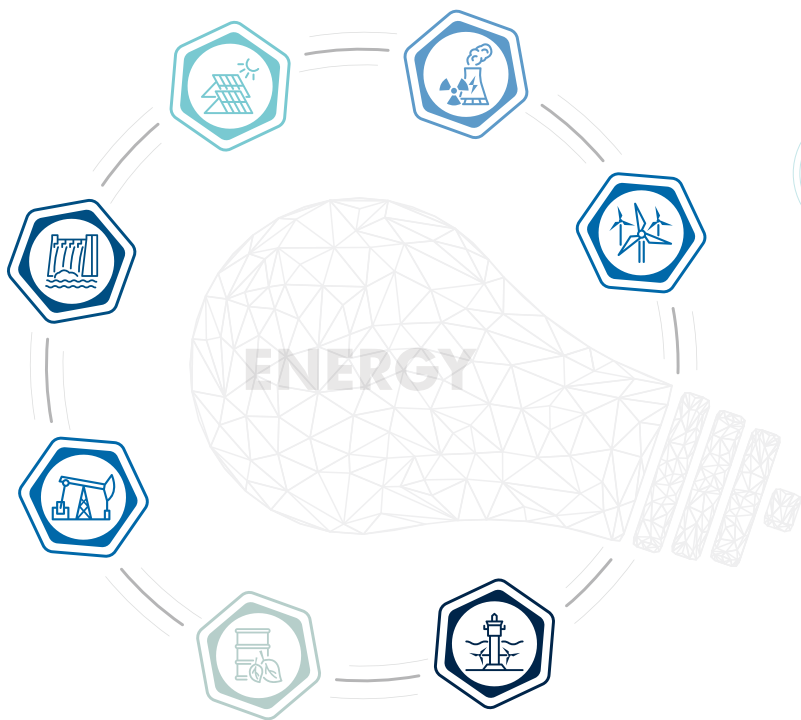




2023 Energy Info. Korea



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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.

03

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

04

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

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

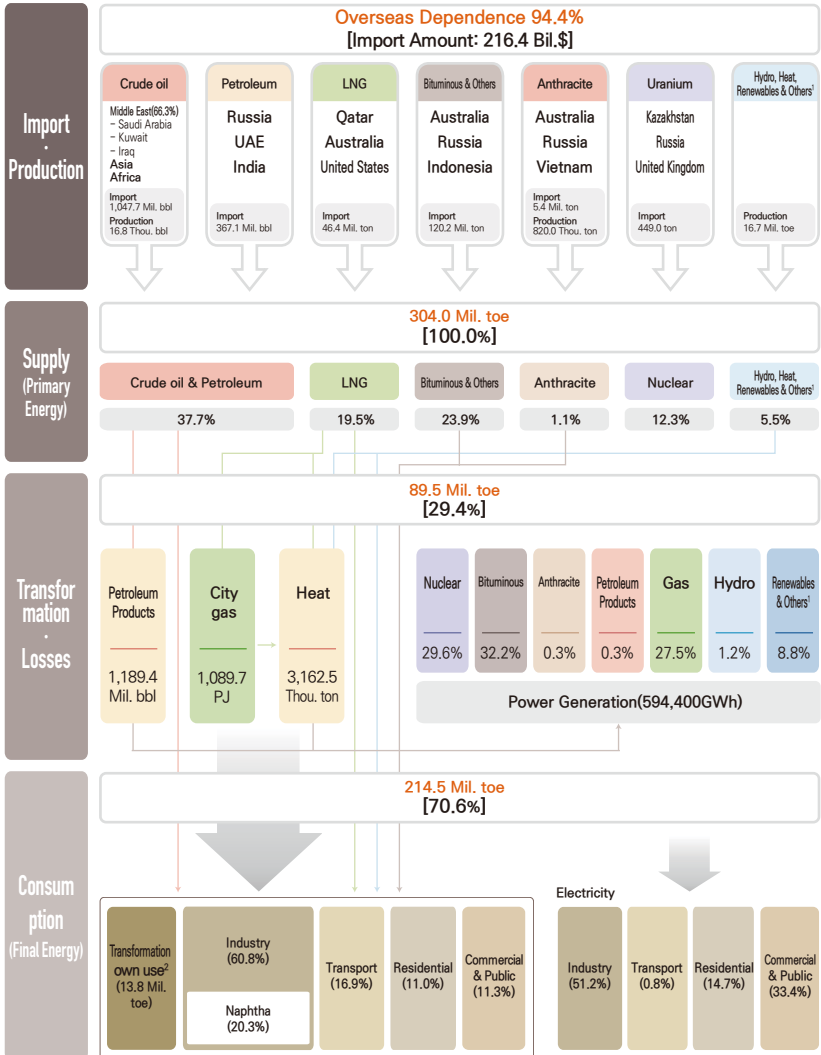
06

Symbols used in tables are as follow

-	Not reported
p	Preliminary
e	Estimate

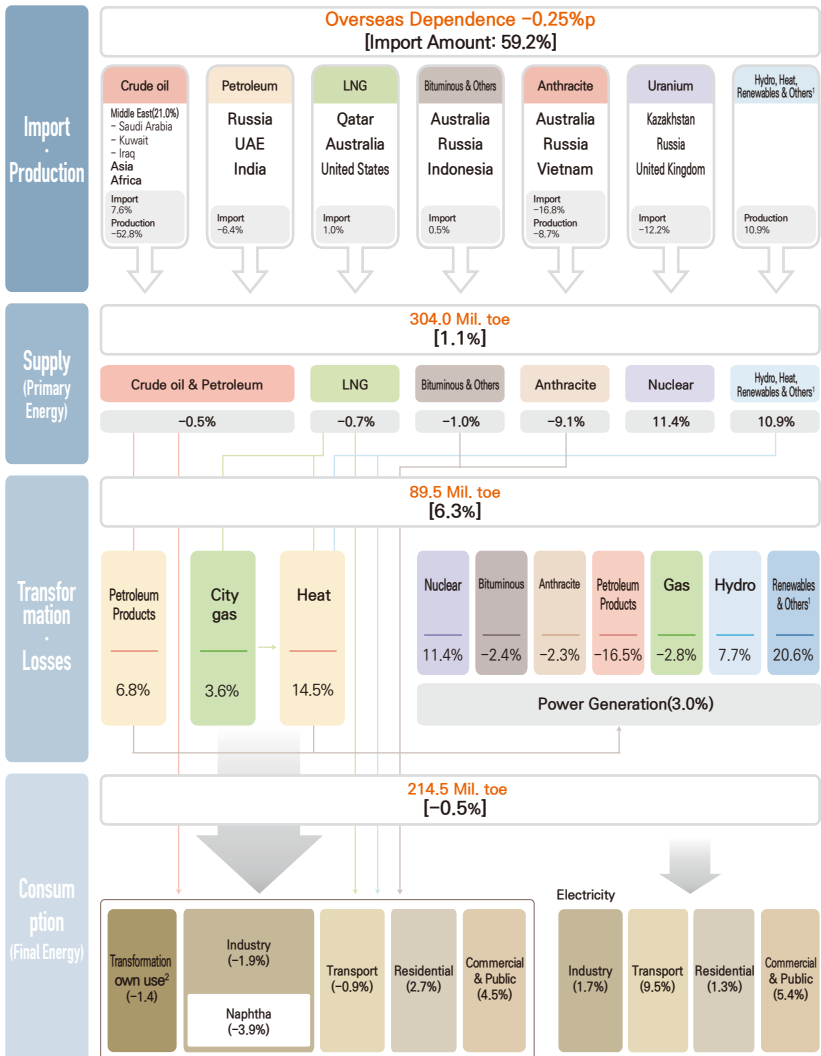
2022 Energy Flow

◦ Energy Flow



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

◦ Energy Flow(Year-Over-Year)



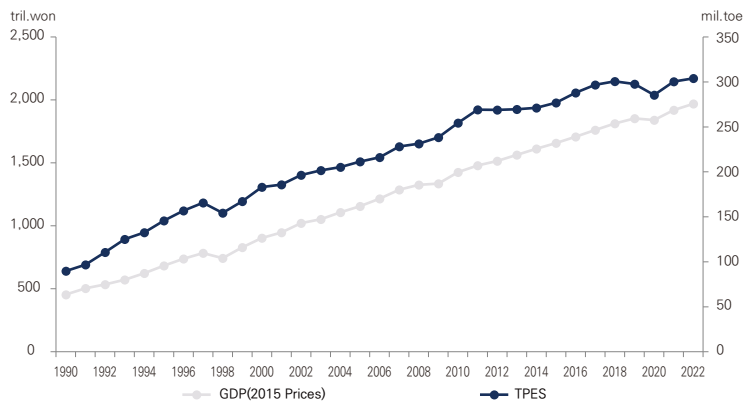
2. Transformation own use(energy industry own use) is distinct from the transformation process because it is not converted into other energy commodities and is not included in the final consumption, which is energy consumption for industrial activities.

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

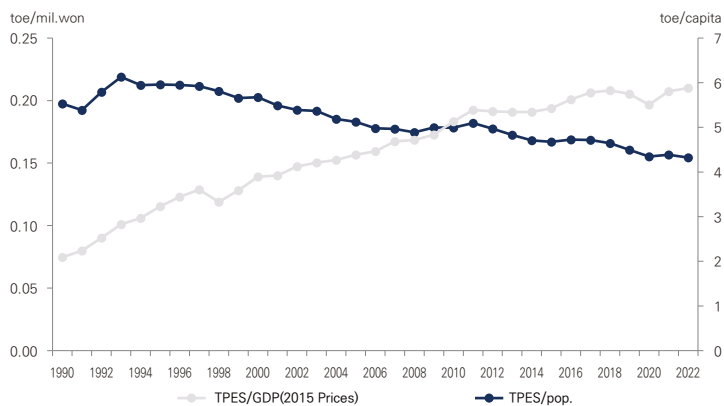


01 Major Energy Indicators

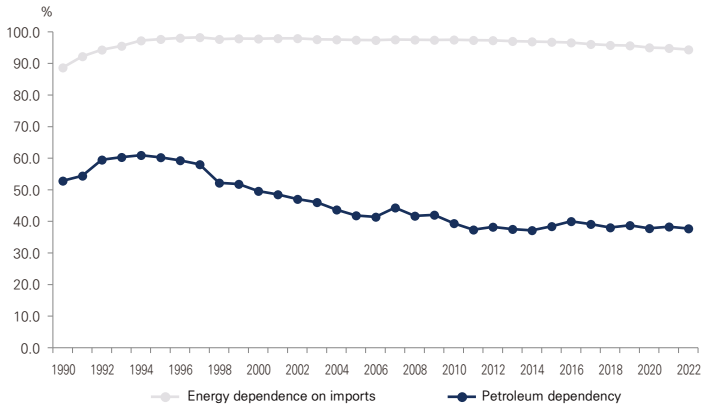
Trends in TPES and GDP



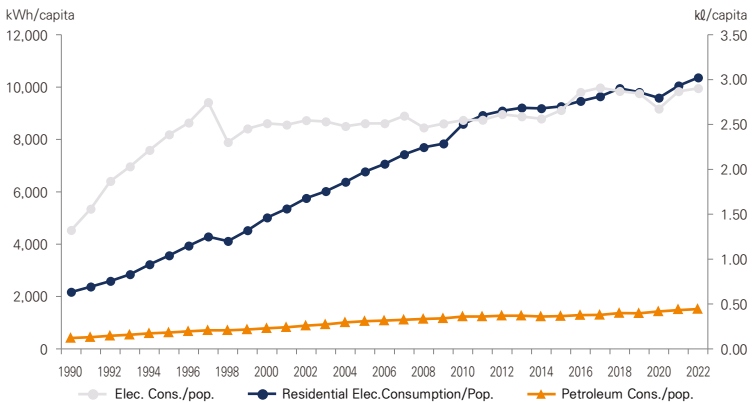
TPES per Capita and GDP



○ Energy Overseas Dependence and Petroleum Dependence



○ Electricity and Petroleum Consumption per Capita



01 Major Energy Indicators

1. Major Energy Indicators

	Population ¹	GDP (2015 prices)		Total Primary Energy Supply(TPES) ²		Total Final Consumption(TFC) ²		CO ₂ Emissions	
	(thou. person)	(bil. won)	Growth Rates(%)	(mil. toe)	Growth Rates(%)	(mil. toe)	Growth Rates(%)	(mil. tCO ₂)	Growth Rates(%)
1990	42,869	454,146	9.9	89.7	-	71.1	-	231.8	14.1
1991	43,296	503,094	10.8	96.8	7.9	80.2	12.7	255.8	10.4
1992	43,748	534,279	6.2	110.5	14.2	90.0	12.2	275.9	7.9
1993	44,195	571,024	6.9	125.0	13.1	99.4	10.5	302.9	9.8
1994	44,642	623,950	9.3	132.5	6.0	109.3	10.0	327.4	8.1
1995	45,093	683,940	9.6	145.6	9.9	116.5	6.6	357.3	9.1
1996	45,525	737,908	7.9	156.8	7.7	125.6	7.8	381.7	6.8
1997	45,954	783,441	6.2	165.8	5.7	134.5	7.1	402.3	5.4
1998	46,287	743,255	-5.1	154.2	-7.0	122.0	-9.3	343.7	-14.6
1999	46,617	828,483	11.5	167.3	8.5	133.0	9.0	378.2	10.0
2000	47,008	903,551	9.1	183.1	9.4	141.0	6.0	422.5	11.7
2001	47,370	947,395	4.9	185.8	1.5	143.6	1.9	431.0	2.0
2002	47,645	1,020,582	7.7	196.5	5.7	150.4	4.7	433.9	0.7
2003	47,892	1,052,703	3.1	201.7	2.7	154.0	2.4	436.0	0.5
2004	48,083	1,107,416	5.2	205.2	1.7	155.7	1.1	459.8	5.5
2005	48,185	1,155,130	4.3	211.3	3.0	158.5	1.8	457.7	-0.5
2006	48,438	1,215,940	5.3	216.3	2.3	162.5	2.6	464.7	1.5
2007	48,684	1,286,459	5.8	228.1	5.5	167.2	2.9	477.4	2.7
2008	49,055	1,325,219	3.0	231.3	1.4	168.5	0.7	488.8	2.4
2009	49,308	1,335,724	0.8	238.4	3.1	169.6	0.7	502.1	2.7
2010	49,554	1,426,618	6.8	254.4	6.7	184.6	8.9	550.9	9.7
2011	49,937	1,479,198	3.7	269.2	5.8	193.7	5.0	573.8	4.1
2012	50,200	1,514,737	2.4	269.0	-0.1	193.8	0.0	575.5	0.3
2013	50,429	1,562,674	3.2	269.5	0.2	195.3	0.8	574.6	-0.2
2014	50,747	1,612,718	3.2	271.3	0.6	195.9	0.3	562.7	-2.1
2015	51,015	1,658,020	2.8	276.8	2.0	199.3	1.8	582.0	3.4
2016	51,218	1,706,880	2.9	288.0	4.1	207.6	4.1	588.8	1.2
2017	51,362	1,760,812	3.2	296.7	3.0	212.4	2.4	599.8	1.9
2018	51,585	1,812,005	2.9	300.7	1.4	214.0	0.7	605.5	0.9
2019	51,765	1,852,666	2.2	297.6	-1.0	211.7	-1.1	587.2	-3.0
2020	51,836	1,839,523	-0.7	285.5	-4.1	203.7	-3.8	546.8	-6.9
2021	51,745	1,918,710	4.3	300.5	5.3	215.7	5.8	558.6	2.2
2022	51,673	1,968,840	2.6	304.0	1.1	214.5	-0.5	548.6	-1.8

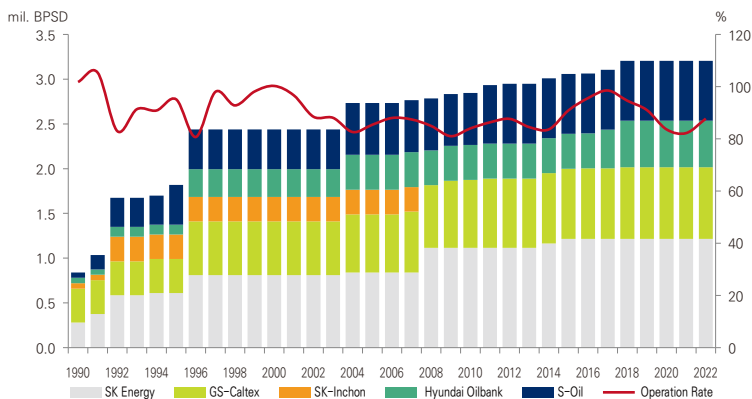
1. Mid-year estimates

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

TPES /GDP		CO ₂ Emissions/ GDP	TPES/ Population	CO ₂ Emissions/ Population	Oil Consumption/ Population	Elec. Consumption/ Population	Residential Elec. Consumption/ Population	
(toe/mil. won)	(toe/1,000\$)	(tCO ₂ /mil. won)	(toe/capita)	(tCO ₂ /capita)	(kl/capita)	(kWh/capita)	(kWh/capita)	
0.197	0.223	0.51	2.09	5.41	1.32	2,169	414	1990
0.192	0.218	0.51	2.24	5.91	1.56	2,373	450	1991
0.207	0.234	0.52	2.53	6.31	1.87	2,592	498	1992
0.219	0.248	0.53	2.83	6.85	2.03	2,843	541	1993
0.212	0.240	0.52	2.97	7.33	2.21	3,229	595	1994
0.213	0.241	0.52	3.23	7.92	2.39	3,567	628	1995
0.213	0.240	0.52	3.45	8.38	2.52	3,940	673	1996
0.212	0.239	0.51	3.61	8.75	2.75	4,290	708	1997
0.208	0.235	0.46	3.33	7.43	2.30	4,116	711	1998
0.202	0.229	0.46	3.59	8.11	2.45	4,524	742	1999
0.203	0.229	0.47	3.89	8.99	2.51	5,015	789	2000
0.196	0.222	0.45	3.92	9.10	2.50	5,357	828	2001
0.192	0.218	0.43	4.12	9.11	2.55	5,756	887	2002
0.192	0.217	0.41	4.21	9.10	2.53	6,020	931	2003
0.185	0.210	0.42	4.27	9.56	2.48	6,373	1,011	2004
0.183	0.207	0.40	4.39	9.50	2.51	6,774	1,056	2005
0.178	0.201	0.38	4.46	9.59	2.51	7,064	1,084	2006
0.177	0.201	0.37	4.69	9.81	2.60	7,430	1,113	2007
0.175	0.197	0.37	4.72	9.97	2.46	7,696	1,146	2008
0.178	0.202	0.38	4.84	10.18	2.51	7,837	1,168	2009
0.178	0.202	0.39	5.13	11.12	2.55	8,587	1,235	2010
0.182	0.206	0.39	5.39	11.49	2.55	8,924	1,233	2011
0.178	0.201	0.38	5.36	11.46	2.61	9,095	1,266	2012
0.172	0.195	0.37	5.34	11.39	2.59	9,210	1,269	2013
0.168	0.190	0.35	5.35	11.09	2.56	9,189	1,235	2014
0.167	0.189	0.35	5.43	11.41	2.66	9,261	1,250	2015
0.169	0.191	0.34	5.62	11.50	2.86	9,465	1,292	2016
0.169	0.191	0.34	5.78	11.68	2.91	9,641	1,295	2017
0.166	0.188	0.33	5.83	11.74	2.87	9,952	1,370	2018
0.161	0.182	0.32	5.75	11.34	2.85	9,805	1,361	2019
0.155	0.176	0.30	5.51	10.55	2.68	9,586	1,429	2020
0.157	0.177	0.29	5.81	10.80	2.87	10,056	1,499	2021
0.154	0.175	0.28	5.88	10.62	2.90	10,361	1,520	2022

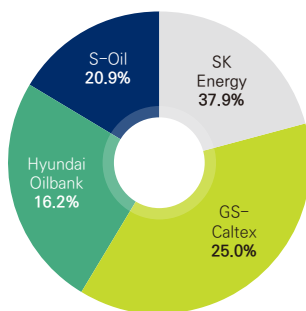
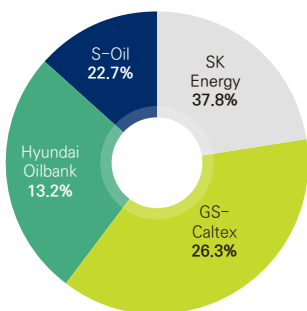
Source: IEA 「CO₂ Emissions from Fuel Combustion」, IEA 「World Energy Balance」, Statistics Korea, Bank of Korea

Refinery Capacities



2012 2,949 thou. BPSD

2022 3,204 thou. BPSD



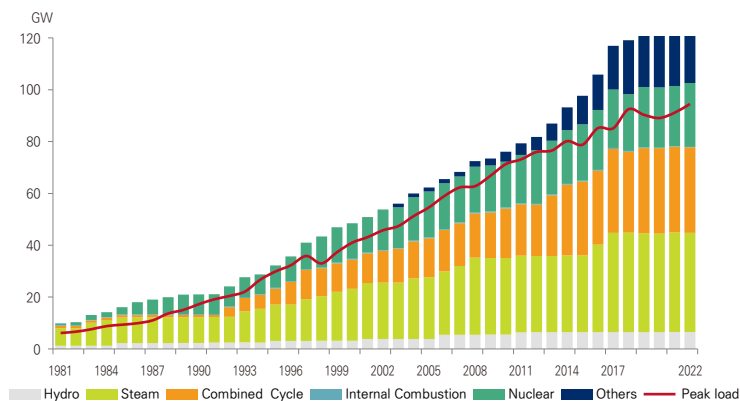
2-1. Refinery Capacities

	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	1,029,608	1,072,558	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

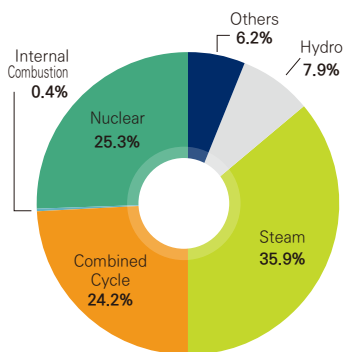
Source: Korea National Oil Corporation

02 Transformation

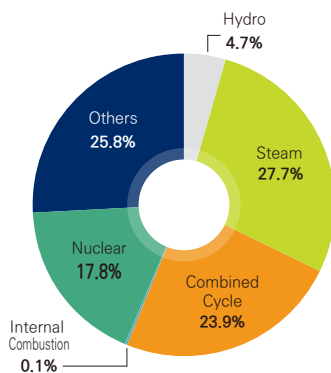
Generating Facilities



2012 81,806 MW



2022 138,195 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

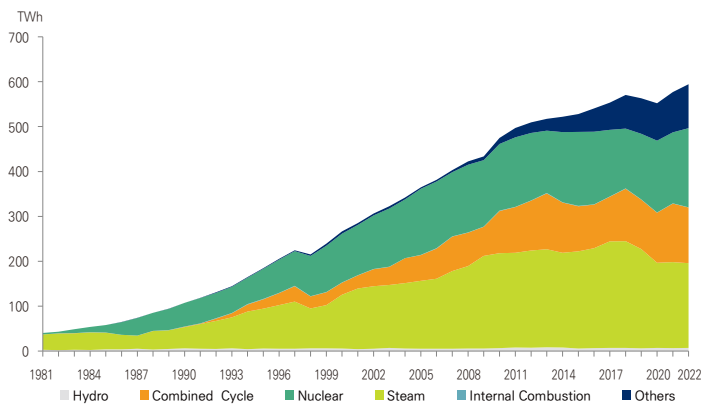
Note 1) Excludes non-utility in common use.

2) Others includes Group & Alternative Energy

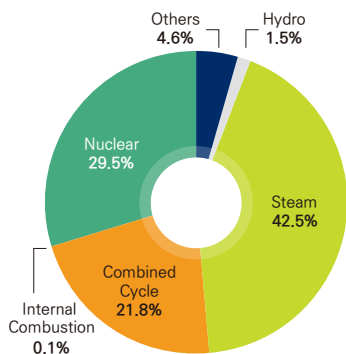
Source: Korea Electric Power Corporation

02 Transformation

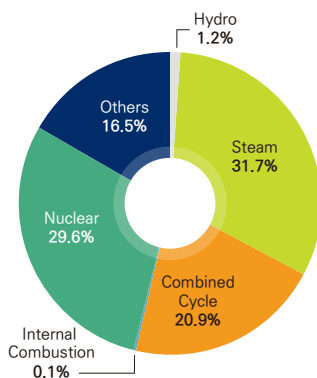
Electric Power Generation by Facilities



2012 509,574 GWh



2022 594,400 GWh



2-3. Electric Power Generation by Facilities

Unit: GWh

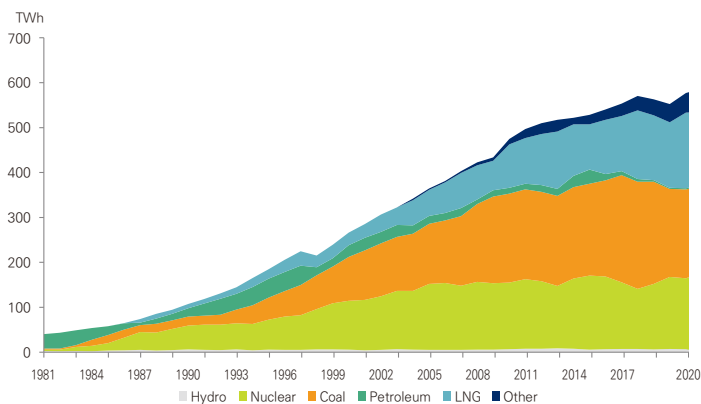
	Total	Hydro	Steam	Combined Cycle	Internal Combustion	Nuclear	Others
1981	40,207	2,709	34,305	258	38	2,897	-
1982	43,122	2,005	36,961	332	45	3,777	2
1983	48,850	2,723	36,897	214	42	8,965	9
1984	53,808	2,399	39,461	99	41	11,792	16
1985	58,007	3,659	37,411	58	61	16,745	73
1986	64,695	4,019	32,107	53	122	28,311	83
1987	73,992	5,344	28,927	66	171	39,314	170
1988	85,462	3,566	41,144	172	210	40,101	269
1989	94,472	4,558	41,754	221	253	47,365	321
1990	107,670	6,361	47,098	619	429	52,887	276
1991	118,619	5,051	55,389	785	472	56,311	611
1992	130,963	4,863	62,115	5,464	574	56,530	1,417
1993	144,437	6,006	68,916	9,188	640	58,138	1,549
1994	164,993	4,098	83,807	16,047	789	58,651	1,601
1995	184,661	5,478	89,252	20,521	825	67,029	1,556
1996	205,494	5,201	96,946	26,943	772	73,924	1,708
1997	224,445	5,404	104,798	34,424	718	77,086	2,015
1998	215,300	6,099	89,042	26,505	575	89,689	3,390
1999	239,325	6,066	96,473	28,675	382	103,064	4,665
2000	266,400	5,610	119,947	26,863	294	108,964	4,722
2001	285,224	4,151	135,437	29,033	325	112,133	4,145
2002	306,474	5,311	138,929	38,337	353	119,103	4,441
2003	322,452	6,887	140,269	40,375	370	129,672	4,879
2004	342,148	5,861	145,365	55,452	407	130,715	4,348
2005	364,639	5,189	151,207	57,457	575	146,779	3,432
2006	381,181	5,219	155,911	67,138	677	148,749	3,487
2007	403,125	5,042	173,415	76,405	578	142,937	4,746
2008	422,355	5,563	183,655	74,519	503	150,958	7,157
2009	433,604	5,641	206,535	64,486	697	147,771	8,474
2010	474,660	6,472	211,449	94,012	731	148,596	13,400
2011	496,893	7,831	211,205	101,479	821	154,723	20,835
2012	509,574	7,652	216,336	110,882	752	150,327	23,625
2013	517,148	8,394	218,585	124,400	741	138,784	26,244
2014	521,971	7,820	211,172	111,711	656	156,407	34,206
2015	528,091	5,796	216,378	100,598	643	164,762	39,913
2016	540,441	6,634	222,623	96,922	573	161,995	51,693
2017	553,530	6,995	237,332	99,619	513	148,427	60,644
2018	570,647	7,270	237,498	116,836	528	133,505	75,008
2019	563,040	6,247	220,918	110,289	579	145,910	79,097
2020	552,162	7,148	189,426	111,759	405	160,184	83,240
2021	576,809	6,737	191,575	130,358	491	158,015	89,633
2022	594,400	7,256	188,477	123,996	570	176,054	98,048

Note 1) Excludes non-utility in common use.

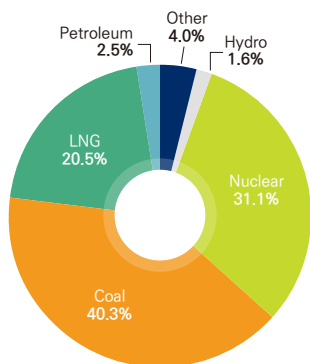
2) Others includes Group & Alternative Energy

Source: Korea Electric Power Corporation

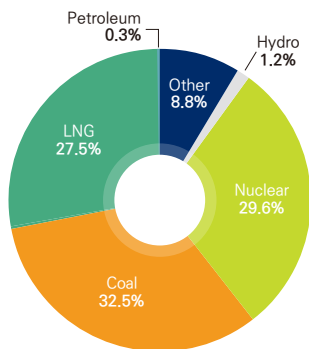
Electric Power Generation by Energy Source



2012 509,574 GWh



2022 594,400 GWh



2-4. Electric Power Generation by Energy Source

Unit: GWh

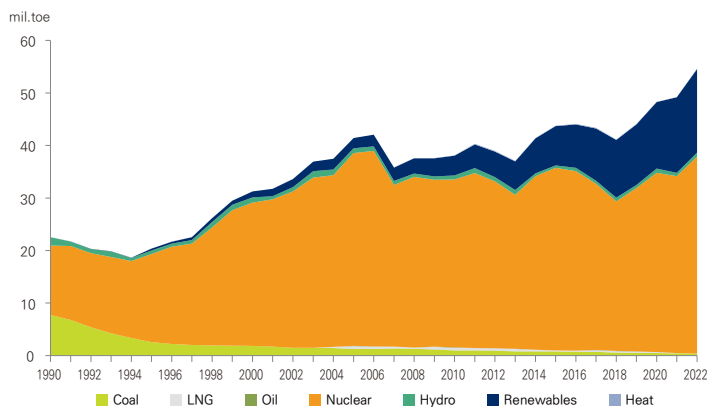
	Total	Hydro	Nuclear	Thermal			Others
				Coal	Petroleum	LNG	
1981	40,207	2,709	2,897	2,530	32,071	-	-
1982	43,122	2,005	3,777	2,612	34,728	-	-
1983	48,850	2,723	8,965	4,289	32,873	-	-
1984	53,808	2,399	11,792	13,383	26,234	-	-
1985	58,007	3,659	16,745	17,639	19,964	-	-
1986	64,695	4,019	28,311	18,220	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

Note: Others includes Group & Alternative Energy

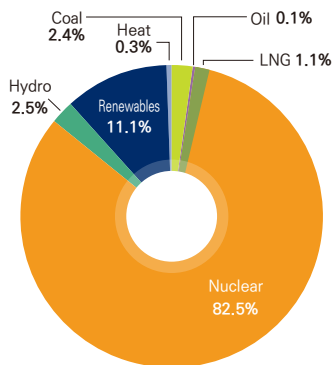
Source: Korea Electric Power Corporation

03 Energy Production, Imports & Exports

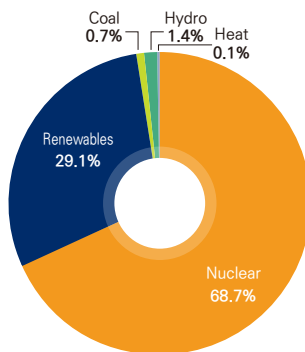
Energy Production



2012 38,966 thousand toe



2022 54,621 thousand toe



3-1. Energy Production

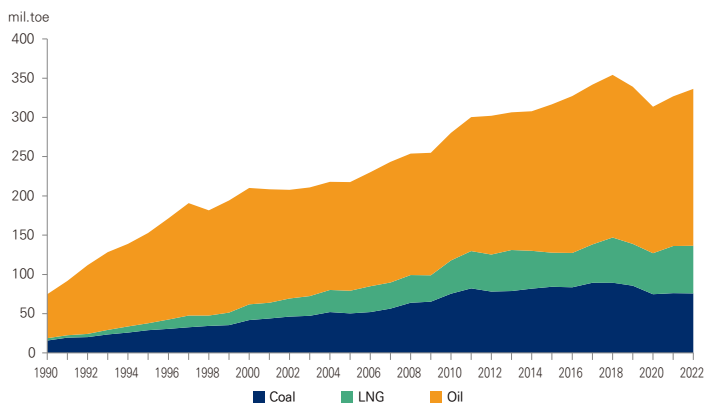
Unit: 1,000 toe

	Total	Coal	LNG	Oil	Nuclear	Hydro	Renewables	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

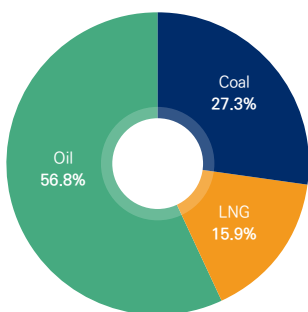
Note : From 2007, figures are based on revised calorific value every 5 years.

03 Energy Production, Imports & Exports

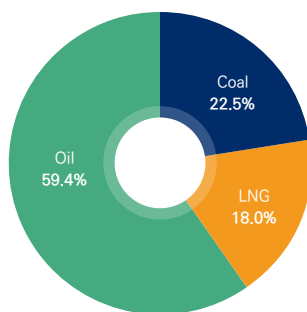
Energy Imports



2012 302,068 thousand toe



2022 336,444 thousand toe



3-2. Energy Imports & Exports

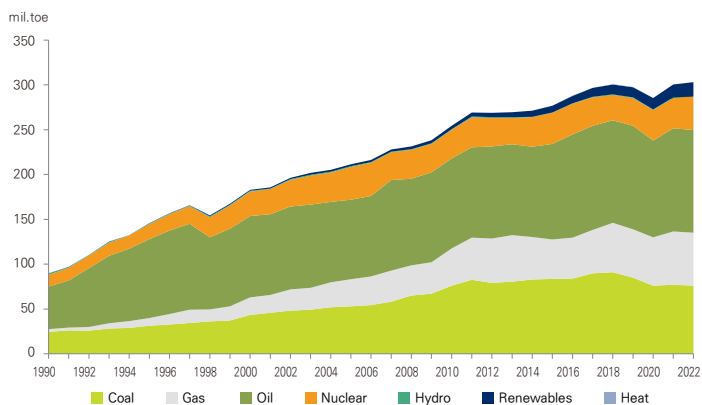
Unit: 1,000 toe

	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	13,883	2	13,881
1993	128,363	23,567	5,797	98,999	15,481	0	15,480
1994	138,940	25,904	7,795	105,241	14,043	104	13,939
1995	152,794	28,942	8,782	115,069	17,784	4	17,780
1996	171,493	30,616	12,035	128,842	22,971	1	22,970
1997	190,742	32,774	14,912	143,056	33,463	53	33,410
1998	181,585	34,450	13,246	133,890	42,284	3	42,281
1999	194,268	35,229	15,970	143,069	42,595	1	42,594
2000	210,191	41,943	19,811	148,438	43,507	3	43,504
2001	208,280	43,822	19,913	144,545	41,898	1	41,898
2002	207,799	46,058	23,390	138,350	33,547	1	33,546
2003	210,798	47,109	25,101	138,589	29,227	1	29,225
2004	217,781	51,995	28,316	137,470	32,641	7	32,633
2005	217,485	50,266	29,013	138,206	38,089	12	38,077
2006	230,063	52,053	32,832	145,177	40,263	9	40,254
2007	243,215	56,340	33,240	153,636	40,064	9	40,055
2008	253,725	63,723	35,436	154,566	45,589	26	45,563
2009	254,840	65,216	33,568	156,056	44,631	4	44,627
2010	280,301	75,340	42,384	162,577	48,576	8	48,567
2011	300,431	82,125	47,690	170,617	56,549	41	56,508
2012	302,068	78,261	47,184	176,623	59,863	20	59,843
2013	306,376	78,923	51,998	175,455	60,319	40	60,280
2014	307,856	81,782	48,388	177,686	62,805	28	62,777
2015	316,750	84,123	43,509	189,118	66,737	12	66,726
2016	327,086	83,621	43,623	199,842	68,510	1	68,510
2017	341,836	89,227	49,023	203,586	71,508	86	71,422
2018	354,196	89,484	57,484	207,227	74,878	47	74,831
2019	338,899	85,586	53,217	200,097	72,526	12	72,514
2020	313,504	74,875	52,217	186,412	65,399	110	65,288
2021	326,861	76,172	59,987	190,702	62,376	217	62,159
2022	336,444	75,794	60,683	199,966	69,339	19	69,320

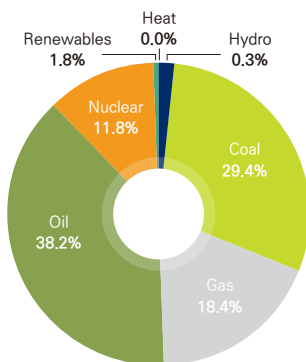
Note : From 2007, figures are based on revised calorific value every 5 years.

04 Total Primary Energy Supply

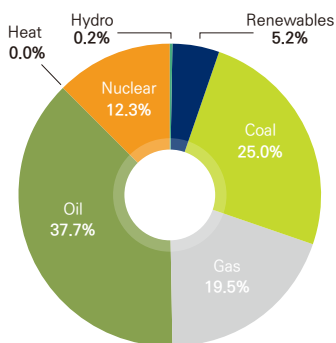
Primary Energy Supply



2012 269 million toe



2022 304 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	165,754	5.7	34,408	2,121	32,287	14,606
1998	154,233	-7.0	36,170	2,196	33,973	13,347
1999	167,341	8.5	37,011	2,369	34,642	15,954
2000	183,078	9.4	43,143	3,074	40,069	19,743
2001	185,809	1.5	45,838	3,673	42,165	19,722
2002	196,452	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	211,344	3.0	52,975	4,708	48,267	30,367
2006	216,261	2.3	54,361	5,174	49,187	32,024
2007	228,129	5.5	58,149	5,560	52,589	34,665
2008	231,298	1.4	64,925	5,872	59,052	33,792
2009	238,416	3.1	67,094	5,673	61,420	35,138
2010	254,399	6.7	76,008	5,998	70,010	41,681
2011	269,199	5.8	82,386	6,796	75,591	47,318
2012	268,993	-0.1	79,059	5,021	74,038	49,554
2013	269,531	0.2	80,538	5,140	75,397	51,943
2014	271,252	0.6	82,764	4,867	77,897	47,409
2015	276,793	2.0	83,650	5,189	78,462	43,958
2016	288,018	4.1	83,989	5,348	78,640	45,524
2017	296,719	3.0	89,786	4,109	85,677	48,564
2018	300,738	1.4	90,965	4,644	86,321	55,090
2019	297,612	-1.0	85,048	3,956	81,092	53,875
2020	285,512	-4.1	75,983	3,605	72,377	53,915
2021	300,515	5.3	76,968	3,683	73,285	59,594
2022	303,954	1.1	75,869	3,349	72,520	59,176

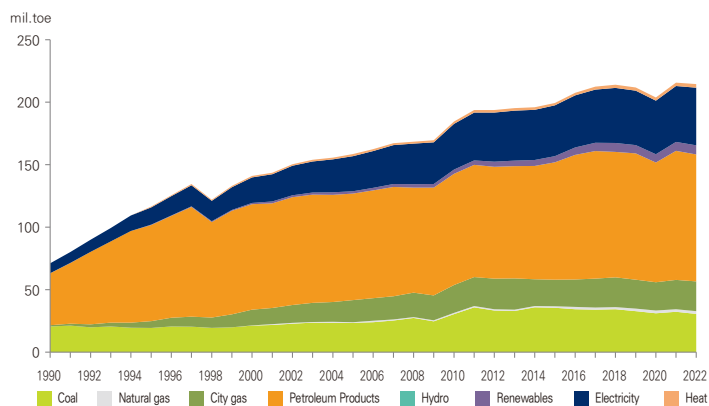
Note : From 2007, figures are based on revised calorific value every 5 years.

Unit: 1,000 toe

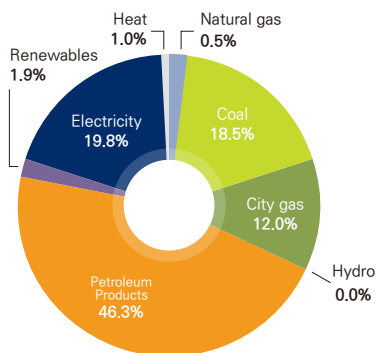
Oil			Nuclear	Hydro	Renewables	Heat	
Sub-Total	Crude oil & refinery feedstocks	Petroleum Products					
47,387	42,928	4,459	13,222	1,571	16	3	1990
52,668	54,452	-1,784	14,078	872	21	3	1991
65,770	69,709	-3,939	14,133	774	19	2	1992
75,432	77,181	-1,749	14,535	1,057	22	3	1993
80,761	79,088	1,672	14,663	587	25	3	1994
87,804	89,411	-1,607	16,757	690	337	3	1995
93,021	100,777	-7,755	18,481	606	386	3	1996
96,246	119,915	-23,669	19,271	703	517	2	1997
80,482	113,635	-33,154	22,422	1,070	733	9	1998
86,770	120,187	-33,417	25,766	1,040	793	7	1999
90,804	122,858	-32,054	27,241	1,002	1,135	10	2000
90,213	119,051	-28,837	28,033	582	1,407	13	2001
92,515	109,192	-16,677	29,776	808	1,556	14	2002
92,871	108,235	-15,364	32,418	1,226	1,796	20	2003
89,676	113,830	-24,154	32,679	1,082	2,051	19	2004
88,431	117,983	-29,552	36,695	919	1,946	12	2005
89,590	120,881	-31,291	37,187	867	2,214	17	2006
101,219	129,678	-28,459	30,731	781	2,569	14	2007
96,511	127,098	-30,587	32,456	660	2,917	38	2008
100,303	123,138	-22,835	31,771	616	3,447	49	2009
100,177	127,447	-27,270	31,948	797	3,773	16	2010
100,622	134,951	-34,329	33,265	989	4,483	135	2011
102,833	138,272	-35,439	31,719	838	4,867	124	2012
101,306	133,375	-32,069	29,283	906	5,442	113	2013
100,792	135,594	-34,802	33,002	581	6,636	68	2014
106,386	148,942	-42,555	34,765	454	7,455	125	2015
115,343	157,664	-42,321	34,181	603	8,261	117	2016
116,067	164,522	-48,455	31,615	601	9,959	127	2017
114,450	163,580	-49,130	28,437	719	11,009	68	2018
115,408	158,655	-43,246	31,079	594	11,541	66	2019
107,970	145,311	-37,341	34,119	826	12,625	73	2020
115,204	143,265	-28,060	33,657	651	14,373	68	2021
114,675	155,835	-41,160	37,500	755	15,909	69	2022

05 Total Final Consumption

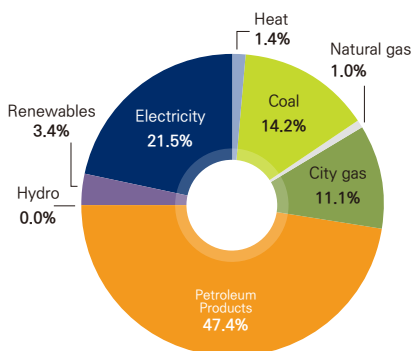
○ Total Final Consumption



2012 194 million toe



2022 214 million toe



5. Total Final Consumption

	Total	Growth Rate(%)	Coal			Natural gas
			Sub-Total	Anthracite	Bituminous	
1990	71,150	-	20,528	8,948	11,580	5
1991	80,179	12.7	21,164	7,267	13,897	6
1992	89,966	12.2	19,950	5,242	14,708	9
1993	99,400	10.5	20,571	3,807	16,765	18
1994	109,323	10.0	19,568	2,480	17,089	15
1995	116,508	6.6	19,422	1,713	17,708	12
1996	125,595	7.8	20,589	1,350	19,238	1
1997	134,489	7.1	20,341	1,020	19,321	0
1998	122,028	-9.3	19,415	986	18,429	0
1999	133,014	9.0	19,855	1,129	18,726	2
2000	140,958	6.0	21,217	1,759	19,457	207
2001	143,589	1.9	21,788	2,308	19,480	569
2002	150,381	4.7	22,827	2,741	20,086	623
2003	153,972	2.4	23,607	3,221	20,386	595
2004	155,678	1.1	23,511	3,141	20,370	765
2005	158,478	1.8	23,382	3,649	19,733	632
2006	162,528	2.6	23,908	4,130	19,777	1,318
2007	167,225	2.9	25,295	4,424	20,871	838
2008	168,469	0.7	27,283	4,613	22,670	714
2009	169,567	0.7	24,578	4,304	20,274	975
2010	184,581	8.9	30,381	4,726	25,654	996
2011	193,726	5.0	35,815	5,915	29,899	999
2012	193,771	0.0	33,336	4,270	29,065	1,060
2013	195,292	0.8	32,912	4,425	28,488	1,041
2014	195,889	0.3	35,813	4,008	31,805	1,018
2015	199,347	1.8	35,569	4,216	31,353	1,129
2016	207,553	4.1	34,370	3,911	30,459	1,797
2017	212,431	2.4	33,927	3,629	30,297	1,832
2018	214,001	0.7	34,297	4,159	30,137	1,773
2019	211,733	-1.1	32,887	3,389	29,498	1,932
2020	203,747	-3.8	31,152	3,132	28,020	2,119
2021	215,664	5.8	32,251	3,236	29,015	2,131
2022	214,482	-0.5	30,563	2,880	27,683	2,227

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

Unit: 1,000 toe

City gas	Petroleum Products	Hydro	Renewables	Electricity	Heat	
1,012	41,592	-	16	7,997	-	1990
1,540	48,614	-	21	8,835	-	1991
2,216	58,023	-	19	9,751	-	1992
3,002	64,981	-	22	10,806	-	1993
4,029	73,288	-	25	12,398	-	1994
5,452	76,815	-	337	13,832	637	1995
6,929	81,458	-	386	15,425	809	1996
8,033	87,718	-	517	16,953	928	1997
8,370	76,239	-	733	16,386	884	1998
10,455	82,741	-	792	18,136	1,033	1999
12,510	84,410	-	1,132	20,273	1,208	2000
13,031	83,761	-	1,403	21,822	1,217	2001
14,305	86,296	-	1,523	23,584	1,224	2002
15,212	86,607	4	1,755	24,796	1,395	2003
15,912	85,687	5	1,996	26,353	1,449	2004
17,672	85,208	0	1,860	28,072	1,652	2005
17,963	86,256	0	2,108	29,427	1,549	2006
18,599	87,401	0	2,407	31,108	1,576	2007
19,632	84,046	0	2,659	32,467	1,669	2008
19,810	86,250	11	2,994	33,235	1,715	2009
22,361	89,023	5	3,268	36,595	1,953	2010
23,288	89,740	0	3,605	38,325	1,954	2011
24,464	89,418	0	4,145	39,264	2,085	2012
24,972	89,885	1	4,490	39,943	2,049	2013
21,488	90,741	1	4,788	40,103	1,938	2014
21,305	93,977	1	4,830	40,630	1,905	2015
21,928	99,827	3	5,861	41,692	2,075	2016
23,122	102,098	2	6,564	42,586	2,300	2017
23,793	100,411	3	7,040	44,148	2,535	2018
23,094	101,189	1	6,508	43,649	2,471	2019
22,632	95,850	0	6,668	42,733	2,592	2020
23,382	103,310	1	7,141	44,748	2,701	2021
23,837	101,602	1	7,265	46,041	2,946	2022

6. Total Final Consumption by Sector

7. Total Final Consumption by Source

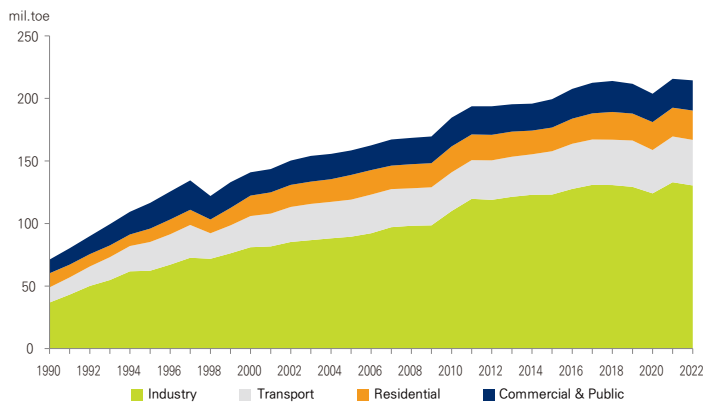
8. Energy Balance

9. Energy Imports

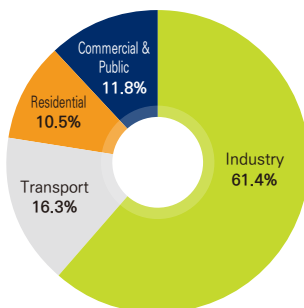


06 Total Final Consumption by Sector

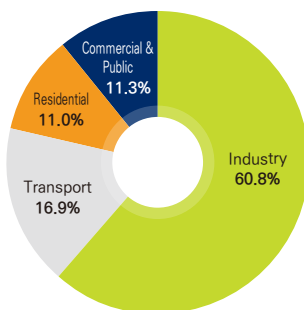
○ Total Final Consumption by Sector



◦ 2012 194 thousand toe



◦ 2022 214 thousand toe



06 Total Final Consumption by Sector

6. Total Final Consumption by Sector

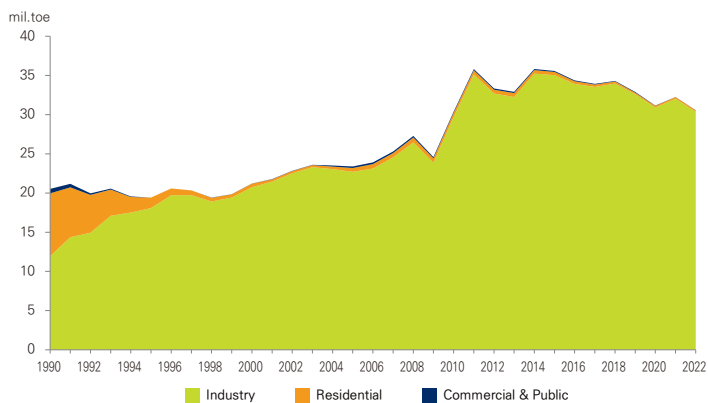
	Total Final Consumption(1,000 toe)				
	Total	Industry	Transport	Residential	Commercial & Public
1990	71,150	36,799	12,141	11,262	10,948
1991	80,179	43,113	13,703	10,300	13,063
1992	89,966	50,075	15,514	9,868	14,509
1993	99,400	54,749	18,319	9,477	16,855
1994	109,323	61,692	20,352	9,235	18,045
1995	116,508	62,276	22,920	10,712	20,600
1996	125,595	67,032	24,430	11,713	22,421
1997	134,489	72,650	26,203	12,076	23,561
1998	122,028	71,775	20,481	10,962	18,810
1999	133,014	76,173	22,374	13,837	20,630
2000	140,958	80,963	25,007	16,284	18,704
2001	143,589	81,673	26,226	17,020	18,671
2002	150,381	85,167	28,008	17,791	19,416
2003	153,972	86,646	29,002	17,877	20,448
2004	155,678	88,125	29,178	18,064	20,312
2005	158,478	89,370	29,730	19,754	19,625
2006	162,528	92,241	30,928	19,613	19,745
2007	167,225	96,978	30,496	18,872	20,879
2008	168,469	98,110	30,007	19,347	21,005
2009	169,567	98,532	30,389	19,349	21,297
2010	184,581	109,981	31,010	20,733	22,857
2011	193,726	119,660	31,016	20,496	22,554
2012	193,771	118,914	31,502	20,407	22,948
2013	195,292	121,318	32,017	20,185	21,772
2014	195,889	122,898	32,407	18,905	21,679
2015	199,347	123,174	34,510	18,971	22,692
2016	207,553	127,696	36,030	20,140	23,686
2017	212,431	130,919	36,261	20,918	24,333
2018	214,001	130,769	36,227	22,114	24,890
2019	211,733	129,223	37,194	21,466	23,850
2020	203,747	124,013	34,746	22,356	22,632
2021	215,664	132,960	36,636	22,940	23,128
2022	214,482	130,463	36,294	23,560	24,165

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

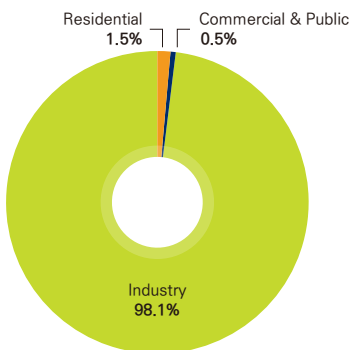
Transformation Own Use	Total Final Consumption(%)				
	Industry	Transport	Residential	Commercial & Public	
1,529	51.7	17.1	15.8	15.4	1990
1,448	53.8	17.1	12.8	16.3	1991
1,527	55.7	17.2	11.0	16.1	1992
1,816	55.1	18.4	9.5	17.0	1993
2,012	56.4	18.6	8.4	16.5	1994
2,389	53.5	19.7	9.2	17.7	1995
2,372	53.4	19.5	9.3	17.9	1996
7,918	54.0	19.5	9.0	17.5	1997
7,439	58.8	16.8	9.0	15.4	1998
7,970	57.3	16.8	10.4	15.5	1999
8,171	57.4	17.7	11.6	13.3	2000
7,967	56.9	18.3	11.9	13.0	2001
7,471	56.6	18.6	11.8	12.9	2002
7,727	56.3	18.8	11.6	13.3	2003
8,349	56.6	18.7	11.6	13.0	2004
8,170	56.4	18.8	12.5	12.4	2005
8,182	56.8	19.0	12.1	12.1	2006
8,414	58.0	18.2	11.3	12.5	2007
9,511	58.2	17.8	11.5	12.5	2008
9,327	58.1	17.9	11.4	12.6	2009
9,133	59.6	16.8	11.2	12.4	2010
10,180	61.8	16.0	10.6	11.6	2011
10,792	61.4	16.3	10.5	11.8	2012
10,329	62.1	16.4	10.3	11.1	2013
11,898	62.7	16.5	9.7	11.1	2014
11,829	61.8	17.3	9.5	11.4	2015
12,093	61.5	17.4	9.7	11.4	2016
11,255	61.6	17.1	9.8	11.5	2017
13,539	61.1	16.9	10.3	11.6	2018
14,053	61.0	17.6	10.1	11.3	2019
13,956	60.9	17.1	11.0	11.1	2020
13,960	61.7	17.0	10.6	10.7	2021
13,768	60.8	16.9	11.0	11.3	2022

07 Total Final Consumption by Source

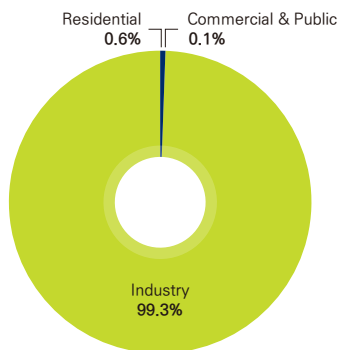
○ Coal



○ 2012 33,336 thousand toe



○ 2022 30,563 thousand toe



7-1. Coal

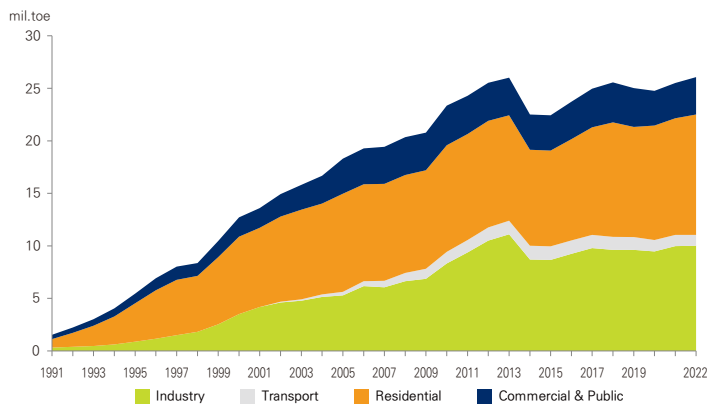
Unit: 1,000 toe

	TFC	%	Coal	Industry	Residential	Commercial & Public
1990	71,150	28.9	20,528	11,942	8,023	563
1991	80,179	26.4	21,164	14,371	6,347	446
1992	89,966	22.2	19,950	14,945	4,817	188
1993	99,400	20.7	20,571	17,100	3,341	130
1994	109,323	17.9	19,568	17,514	1,978	77
1995	116,508	16.7	19,422	18,091	1,327	5
1996	125,595	16.4	20,589	19,721	865	3
1997	134,489	15.1	20,341	19,727	612	2
1998	122,028	15.9	19,415	18,930	464	22
1999	133,014	14.9	19,855	19,414	422	20
2000	140,958	15.1	21,217	20,746	450	21
2001	143,589	15.2	21,788	21,464	288	35
2002	150,381	15.2	22,827	22,507	285	35
2003	153,972	15.3	23,607	23,293	280	34
2004	155,678	15.1	23,511	23,046	325	140
2005	158,478	14.8	23,382	22,707	483	191
2006	162,528	14.7	23,908	23,128	572	208
2007	167,225	15.1	25,295	24,552	557	186
2008	168,469	16.2	27,283	26,464	626	194
2009	169,567	14.5	24,578	23,870	550	157
2010	184,581	16.5	30,381	29,695	542	143
2011	193,726	18.5	35,815	35,120	531	163
2012	193,771	17.2	33,336	32,689	489	157
2013	195,292	16.9	32,912	32,243	507	162
2014	195,889	18.3	35,813	35,235	446	132
2015	199,347	17.8	35,569	35,041	410	118
2016	207,553	16.6	34,370	33,918	351	101
2017	212,431	16.0	33,927	33,531	307	88
2018	214,001	16.0	34,297	33,965	258	74
2019	211,733	15.5	32,887	32,617	186	85
2020	203,747	15.3	31,152	30,912	219	21
2021	215,664	15.0	32,251	32,040	193	18
2022	214,482	14.2	30,563	30,364	182	17

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

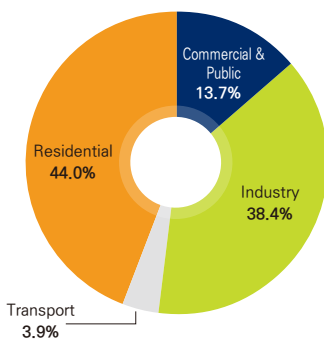
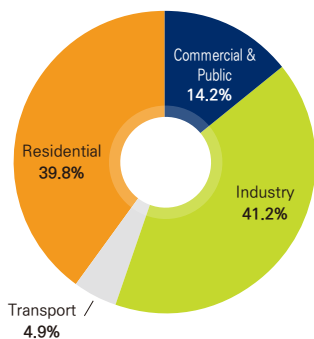
07 Total Final Consumption by Source

◦ LNG & City Gas



◦ 2012 25,524 thousand toe

◦ 2022 26,064 thousand toe



7-2. Natural Gas & City Gas

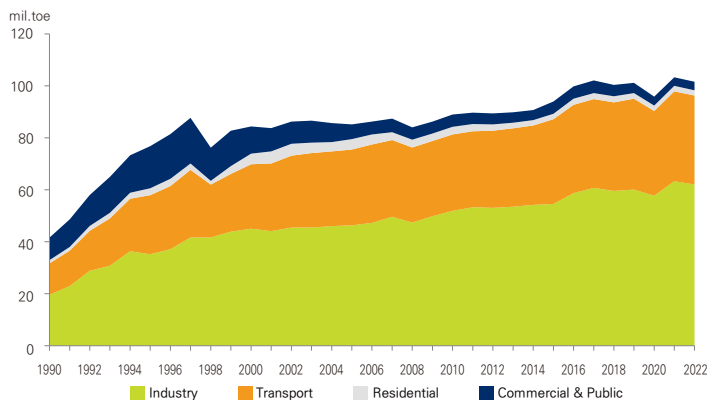
Unit: 1,000 toe

	TFC	%	Natural Gas & City Gas	Industry	Transport	Residential	Commercial & Public
1990	71,150	1.4	1,016	239	-	454	323
1991	80,179	1.9	1,546	319	-	809	418
1992	89,966	2.5	2,225	386	-	1,335	503
1993	99,400	3.0	3,020	478	-	1,920	623
1994	109,323	3.7	4,045	617	-	2,658	770
1995	116,508	4.7	5,464	875	-	3,655	935
1996	125,595	5.5	6,929	1,159	-	4,610	1,161
1997	134,489	6.0	8,033	1,495	-	5,284	1,254
1998	122,028	6.9	8,370	1,813	-	5,330	1,227
1999	133,014	7.9	10,458	2,533	-	6,399	1,526
2000	140,958	9.0	12,717	3,516	-	7,353	1,849
2001	143,589	9.5	13,600	4,181	7	7,526	1,886
2002	150,381	9.9	14,928	4,607	80	8,109	2,132
2003	153,972	10.3	15,807	4,773	146	8,531	2,358
2004	155,678	10.7	16,677	5,148	237	8,636	2,656
2005	158,478	11.5	18,304	5,287	339	9,344	3,333
2006	162,528	11.9	19,281	6,165	475	9,232	3,409
2007	167,225	11.6	19,437	6,063	615	9,226	3,534
2008	168,469	12.1	20,345	6,647	777	9,330	3,592
2009	169,567	12.3	20,785	6,866	960	9,369	3,591
2010	184,581	12.7	23,357	8,326	1,112	10,135	3,785
2011	193,726	12.5	24,287	9,383	1,174	10,100	3,630
2012	193,771	13.2	25,524	10,503	1,246	10,147	3,628
2013	195,292	13.3	26,013	11,101	1,302	10,024	3,586
2014	195,889	11.5	22,506	8,702	1,306	9,141	3,357
2015	199,347	11.3	22,434	8,668	1,281	9,130	3,355
2016	207,553	11.4	23,725	9,253	1,270	9,647	3,555
2017	212,431	11.7	24,954	9,786	1,253	10,238	3,677
2018	214,001	11.9	25,566	9,615	1,238	10,901	3,812
2019	211,733	11.8	25,027	9,624	1,216	10,479	3,708
2020	203,747	12.1	24,751	9,464	1,099	10,900	3,289
2021	215,664	11.8	25,513	9,986	1,060	11,104	3,364
2022	214,482	12.2	26,064	10,011	1,025	11,469	3,558

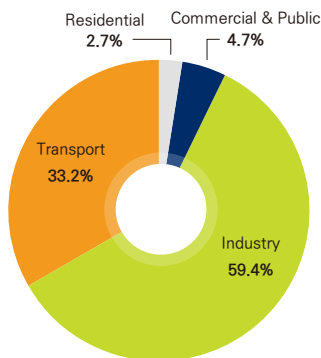
Note : From 2007, figures are based on revised calorific value every 5 years.

07 Total Final Consumption by Source

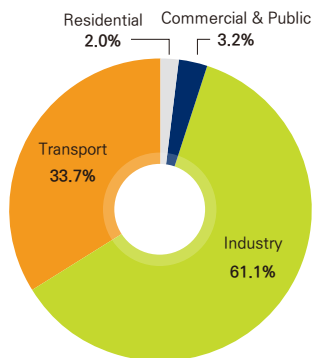
◦ Petroleum Products



◦ 2012 89,418 thousand toe



◦ 2022 101,602 thousand toe



7-3. Petroleum Products

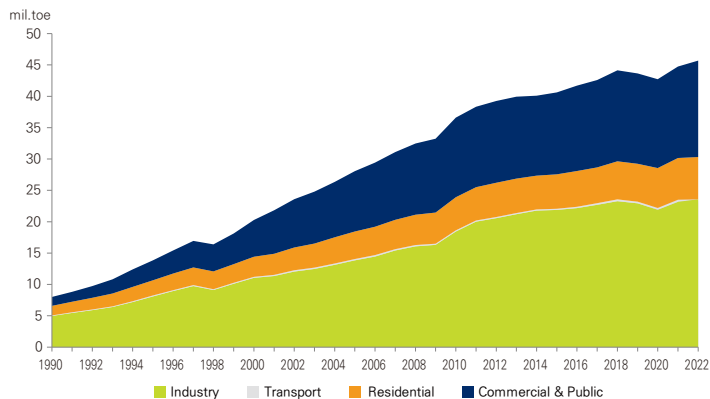
Unit : 1,000 toe

	TFC	%	Petroleum Products	Industry	Transport	Residential	Commercial & Public
1990	71,150	58.5	41,592	19,642	12,054	1,254	8,642
1991	80,179	60.6	48,614	22,958	13,609	1,462	10,585
1992	89,966	64.5	58,023	28,841	15,413	1,834	11,934
1993	99,400	65.4	64,981	30,769	18,211	2,150	13,850
1994	109,323	67.0	73,288	36,358	20,227	2,304	14,398
1995	116,508	65.9	76,815	35,192	22,765	2,656	16,202
1996	125,595	64.9	81,458	37,191	24,285	2,809	17,173
1997	134,489	65.2	87,718	41,643	26,051	2,442	17,581
1998	122,028	62.5	76,239	41,679	20,345	1,444	12,770
1999	133,014	62.2	82,741	43,863	22,225	3,021	13,631
2000	140,958	59.9	84,410	45,031	24,832	4,099	10,449
2001	143,589	58.3	83,761	44,082	26,024	4,658	8,996
2002	150,381	57.4	86,296	45,450	27,733	4,566	8,547
2003	153,972	56.2	86,607	45,467	28,656	4,010	8,474
2004	155,678	55.0	85,687	46,044	28,729	3,574	7,341
2005	158,478	53.8	85,208	46,355	29,167	4,024	5,663
2006	162,528	53.1	86,256	47,289	30,192	3,845	4,930
2007	167,225	52.3	87,401	49,602	29,577	2,968	5,254
2008	168,469	49.9	84,046	47,435	28,858	3,019	4,734
2009	169,567	50.9	86,250	49,850	28,982	2,815	4,604
2010	184,581	48.2	89,023	51,961	29,352	2,974	4,735
2011	193,726	46.3	89,740	53,255	29,302	2,757	4,426
2012	193,771	46.1	89,418	53,084	29,706	2,384	4,245
2013	195,292	46.0	89,885	53,505	30,154	2,199	4,027
2014	195,889	46.3	90,741	54,194	30,534	2,097	3,916
2015	199,347	47.1	93,977	54,610	32,597	2,064	4,706
2016	207,553	48.1	99,827	58,705	34,006	2,382	4,734
2017	212,431	48.1	102,098	60,738	34,197	2,323	4,841
2018	214,001	46.9	100,411	59,619	34,038	2,335	4,419
2019	211,733	47.8	101,189	60,068	35,022	2,152	3,948
2020	203,747	47.0	95,850	57,699	32,667	2,097	3,387
2021	215,664	47.9	103,310	63,361	34,554	2,096	3,299
2022	214,482	47.4	101,602	62,048	34,238	2,026	3,290

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

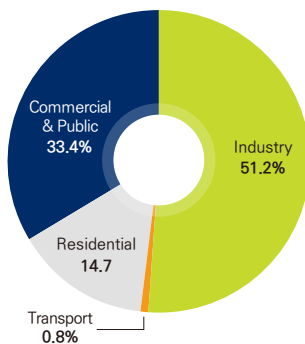
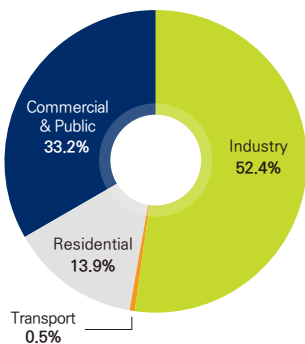
07 Total Final Consumption by Source

Electricity



2012 39,264 thousand toe

2022 46,041 thousand toe



7-4. Electricity

Unit: 1,000 toe

	TFC	%	Electricity	Industry	Transport	Residential	Commercial & Public
1990	71,150	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	89,966	10.8	9,751	5,904	101	1,874	1,872
1993	99,400	10.9	10,806	6,402	108	2,057	2,239
1994	109,323	11.3	12,398	7,203	124	2,284	2,787
1995	116,508	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	134,489	12.6	16,953	9,752	151	2,796	4,253
1998	122,028	13.4	16,386	9,107	136	2,830	4,313
1999	133,014	13.6	18,136	10,107	149	2,974	4,906
2000	140,958	14.4	20,273	11,047	175	3,191	5,860
2001	143,589	15.2	21,822	11,335	194	3,372	6,921
2002	150,381	15.7	23,584	12,060	195	3,636	7,693
2003	153,972	16.1	24,796	12,480	200	3,833	8,283
2004	155,678	16.9	26,353	13,130	213	4,181	8,829
2005	158,478	17.7	28,072	13,830	224	4,375	9,643
2006	162,528	18.1	29,427	14,458	218	4,517	10,234
2007	167,225	18.6	31,108	15,426	209	4,659	10,814
2008	168,469	19.3	32,467	16,089	196	4,836	11,346
2009	169,567	19.6	33,235	16,316	187	4,953	11,779
2010	184,581	19.8	36,595	18,449	188	5,263	12,694
2011	193,726	19.8	38,325	20,018	193	5,295	12,819
2012	193,771	20.3	39,264	20,562	194	5,464	13,044
2013	195,292	20.5	39,943	21,194	186	5,501	13,061
2014	195,889	20.5	40,103	21,788	172	5,390	12,754
2015	199,347	20.4	40,630	21,880	191	5,486	13,073
2016	207,553	20.1	41,692	22,165	231	5,691	13,605
2017	212,431	20.0	42,586	22,710	246	5,720	13,909
2018	214,001	20.6	44,148	23,289	265	6,079	14,516
2019	211,733	20.6	43,649	22,925	271	6,059	14,393
2020	203,747	21.0	42,733	21,908	285	6,370	14,169
2021	215,664	20.7	44,748	23,182	318	6,670	14,578
2022	214,482	21.5	46,041	23,570	349	6,756	15,367

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

07 Total Final Consumption by Source

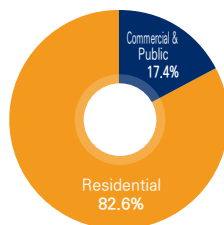
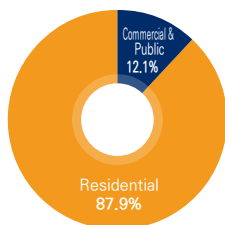
7-5. Heat Energy

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	1,729	1,652	1,449	202
2006	1,588	1,549	1,367	182
2007	1,610	1,576	1,391	185
2008	1,738	1,669	1,472	198
2009	1,765	1,715	1,525	189
2010	1,593	1,953	1,742	211
2011	2,029	1,954	1,743	211
2012	2,576	2,085	1,832	252
2013	2,028	2,049	1,797	252
2014	2,065	1,938	1,720	218
2015	2,625	1,905	1,663	242
2016	2,526	2,075	1,771	304
2017	2,436	2,300	1,955	345
2018	2,620	2,535	2,125	410
2019	2,740	2,471	2,080	391
2020	2,777	2,592	2,200	393
2021	2,762	2,701	2,265	435
2022	3,162	2,946	2,432	514

○ 2012 2,085 thousand toe

○ 2022 2,946 thousand toe



7-6. Renewables

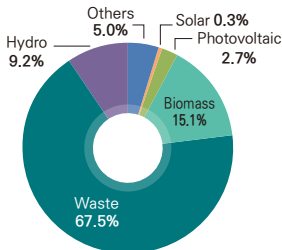
Unit: 1,000 toe

	Total	Solar	Photovoltaic	Biomass	Waste	Hydro	Others ¹
1990	-	-	-	-	-	-	-
1991	412	-	-	-	-	-	-
1992	552	13	2	57	461	19	0
1993	648	14	1	59	546	29	0
1994	776	17	1	57	679	23	0
1995	907	22	1	59	805	20	0
1996	1,160	32	1	50	1,056	20	0
1997	1,419	46	1	68	1,282	22	0
1998	1,713	44	1	63	1,577	27	0
1999	1,897	42	1	65	1,761	27	1
2000	2,127	42	1	82	1,978	20	4
2001	2,453	37	2	82	2,308	21	3
2002	2,917	35	2	117	2,733	28	4
2003	4,437	33	2	131	3,039	1,226	7
2004	4,582	36	2	135	3,313	1,082	13
2005	4,879	35	4	181	3,706	919	36
2006	5,225	33	8	274	3,975	867	68
2007	5,609	29	15	370	4,319	781	94
2008	5,858	28	61	427	4,569	660	114
2009	6,086	31	122	580	4,558	607	189
2010	6,856	29	166	755	4,862	792	252
2011	7,584	27	198	963	5,122	965	308
2012	8,856	26	243	1,335	5,999	815	439
2013	9,894	28	359	1,558	6,502	892	554
2014	11,569	28	579	2,822	6,905	581	654
2015	13,351	28	907	2,766	8,436	454	759
2016	14,269	28	1,183	2,765	8,743	603	946
2017	16,605	28	1,673	3,599	9,359	601	1,345
2018	18,059	27	2,197	4,442	9,084	719	1,590
2019	16,525	27	3,062	4,162	7,049	595	1,630
2020	12,378	26	4,165	3,899	1,166	826	2,295
2021	14,000	26	5,317	4,264	1,198	651	2,545
2022	15,706	25	6,609	4,373	1,257	755	2,686

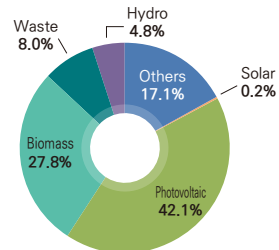
1. Include wind, fuel cells, geothermal and tidal

2. From the fourth quarter 2019, non-renewable waste data has been excluded.

○ 2012 8,856 thousand toe



○ 2022 15,706 thousand toe



2012

	Coal (1,000 ton)	Natural Gas (1,000 ton)	City Gas (10 ³ m ³)	Crude oil & refinery feedstocks (1,000 Bbl)
Production	2,094	334	-	263
Imports	126,036	36,184	-	949,058
Exports	-34	-	-	-2,473
International Bunkers	-	-	-	-
Stock changes	-172	1,483	-	-2,057
Total primary energy supply	127,924	38,001	-	944,792
Transfers	-	-	-	734
Statistical differences	5,654	397	-242	11,152
Total primary energy consumption	133,578	38,398	-242	956,677
Transformation processes	-80,933	-37,222	23,698	-955,613
Electricity-only plants	-80,933	-13,747	-	-
CHP plants	-	-4,095	-663	-
Heat-only plants	-	-	-486	-
Petroleum Products	-	-	-	-955,613
Gas manufacturing	-	-19,381	24,847	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-	-
Transformation Own Use	-	-363	-	-1,065
Losses	-	-	-	-
Total final consumption	52,645	813	23,456	-
Industry	51,223	813	9,054	-
Agriculture/forestry/Fishing	542	-	6	-
Mining and quarrying	-	-	0	-
Manufacturing	50,678	813	9,048	-
Food and tobacco	62	-	666	-
Textile and leather	1,870	-	544	-
Wood and wood products	-	-	46	-
Paper, pulp and print	25	-	415	-
Chemical and petrochemical	4,585	-	2,061	-
Non-metallic minerals	4,625	-	549	-
Iron and steel	34,187	636	1,278	-
Non-ferrous metals	701	-	229	-
Machinery	-	-	839	-
Transport Equipment	-	0	741	-
Other manufacturing	4,624	177	1,681	-
Other energy	-	-	-	-
Construction	2	-	1	-
Transport	-	-	1,195	-
Rail	-	-	-	-
Road	-	-	1,195	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	1,077	-	9,729	-
Commercial-Public	346	-	3,478	-

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)
-	150,327	3,971	4,869	-	124	38,966
309,599	-	-	-	-	-	302,068
-425,574	-	-	-	-	-	-59,863
-85,120	-	-	-	-	-	-12,815
-6,692	-	-	-2	-	-	637
-207,786	150,327	3,971	4,867	-	124	268,993
-4,239	-	-	-	-	-	-411
2,293	-	-	0	-	-	6,307
-209,732	150,327	3,971	4,867	-	124	274,889
947,785	-150,327	-3,969	-638	506,009	2,576	-68,159
-22,222	-150,327	-3,969	-692	484,478	-124	-62,531
-176	-	-	-32	21,531	2,447	-1,793
-1,300	-	-	-1	-	253	-460
978,095	-	-	-	-	-	-3,460
-6,612	-	-	-	-	-	-0
-	-	-	-	-	-	-
-	-	-	86	-	-	86
-38,174	-	-	-84	-31,417	-	-10,792
-	-	-	-	-18,038	-615	-2,167
699,879	-	2	4,145	456,554	2,085	193,771
419,861	-	-	2,076	239,097	-	118,914
15,013	-	-	55	12,074	-	3,461
633	-	-	0	1,616	-	228
388,670	-	-	2,016	225,407	-	112,825
1,163	-	-	23	9,793	-	1,766
833	-	-	157	12,723	-	3,094
146	-	-	115	1,772	-	337
635	-	-	581	10,051	-	1,988
361,584	-	-	171	40,383	-	53,395
4,132	-	-	760	10,928	-	5,753
1,136	-	-	5	37,571	-	28,397
425	-	-	5	8,223	-	1,401
1,481	-	-	92	68,830	-	7,093
2,720	-	-	-	22,685	-	3,121
9,019	-	-	2	1,890	-	5,543
5,395	-	-	103	558	-	936
15,545	-	-	4	-	-	2,400
227,457	-	-	357	2,250	-	31,502
1,231	-	-	-	2,250	-	370
215,110	-	-	357	-	-	29,524
4,809	-	-	-	-	-	732
6,306	-	-	-	-	-	876
18,966	-	-	91	63,536	1,832	20,407
33,595	-	2	1,622	151,671	252	22,948

2012

	Coal	Natural Gas	City Gas	Crude oil & refinery feedstocks
Production	942	436	-	39
Imports	78,261	47,184	-	138,986
Exports	-20	-	-	-460
International Bunkers	-	-	-	-
Stock changes	-125	1,934	-	-293
Total primary energy supply	79,059	49,554	-	138,272
Transfers	-	-	-	137
Statistical differences	3,686	517	-252	2,044
Total primary energy consumption	82,745	50,071	-252	140,452
Transformation processes	-49,409	-48,538	24,717	-140,257
Electricity-only plants	-49,409	-17,925	-	-
CHP plants	-	-5,340	-692	-
Heat-only plants	-	-	-507	-
Petroleum Products	-	-	-	-140,257
Gas manufacturing	-	-25,272	25,916	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-	-
Transformation Own Use	-	-473	-	-195
Losses	-	-	-	-
Total final consumption	33,336	1,060	24,464	-
Industry	32,689	1,060	9,443	-
Agriculture/forestry/Fishing	234	-	6	-
Mining and quarrying	-	-	0	-
Manufacturing	32,455	1,060	9,437	-
Food and tobacco	38	-	694	-
Textile and leather	1,152	-	567	-
Wood and wood products	-	-	48	-
Paper, pulp and print	15	-	433	-
Chemical and petrochemical	2,824	-	2,150	-
Non-metallic minerals	2,849	-	572	-
Iron and steel	22,863	829	1,333	-
Non-ferrous metals	392	-	238	-
Machinery	-	-	875	-
Transport Equipment	-	0	773	-
Other manufacturing	2,321	231	1,754	-
Other energy	-	-	-	-
Construction	1	-	1	-
Transport	-	-	1,246	-
Rail	-	-	-	-
Road	-	-	1,246	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	489	-	10,147	-
Commercial-Public	157	-	3,628	-

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
-	31,719	838	4,869	-	124	38,966
37,636	-	-	-	-	-	302,068
-59,383	-	-	-	-	-	-59,863
-12,815	-	-	-	-	-	-12,815
-877	-	-	-2	-	-	637
-35,439	31,719	838	4,867	-	124	268,993
-548	-	-	-	-	-	-411
312	-	-	0	-	-	6,307
-35,674	31,719	838	4,867	-	124	274,889
132,431	-31,719	-837	-638	43,517	2,576	-68,159
-3,489	-31,719	-837	-692	41,665	-124	-62,531
-28	-	-	-32	1,852	2,447	-1,793
-206	-	-	-1	-	253	-460
136,797	-	-	-	-	-	-3,460
-644	-	-	-	-	-	-0
-	-	-	-	-	-	-
-	-	-	86	-	-	86
-7,339	-	-	-84	-2,702	-	-10,792
-	-	-	-	-1,551	-615	-2,167
89,418	-	0	4,145	39,264	2,085	193,771
53,084	-	-	2,076	20,562	-	118,914
2,128	-	-	55	1,038	-	3,461
89	-	-	0	139	-	228
48,473	-	-	2,016	19,385	-	112,825
168	-	-	23	842	-	1,766
124	-	-	157	1,094	-	3,094
21	-	-	115	152	-	337
95	-	-	581	864	-	1,988
44,777	-	-	171	3,473	-	53,395
632	-	-	760	940	-	5,753
136	-	-	5	3,231	-	28,397
59	-	-	5	707	-	1,401
206	-	-	92	5,919	-	7,093
397	-	-	-	1,951	-	3,121
1,073	-	-	2	163	-	5,543
785	-	-	103	48	-	936
2,394	-	-	4	-	-	2,400
29,706	-	-	357	194	-	31,502
176	-	-	-	194	-	370
27,921	-	-	357	-	-	29,524
732	-	-	-	-	-	732
876	-	-	-	-	-	876
2,384	-	-	91	5,464	1,832	20,407
4,245	-	0	1,622	13,044	252	22,948

2022

	Coal (1,000 ton)	Natural Gas (1,000 ton)	City Gas (10 ³ m ³)	Crude oil & refinery feedstocks (1,000 Bbl)
Production	820	-	-	17
Imports	125,564	46,394	-	1,047,685
Exports	-29	-	-	-1,848
International Bunkers	-	-8	-	-
Stock changes	-484	-1,144	-	-3,290
Total primary energy supply	125,871	45,242	-	1,042,564
Transfers	-	-	-	116,442
Statistical differences	-10,903	321	-65	-3,113
Total primary energy consumption	114,968	45,562	-65	1,155,893
Transformation processes	-67,124	-42,351	24,271	-1,155,425
Electricity-only plants	-67,124	-16,128	-	-
CHP plants	-	-6,579	-294	-
Heat-only plants	-	-	-382	-
Petroleum Products	-	-	-	-1,155,425
Gas manufacturing	-	-19,643	25,543	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-596	-
Transformation Own Use	-	-1,514	-813	-468
Losses	-	5	-	-
Total final consumption	47,844	1,703	23,392	-
Industry	47,421	1,703	7,639	-
Agriculture/forestry/Fishing	111	-	3	-
Mining and quarrying	-	-	-	-
Manufacturing	47,309	1,703	7,636	-
Food and tobacco	7	-	900	-
Textile and leather	1,584	-	221	-
Wood and wood products	-	-	31	-
Paper, pulp and print	-	410	300	-
Chemical and petrochemical	4,972	241	1,886	-
Non-metallic minerals	3,656	-	522	-
Iron and steel	32,505	567	1,056	-
Non-ferrous metals	808	178	492	-
Machinery	296	27	1,395	-
Transport Equipment	-	96	661	-
Other manufacturing	3,482	184	171	-
Other energy	-	-	-	-
Construction	0	-	-	-
Transport	-	-	1,006	-
Rail	-	-	-	-
Road	-	-	1,006	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	387	-	11,255	-
Commercial-Public	36	-	3,491	-

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)
-	176,054	3,545	15,908	-	69	54,621
367,072	-	-	-	-	-	336,444
-497,020	-	-	-	-	-	-69,339
-102,335	-	-	-	-	-	-15,514
48	-	-	1	-	-	-2,265
-232,234	176,054	3,545	15,909	-	69	303,954
-116,865	-	-	-	-	-	6,237
7,734	-	-	0	-	-	-5,108
-341,365	176,054	3,545	15,909	-	69	305,083
1,179,249	-176,054	-3,541	-8,644	590,843	3,162	-74,990
-4,056	-176,054	-3,541	-9,424	545,419	-69	-61,563
-967	-	-	-221	45,424	2,893	-2,428
-1,683	-	-	-24	-	338	-310
1,189,404	-	-	-	-	-	-11,108
-3,449	-	-	-	-	-	0
-	-	-	419	-	-	419
-	-	-	607	-	-	-
-38,981	-	-	-	-37,316	-	-13,768
-	-	-	-	-18,164	-286	-1,842
798,903	-	4	7,265	535,364	2,946	214,482
496,939	-	-	4,471	274,066	-	130,463
8,939	-	-	193	19,286	-	3,141
701	-	-	4	1,759	-	261
474,186	-	-	4,274	253,021	-	125,050
354	-	-	85	13,908	-	2,243
170	-	-	192	8,858	-	2,131
48	-	-	41	1,754	-	231
220	-	-	694	9,196	-	2,356
446,587	-	-	1,386	53,422	-	66,164
3,156	-	-	991	11,798	-	5,155
558	-	-	3	25,902	-	25,902
354	-	-	-	9,308	-	2,040
638	-	-	452	92,551	-	10,123
1,783	-	-	60	22,742	-	3,060
9,899	-	-	369	3,583	-	4,079
10,418	-	-	-	-	-	1,567
13,113	-	-	0	-	-	2,012
258,008	-	-	682	4,053	-	36,294
439	-	-	-	2,751	-	300
242,421	-	-	682	1,303	-	33,859
3,091	-	-	-	-	-	464
12,057	-	-	-	-	-	1,671
16,452	-	-	695	78,557	2,432	23,560
27,504	-	4	1,418	178,687	514	24,165

2022

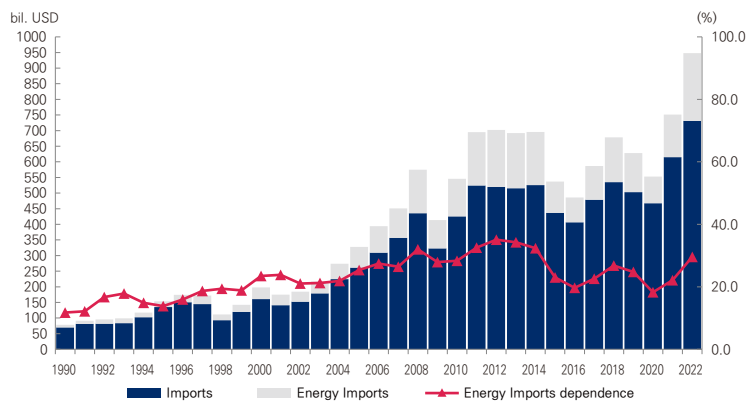
	Coal	Natural Gas	City Gas	Crude oil & refinery feedstocks
Production	386	-	-	2
Imports	75,794	60,683	-	156,690
Exports	-19	-	-	-331
International Bunkers	-	-10	-	-
Stock changes	-292	-1,503	-	-526
Total primary energy supply	75,869	59,176	-	155,835
Transfers	-	-	-	21,681
Statistical differences	-6,225	419	-66	-472
Total primary energy consumption	69,644	59,596	-66	177,044
Transformation processes	-39,081	-55,395	24,732	-176,957
Electricity-only plants	-39,081	-21,095	-	-
CHP plants	-	-8,605	-300	-
Heat-only plants	-	-	-389	-
Petroleum Products	-	-	-	-176,957
Gas manufacturing	-	-25,694	26,028	-
Coal-to-Gas plants	-	-	-	-
Non-specified Transformation	-	-	-607	-
Transformation Own Use	-	-1,980	-829	-87
Losses	-	6	-	-
Total final consumption	30,563	2,227	23,837	-
Industry	30,364	2,227	7,784	-
Agriculture/forestry/Fishing	28	-	3	-
Mining and quarrying	-	-	-	-
Manufacturing	30,336	2,227	7,781	-
Food and tobacco	4	-	917	-
Textile and leather	928	-	226	-
Wood and wood products	-	-	32	-
Paper, pulp and print	-	536	306	-
Chemical and petrochemical	2,913	316	1,922	-
Non-metallic minerals	2,142	-	532	-
Iron and steel	21,797	742	1,076	-
Non-ferrous metals	462	232	501	-
Machinery	174	35	1,422	-
Transport Equipment	-	125	673	-
Other manufacturing	1,915	240	174	-
Other energy	-	-	-	-
Construction	0	-	-	-
Transport	-	-	1,025	-
Rail	-	-	-	-
Road	-	-	1,025	-
Domestic navigation	-	-	-	-
Domestic aviation	-	-	-	-
Residential	182	-	11,469	-
Commercial-Public	17	-	3,558	-

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

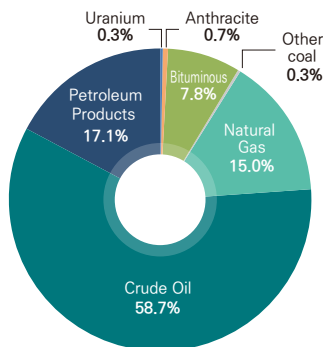
Unit: 1,000 toe

Petroleum	Nuclear	Hydro	Renewables	Electricity	Heat	Total
-	37,500	755	15,908	-	69	54,621
43,277	-	-	-	-	-	336,444
-68,988	-	-	-	-	-	-69,339
-15,503	-	-	-	-	-	-15,514
55	-	-	1	-	-	-2,265
-41,160	37,500	755	15,909	-	69	303,954
-15,445	-	-	-	-	-	6,237
1,237	-	-	0	-	-	-5,108
-55,368	37,500	755	15,909	-	69	305,083
164,633	-37,500	-754	-8,644	50,813	3,162	-74,990
-546	-37,500	-754	-9,424	46,906	-69	-61,563
-101	-	-	-221	3,906	2,893	-2,428
-235	-	-	-24	-	338	-310
165,849	-	-	-	-	-	-11,108
-334	-	-	-	-	-	0
-	-	-	419	-	-	419
-	-	-	607	-	-	-
-7,663	-	-	-	-3,209	-	-13,768
-	-	-	-	-1,562	-286	-1,842
101,602	-	1	7,265	46,041	2,946	214,482
62,048	-	-	4,471	23,570	-	130,463
1,259	-	-	193	1,659	-	3,141
106	-	-	4	151	-	261
58,672	-	-	4,274	21,760	-	125,050
41	-	-	85	1,196	-	2,243
23	-	-	192	762	-	2,131
7	-	-	41	151	-	231
29	-	-	694	791	-	2,356
55,032	-	-	1,386	4,594	-	66,164
474	-	-	991	1,015	-	5,155
56	-	-	3	2,228	-	25,902
44	-	-	-	801	-	2,040
81	-	-	452	7,959	-	10,123
245	-	-	60	1,956	-	3,060
1,072	-	-	369	308	-	4,079
1,567	-	-	-	-	-	1,567
2,012	-	-	0	-	-	2,012
34,238	-	-	682	349	-	36,294
63	-	-	-	237	-	300
32,039	-	-	682	112	-	33,859
464	-	-	-	-	-	464
1,671	-	-	-	-	-	1,671
2,026	-	-	695	6,756	2,432	23,560
3,290	-	1	1,418	15,367	514	24,165

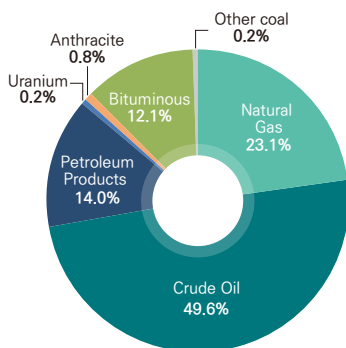
○ Energy Imports



◦ 2012 182,252 million USD



◦ 2022 216,409 million USD



9-1. Energy Imports

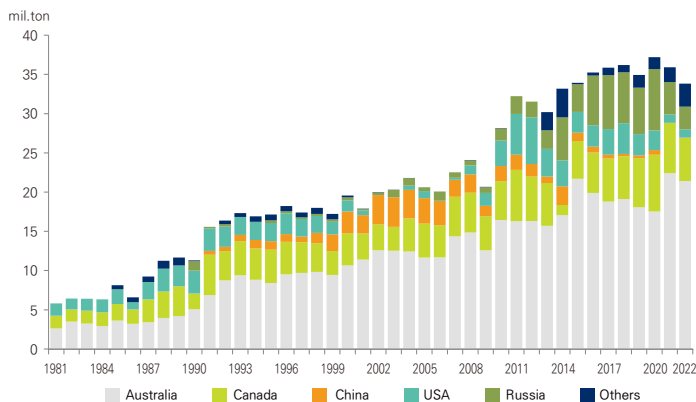
	Total Imports (CIF) (A)	Energy Imports				
		Total (B)	Coal			Natural Gas
			Anthracite	Bituminous	Others	
1990	69,844	8,209	52	1,217	19	460
1991	81,525	9,921	66	1,514	20	485
1992	81,775	13,686	42	939	39	562
1993	83,800	14,969	40	1,642	50	781
1994	102,348	15,228	33	1,695	48	961
1995	135,119	18,670	35	1,992	81	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

Source : Korea International Trade Association

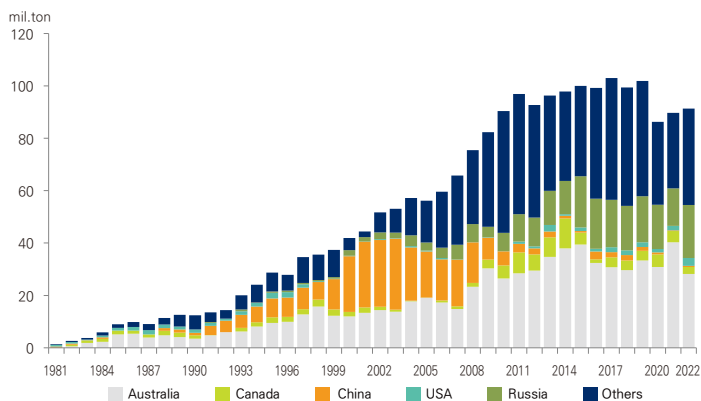
Unit: Million USD

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	16.7	1991
9,522	2,582	-	16.7	0.3	1992
9,432	2,989	35	17.9	2.5	1993
9,233	3,152	105	14.9	22.1	1994
11,266	3,999	22	13.8	32.0	1995
14,924	4,863	0	16.0	11.3	1996
17,879	4,325	82	18.7	-3.8	1997
11,302	2,860	152	19.4	-35.5	1998
14,943	3,492	170	18.8	28.4	1999
25,414	6,001	138	23.4	34.0	2000
21,620	5,477	218	23.9	-12.1	2001
19,449	5,690	262	21.0	7.8	2002
23,394	6,710	243	21.2	17.6	2003
30,100	7,670	315	21.9	25.5	2004
43,088	8,796	265	25.4	16.4	2005
56,065	11,287	311	27.4	18.4	2006
60,609	14,152	446	26.4	15.3	2007
85,184	20,831	667	32.0	22.0	2008
50,880	14,826	684	27.9	-25.8	2009
68,897	20,880	564	28.3	31.6	2010
100,335	27,078	748	32.5	23.3	2011
107,070	31,113	635	35.1	-0.9	2012
99,490	32,376	976	34.2	-0.8	2013
94,512	31,401	688	32.4	1.9	2014
54,916	15,967	817	23.0	-16.9	2015
44,540	13,397	536	19.7	-6.9	2016
60,075	16,110	941	22.6	17.8	2017
80,521	22,335	538	26.8	11.9	2018
70,430	18,865	707	24.8	-6.0	2019
44,791	14,615	725	18.3	-7.1	2020
68,771	26,268	744	22.1	31.5	2021
107,255	30,348	451	29.6	18.9	2022

Imports of Coking Coal by Country



Imports of Steaming Coal by Country



9-2. Imports of Coking and Steaming Coal by Country

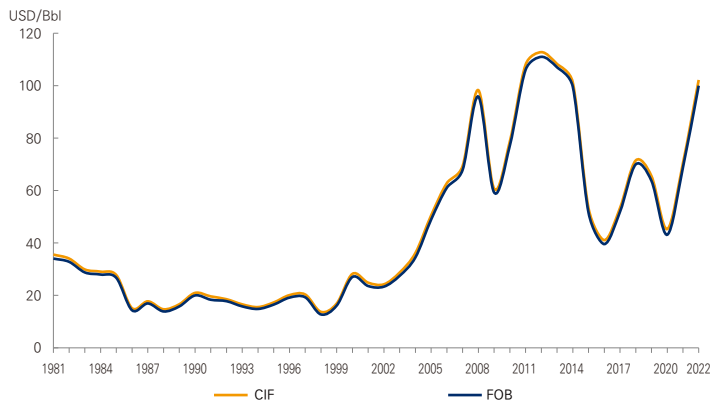
	Coking coal						
	Total	Australia	Canada	China	USA	Russia	Others
1981	5,825	2,613	1,622	-	1,590	-	-
1982	6,439	3,489	1,550	-	1,400	-	-
1983	6,394	3,244	1,650	-	1,500	-	-
1984	6,321	2,940	1,750	-	1,631	-	-
1985	8,125	3,625	2,100	-	1,900	-	500
1986	6,575	3,200	1,841	-	934	-	600
1987	9,247	3,416	2,920	-	2,211	-	700
1988	11,237	3,950	3,371	-	2,916	-	1,000
1989	11,651	4,200	3,800	-	2,651	-	1,000
1990	11,287	5,053	2,026	-	2,908	1,200	100
1991	15,572	6,876	5,130	500	2,850	216	-
1992	16,381	8,758	3,718	558	2,558	302	487
1993	17,321	9,394	4,348	796	2,294	-	489
1994	16,902	8,813	3,996	1,100	2,301	-	692
1995	17,151	8,410	4,251	1,072	2,324	347	747
1996	18,226	9,520	4,147	975	2,652	259	673
1997	17,395	9,709	3,907	707	2,254	195	623
1998	17,979	9,829	3,663	1,313	2,164	257	753
1999	17,227	9,437	3,057	2,134	1,586	308	705
2000	19,575	10,641	4,097	2,781	1,419	394	243
2001	17,899	11,396	3,337	2,341	571	187	67
2002	20,003	12,589	3,298	3,736	-	327	53
2003	20,315	12,535	3,026	3,781	-	937	36
2004	21,808	12,442	4,206	3,638	533	956	33
2005	20,627	11,664	4,315	3,258	901	489	-
2006	20,081	11,677	4,089	3,096	120	1,099	-
2007	22,532	14,362	5,034	2,172	252	712	-
2008	24,083	14,856	5,072	2,341	1,132	633	49
2009	20,659	12,577	4,371	1,313	1,642	725	31
2010	28,160	16,445	4,944	1,936	3,238	1,553	44
2011	32,234	16,281	6,560	1,922	5,213	2,258	-
2012	31,545	16,320	5,670	1,583	5,954	2,018	-
2013	30,194	15,697	5,450	825	3,536	2,378	2,308
2014	33,176	17,053	1,309	2,390	3,291	5,482	3,651
2015	33,933	21,706	4,813	1,061	2,639	3,532	182
2016	35,254	19,888	5,168	725	2,742	6,342	389
2017	35,851	18,799	5,482	484	3,264	6,885	938
2018	36,202	19,117	5,432	322	3,901	6,489	942
2019	34,947	18,072	6,247	378	2,687	5,937	1,626
2020	37,209	17,525	7,235	603	2,501	7,828	1,516
2021	35,923	22,416	6,391	32	1,040	4,156	1,887
2022	33,819	21,427	5,482	48	1,040	2,893	2,929

Source: OECD iLibrary

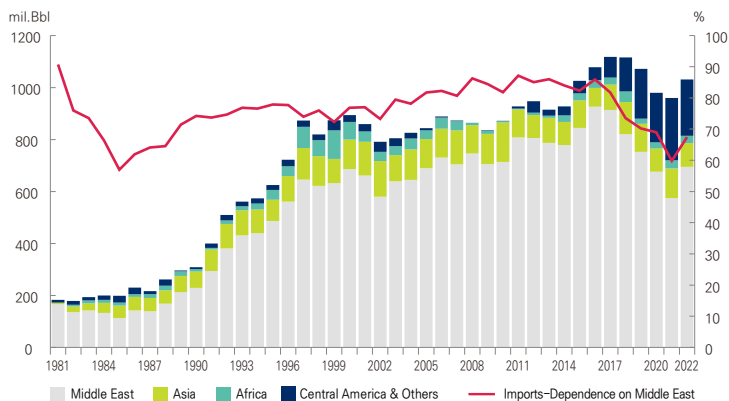
Unit: 1,000 ton

Steaming coal							
Total	Australia	Canada	China	USA	Russia	Others	
1,421	35	37	400	738	-	211	1981
2,600	559	590	500	539	-	412	1982
3,757	1,900	900	100	264	-	593	1983
5,873	2,263	1,157	600	702	-	1,151	1984
9,006	5,100	1,469	-	1,020	-	1,417	1985
9,862	5,379	1,165	-	1,445	-	1,873	1986
9,032	3,946	1,147	-	1,661	-	2,278	1987
11,420	4,750	1,750	1,000	1,420	-	2,500	1988
12,565	4,127	1,700	1,200	1,094	-	4,444	1989
12,442	3,506	1,250	1,000	1,235	-	5,451	1990
13,522	4,750	102	3,500	1,190	303	3,677	1991
14,400	5,990	-	4,400	731	-	3,279	1992
20,060	6,200	1,443	4,974	1,352	678	5,413	1993
24,107	8,165	1,565	6,019	1,354	160	6,844	1994
28,680	9,464	2,156	7,209	2,150	533	7,168	1995
27,848	9,933	1,860	7,439	2,056	554	6,006	1996
34,602	12,769	1,992	8,181	1,301	533	9,826	1997
35,607	15,723	2,696	6,725	323	418	9,722	1998
37,342	12,249	2,364	11,611	185	561	10,372	1999
41,940	12,019	1,647	21,281	166	2,197	4,630	2000
44,380	13,345	2,114	25,020	71	1,699	2,131	2001
51,705	14,398	1,244	25,507	335	2,566	7,655	2002
53,090	13,809	741	27,145	171	2,097	9,127	2003
57,155	17,695	280	20,351	530	4,087	14,212	2004
56,131	19,207	4	17,580	365	3,018	15,957	2005
59,626	17,344	766	15,646	538	3,933	21,399	2006
65,753	14,799	1,059	17,748	71	5,643	26,433	2007
75,501	23,347	1,450	15,536	44	6,863	28,261	2008
82,323	30,353	3,306	8,353	200	3,994	36,117	2009
90,431	26,512	4,980	5,356	66	7,004	46,513	2010
96,916	28,470	7,944	3,254	854	10,474	45,920	2011
92,723	29,444	6,180	2,363	771	10,943	43,022	2012
96,313	34,754	7,434	2,203	2,524	13,001	36,397	2013
97,856	37,944	11,437	1,040	603	12,679	34,153	2014
99,971	39,446	4,520	641	1,328	19,536	34,500	2015
99,207	32,423	1,376	2,967	1,024	19,108	42,309	2016
103,031	30,763	3,786	1,997	1,827	18,112	46,545	2017
99,376	29,650	3,677	2,036	1,805	16,994	45,214	2018
101,882	33,327	3,692	1,514	1,743	17,624	43,982	2019
86,284	30,826	4,794	777	1,346	16,858	31,684	2020
89,694	40,281	4,284	265	1,746	14,313	28,804	2021
91,332	28,232	2,654	443	2,991	20,253	36,759	2022

○ Crude Oil Price



○ Crude Oil Imports by Region



9-3. Crude Oil Imports by Region and Prices

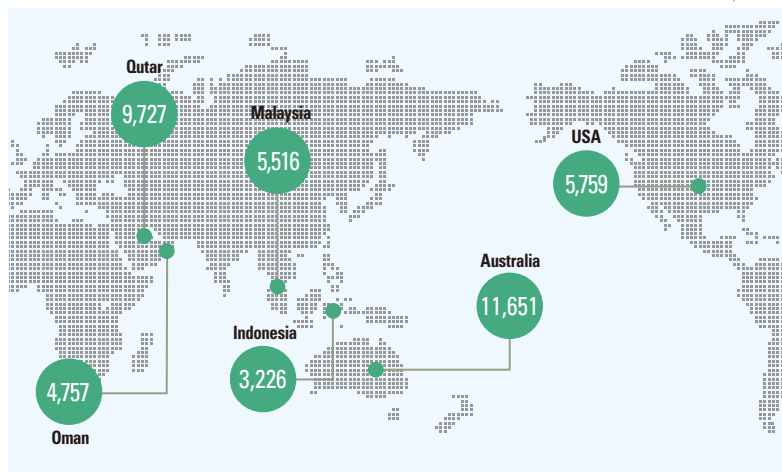
	By Region(1,000 bbl)			
	Total	Middle East	Asia	Africa
1981	182,814	165,858	5,141	1,467
1982	178,369	135,527	21,942	6,415
1983	192,969	141,816	27,367	12,053
1984	199,681	132,467	39,329	11,705
1985	198,313	113,013	47,996	11,912
1986	230,063	142,423	52,128	9,912
1987	216,163	138,659	51,265	15,141
1988	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

Source: Korea National Oil Corporation

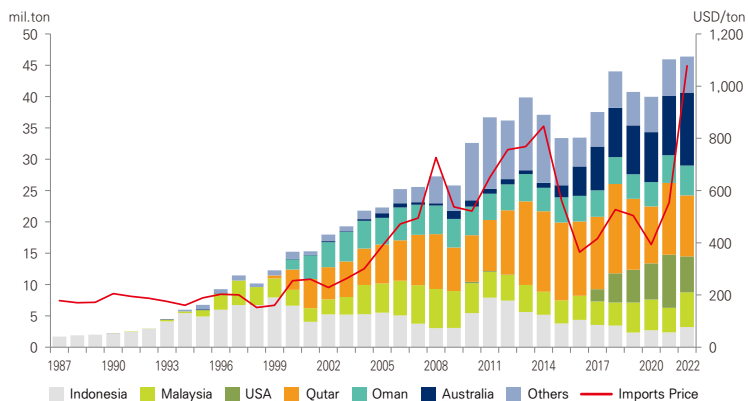
Central America & Others	Imports-Dependence on Middle East (%)	Imports Price(CIF) (US\$/bbl)	Imports Price(FOB) (US\$/bbl)	
10,348	90.7	35.6	34.1	1981
14,486	76.0	34.1	32.8	1982
11,734	73.5	29.9	28.8	1983
16,180	66.3	29.1	28.0	1984
25,392	57.0	27.7	26.7	1985
25,601	61.9	15.1	14.3	1986
11,098	64.1	17.7	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

◦ LNG Imports by Region 2022

Unit : 1,000 ton



○ 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

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

10. Prices

11. Reserves & Distribution Map

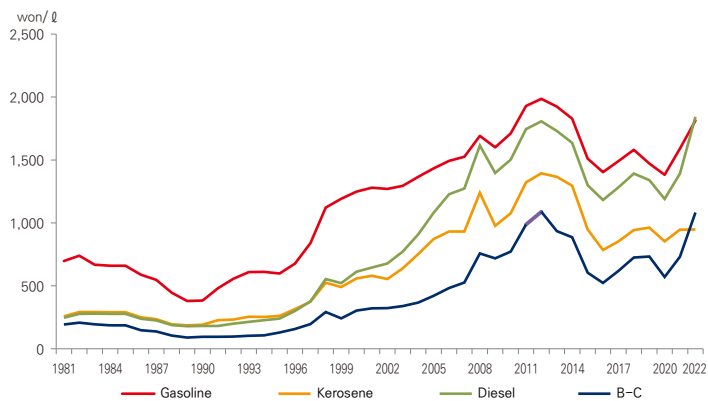
12. Energy Consumption
in the Korean Peninsula

13. World Energy Statistics

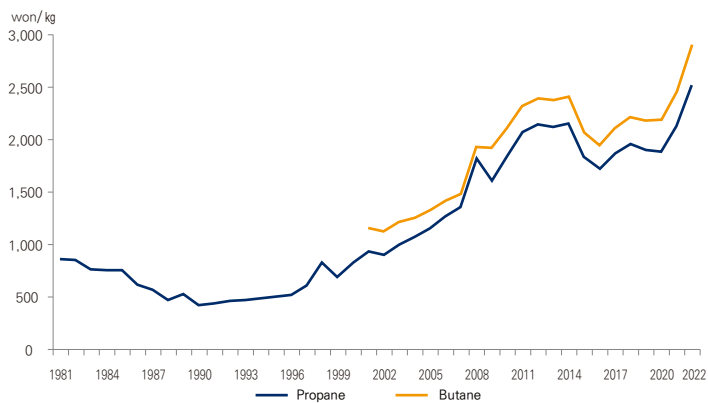


10 Prices

Petroleum Products



LPG

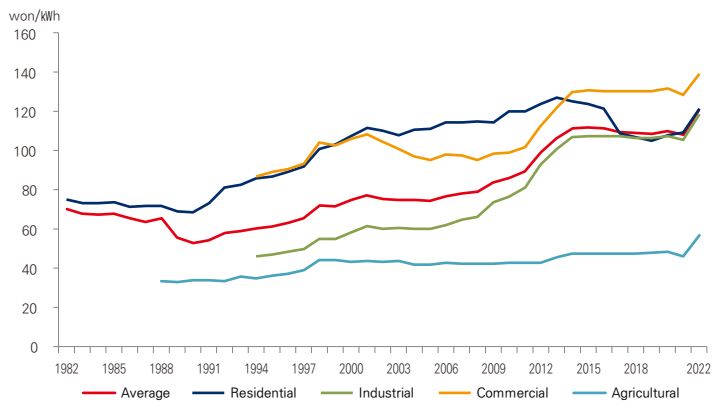


10-1. Prices of Major Petroleum Products

	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	947.8	1,842.9	1,082.2	2,478.1	2,854.7

Note: Butane is for residential and commercial

○ Average Revenues per kWh Sold

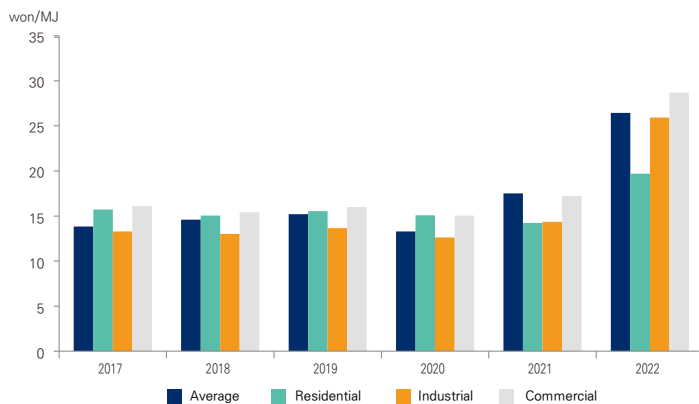


10-2. Average Revenues per kWh Sold

Unit: won/kWh

	Average	Residential	Industrial	Commercial	Agricultural
1981	64.31	74.61	-	-	-
1982	69.87	75.19	-	-	-
1983	67.71	73.26	-	-	-
1984	67.42	73.33	-	-	-
1985	67.92	73.42	-	-	-
1986	65.51	71.33	-	-	-
1987	63.48	71.75	-	-	-
1988	65.49	71.94	-	-	33.48
1989	55.43	69.13	-	-	32.70
1990	52.94	68.66	-	-	34.06
1991	54.23	73.03	-	-	33.80
1992	58.09	81.22	-	-	33.56
1993	58.90	82.29	-	-	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

City Gas Consumer Prices per MJ



10-3. City Gas Consumer Prices

Unit: won/m³, won/MJ

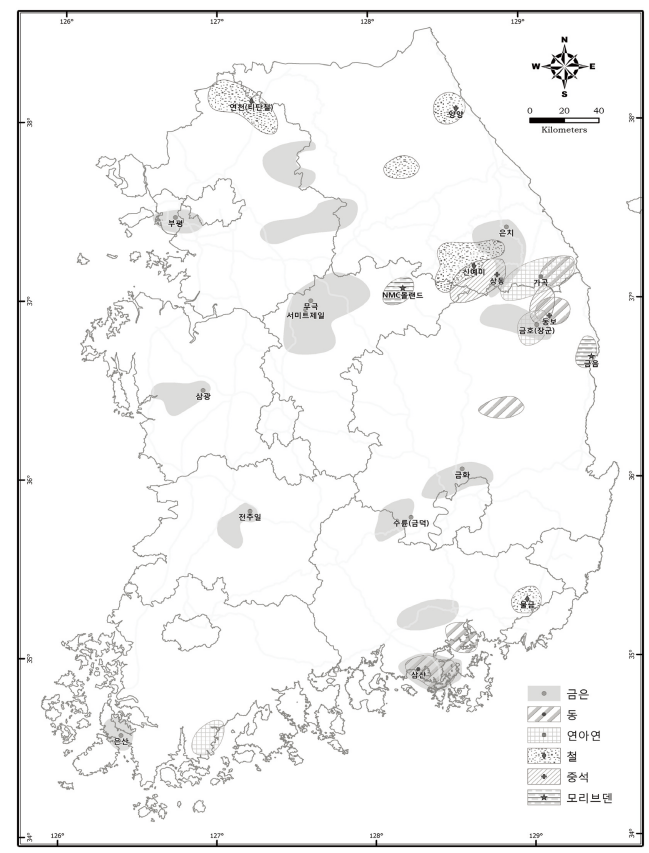
	Average	Residential	Industrial	Commercial
1987	378.40	351.60	332.80	332.80
1988	271.00	326.30	292.70	292.70
1989	234.40	287.90	227.00	232.10
1990	220.20	284.85	206.80	214.46
1991	217.53	284.85	199.11	211.34
1992	232.71	290.16	193.99	220.85
1993	232.71	295.47	193.99	230.36
1994	235.97	296.16	196.70	230.90
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	19.69	25.92	28.69

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

2) The Price is retail prices in Seoul.

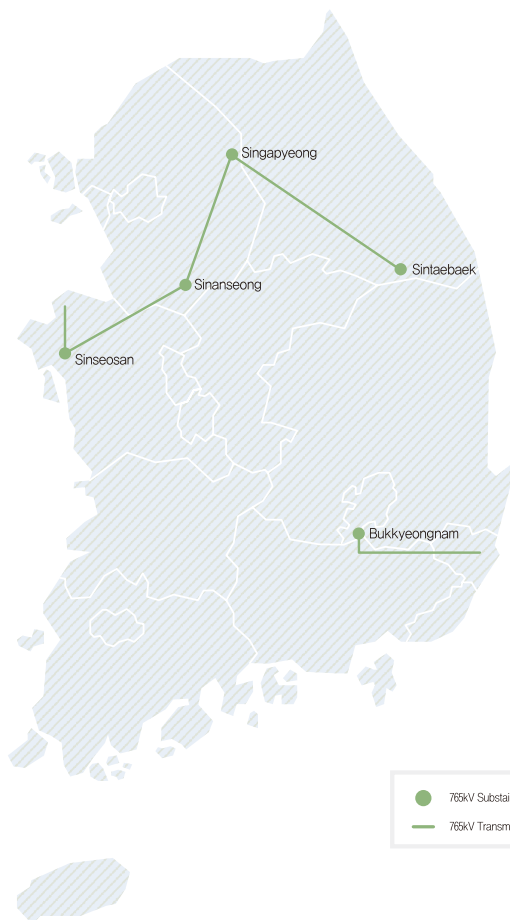
Source: Korea City Gas Association

11-1. Major Coal Fields



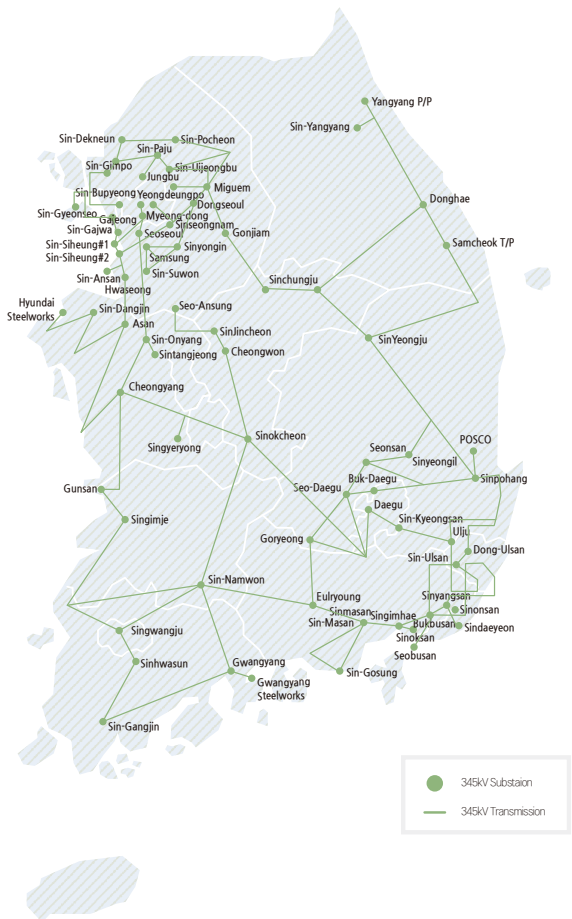
Source: Korea Resources Corporation

11-2. Electric Power Transmission Map



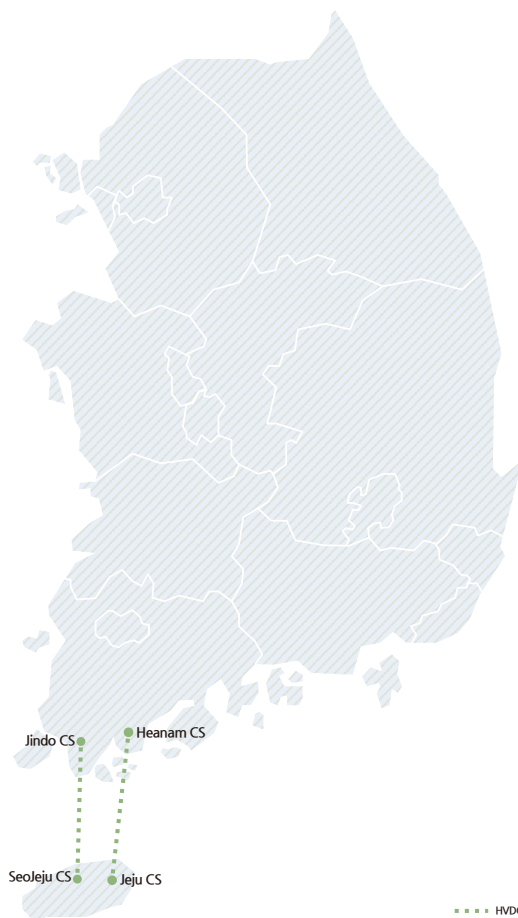
Note: Based on May 2015
Source: Korea Power Exchange

11-3. Electric Power Transmission Map



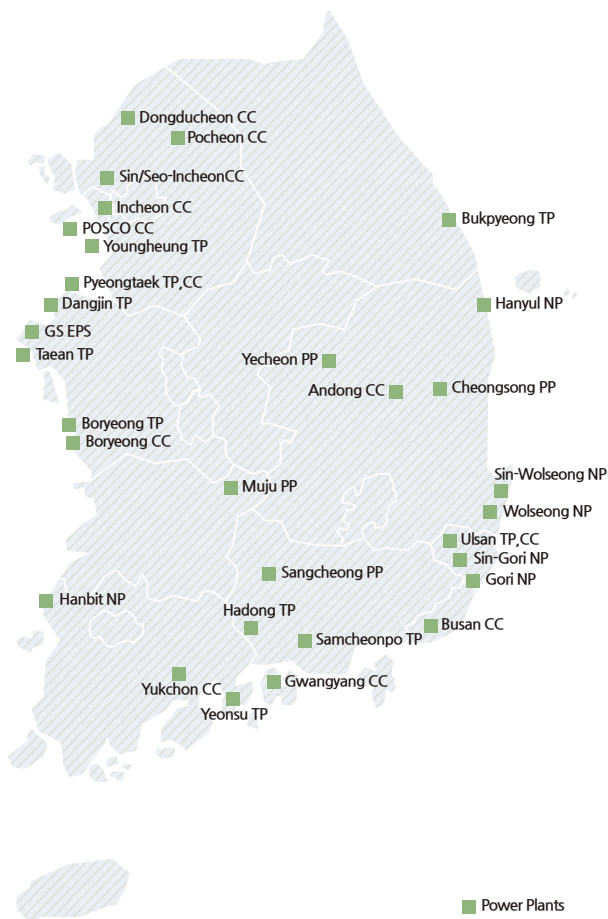
Note: Based on May 2015
Source: Korea Power Exchange

11-3. Electric Power Transmission Map



Note: Based on May 2015
Source: Korea Power Exchange

11-3. Electric Power Transmission Map



Note: Based on May 2015
Source: Korea Power Exchange

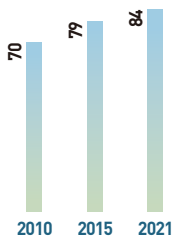
11-4. Areas of Gas Supply Expansion

Natural Gas Service Areas

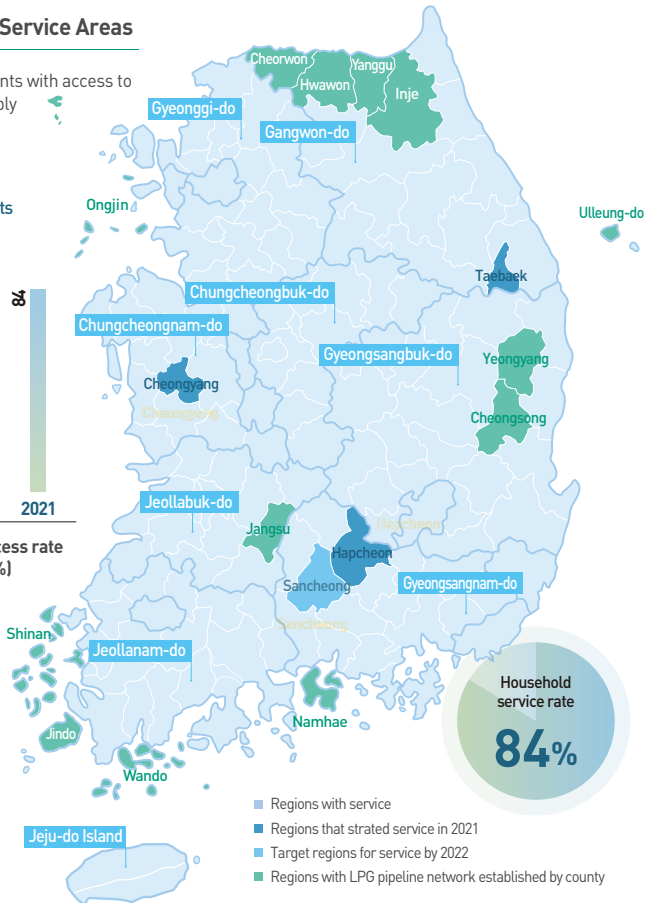
Local governments with access to natural gas supply

216

local governments out of 229



Change on access rate
(unit : %)

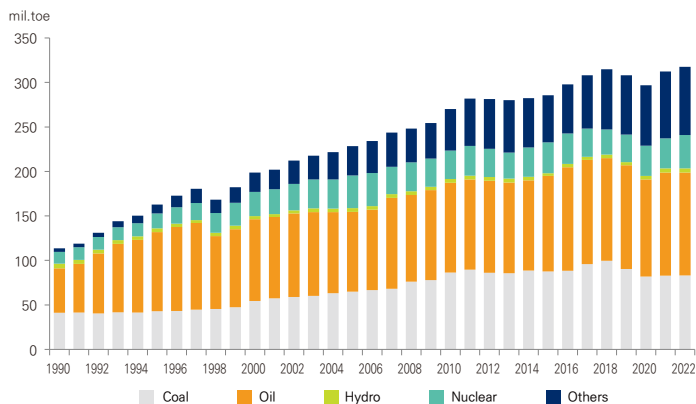


Household service rate

84%

12 Energy Consumption in the Korean Peninsula

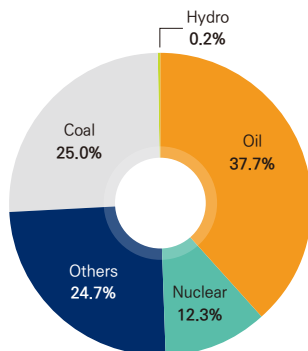
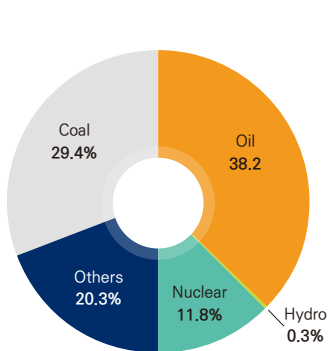
Primary Energy Supply of Korean Peninsula



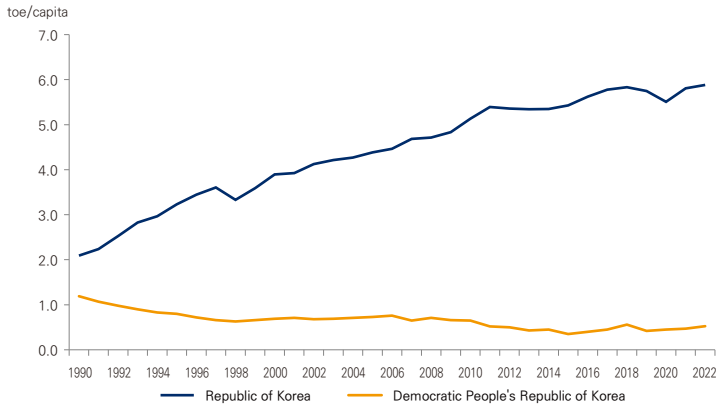
Republic of Korea

2012 268,993 thou. toe

2022 303,954 thou. toe

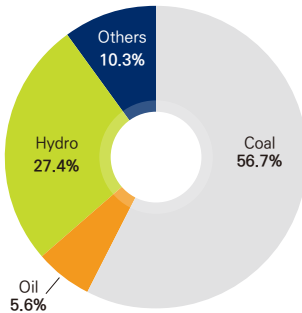


TPES/Population

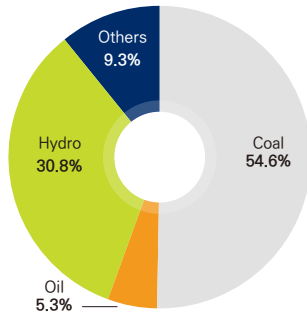


Democratic People's Republic of Korea

2012 12,284 thou. toe



2022 13,490 thou. toe



12 Energy Consumption in the Korean Peninsula

12-1. Total Primary Energy Supply

	Republic of Korea					
	Total	Coal	Oil	Hydro	Nuclear	Others
1990	89,680	24,523	47,387	1,571	13,222	2,978
1991	96,801	26,000	52,668	872	14,078	3,183
1992	110,524	25,880	65,770	774	14,133	3,967
1993	124,999	28,192	75,432	1,057	14,535	5,784
1994	132,512	28,757	80,761	587	14,663	7,745
1995	145,618	31,173	87,804	690	16,757	9,193
1996	156,834	32,647	93,021	606	18,481	12,078
1997	165,754	34,408	96,246	703	19,271	15,125
1998	154,233	36,170	80,482	1,070	22,422	14,090
1999	167,341	37,011	86,770	1,040	25,766	16,754
2000	183,078	43,143	90,804	1,002	27,241	20,888
2001	185,809	45,838	90,213	582	28,033	21,142
2002	196,452	47,987	92,515	808	29,776	25,366
2003	201,738	49,135	92,871	1,226	32,418	26,088
2004	205,220	51,886	89,676	1,082	32,679	29,897
2005	211,344	52,975	88,431	919	36,695	32,325
2006	216,261	54,361	89,590	867	37,187	34,255
2007	228,129	58,149	101,219	781	30,731	37,248
2008	231,298	64,925	96,511	660	32,456	36,746
2009	238,416	67,094	100,303	616	31,771	38,633
2010	254,399	76,008	100,177	797	31,948	45,470
2011	269,199	82,386	100,622	989	33,265	51,936
2012	268,993	79,059	102,833	838	31,719	54,544
2013	269,531	80,538	101,306	906	29,283	57,498
2014	271,252	82,764	100,792	581	33,002	54,113
2015	276,793	83,650	106,386	454	34,765	51,538
2016	288,018	83,989	115,343	603	34,181	53,903
2017	296,719	89,786	116,067	601	31,615	58,650
2018	300,738	90,965	114,450	719	28,437	66,168
2019	297,612	85,048	115,408	594	31,079	65,483
2020	285,512	75,983	107,970	826	34,119	66,613
2021	300,515	76,968	115,204	651	33,657	74,034
2022	303,954	75,869	114,675	755	37,500	75,155

Note: Others includes LNG and renewables.

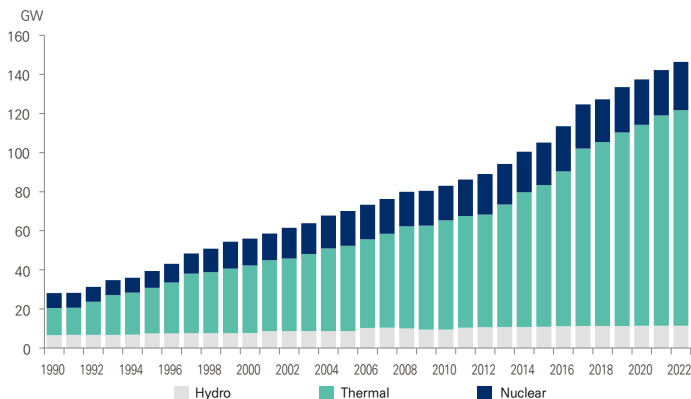
Source : Statistics Korea

Unit: 1,000 toe

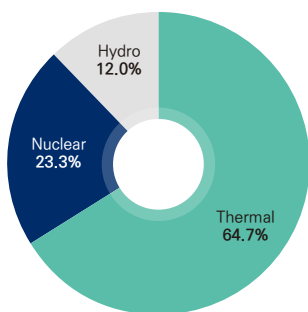
Democratic People's Republic of Korea						toe per capita		
Total	Coal	Oil	Hydro	Nuclear	Others	R.O.K	D.P.R.K	
23,963	16,575	2,520	3,748	-	1,120	2.09	1.19	1990
21,920	15,500	1,890	3,750	-	780	2.24	1.07	1991
20,450	14,600	1,520	3,550	-	780	2.53	0.98	1992
19,013	13,550	1,360	3,304	-	799	2.83	0.90	1993
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	3.89	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	4.46	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	5.34	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	0.52	2022

12 Energy Consumption in the Korean Peninsula

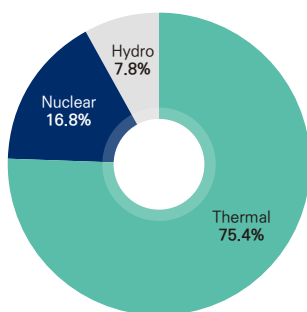
Electric Power Generating Facility



2012 89,026 MW



2022 146,420 MW



12-2. Generating Facilities

Unit: MW

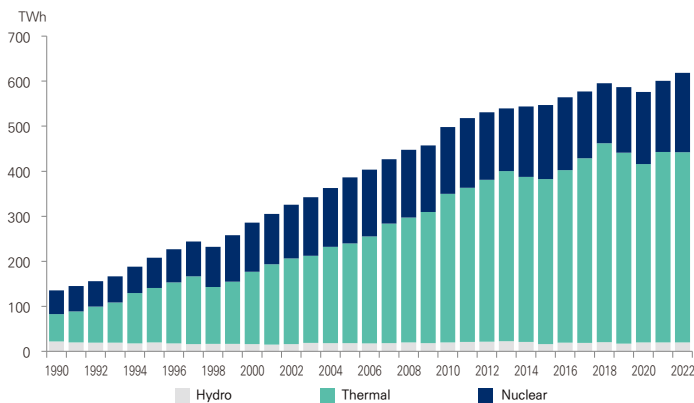
	Republic of Korea				Democratic People's Republic of Korea			
	Total	Hydro	Thermal	Nuclear	Total	Hydro	Thermal	Nuclear
1990	21,021	2,340	11,065	7,616	7,142	4,292	2,850	-
1991	21,111	2,445	11,050	7,616	7,142	4,292	2,850	-
1992	24,120	2,498	14,007	7,616	7,142	4,292	2,850	-
1993	27,654	2,504	17,534	7,616	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	27,612	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	40,660	17,716	7,822	4,812	3,010	-
2006	65,514	5,485	42,314	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	49,270	17,716	7,497	4,487	3,010	-
2009	73,470	5,515	50,240	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	54,644	20,716	7,220	4,260	2,960	-
2013	86,969	6,454	59,799	20,716	7,243	4,283	2,960	-
2014	93,216	6,467	66,033	20,716	7,253	4,293	2,960	-
2015	97,649	6,471	69,462	21,716	7,427	4,467	2,960	-
2016	105,866	6,485	76,265	23,116	7,661	4,701	2,960	-
2017	116,908	6,489	87,890	22,529	7,721	4,761	2,960	-
2018	119,092	6,490	90,751	21,850	8,150	4,790	3,360	-
2019	125,338	6,508	95,580	23,250	8,150	4,790	3,360	-
2020	129,191	6,506	99,436	23,250	8,225	4,865	3,360	-
2021	134,020	6,541	104,228	23,250	8,225	4,865	3,360	-
2022	138,195	6,513	107,032	24,650	8,225	4,865	3,360	-

Note : Thermal includes alternative & group energy.

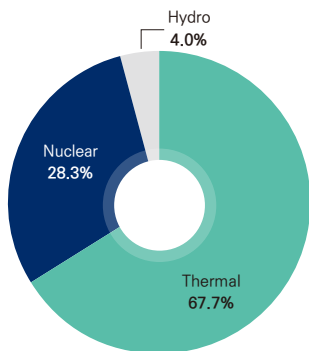
Source: Korea Electric Power Corporation, Statistics Korea(KOSIS)

12 Energy Consumption in the Korean Peninsula

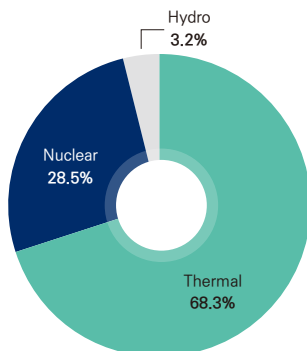
Electric Power Generation by Facility



2012 531,074 GWh



2022 618,300 GWh



12-3. Electric Power Generation by Facility

Unit: GWh

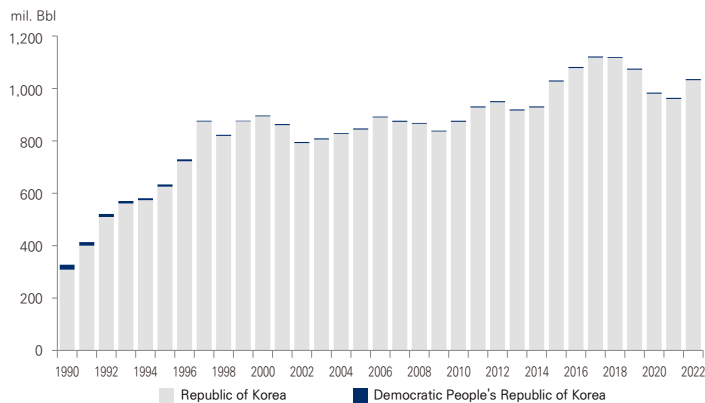
	Republic of Korea				Democratic People's Republic of Korea			
	Total	Hydro	Thermal	Nuclear	Total	Hydro	Thermal	Nuclear
1990	107,670	6,361	48,422	52,887	27,700	15,600	12,100	-
1991	118,619	5,051	57,257	56,311	26,300	15,000	11,300	-
1992	130,963	4,863	69,570	56,530	24,700	14,200	10,500	-
1993	144,437	6,006	80,293	58,138	22,100	13,300	8,800	-
1994	164,993	4,098	102,244	58,651	23,100	13,800	9,300	-
1995	184,661	5,478	112,154	67,029	23,000	14,200	8,800	-
1996	205,494	5,201	126,369	73,924	21,300	12,500	8,800	-
1997	224,445	5,404	141,955	77,086	19,300	10,700	8,600	-
1998	215,300	6,099	119,512	89,689	17,000	10,200	6,800	-
1999	239,325	6,066	130,195	103,064	18,600	10,300	8,300	-
2000	266,400	5,610	151,826	108,964	19,400	10,200	9,200	-
2001	285,224	4,151	168,940	112,133	20,200	10,600	9,600	-
2002	306,474	5,311	182,060	119,103	19,000	10,600	8,400	-
2003	322,452	6,887	185,893	129,672	19,600	11,700	7,900	-
2004	342,148	5,861	205,572	130,715	20,600	12,500	8,100	-
2005	364,639	5,189	212,671	146,779	21,500	13,100	8,400	-
2006	381,181	5,219	227,213	148,749	22,500	12,600	9,900	-
2007	403,125	5,042	255,145	142,937	23,600	13,300	10,300	-
2008	422,355	5,563	265,835	150,958	25,500	14,100	11,400	-
2009	433,604	5,641	280,192	147,771	23,500	12,500	11,000	-
2010	474,660	6,472	319,593	148,596	23,700	13,400	10,300	-
2011	496,893	7,831	334,340	154,723	21,100	13,200	7,900	-
2012	509,574	7,652	351,595	150,327	21,500	13,500	8,000	-
2013	517,148	8,394	369,970	138,784	22,100	13,900	8,200	-
2014	521,971	7,820	357,745	156,407	21,600	13,000	8,600	-
2015	528,091	5,796	357,533	164,762	19,000	10,000	9,000	-
2016	540,441	6,634	371,812	161,995	23,900	12,800	11,100	-
2017	553,530	6,995	398,108	148,427	23,500	11,900	11,600	-
2018	570,647	7,270	429,871	133,505	24,900	12,800	12,100	-
2019	563,040	6,247	410,884	145,910	23,800	11,000	12,800	-
2020	552,162	7,148	384,830	160,184	24,000	12,800	11,200	-
2021	576,809	6,737	412,057	158,015	24,000	12,800	11,200	-
2022	594,400	7,256	411,090	176,054	24,000	12,800	11,200	-

Note : Thermal includes alternative & group energy.

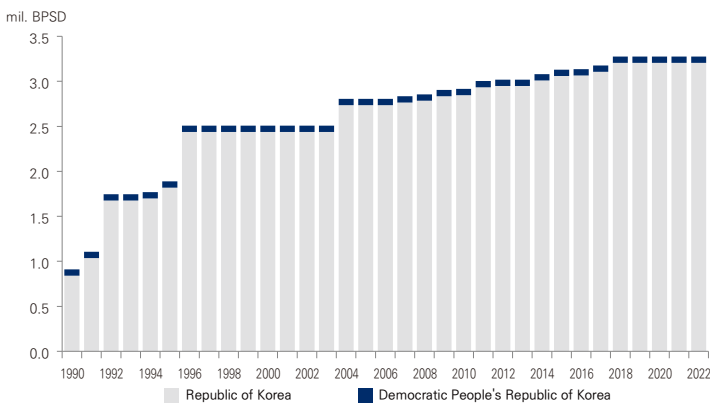
Source: Korea Electric Power Corporation, Statistics Korea(KOSIS)

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	308,368	49,027	840	18,472	2,937	70
1991	399,303	63,484	1,035	13,854	2,203	70
1992	509,378	80,985	1,675	11,142	1,771	70
1993	560,563	89,123	1,675	9,969	1,585	70
1994	573,714	91,213	1,700	6,670	1,060	70
1995	624,945	99,358	1,818	8,063	1,282	70
1996	721,927	114,777	2,438	6,861	1,091	70
1997	873,415	138,862	2,438	3,709	590	70
1998	819,094	130,226	2,438	3,694	587	70
1999	874,090	138,969	2,438	2,325	370	70
2000	893,943	142,126	2,438	2,851	453	70
2001	859,367	136,629	2,438	4,244	675	70
2002	790,992	125,758	2,438	4,376	696	70
2003	804,809	127,955	2,438	4,207	669	70
2004	825,790	131,290	2,735	3,900	620	70
2005	843,203	134,059	2,735	3,834	610	70
2006	888,794	141,307	2,735	3,841	611	70
2007	872,541	138,723	2,765	3,834	610	70
2008	864,872	137,504	2,785	3,878	617	70
2009	835,085	132,768	2,835	3,812	606	70
2010	872,415	138,703	2,845	3,870	615	70
2011	927,044	147,389	2,934	3,856	613	70
2012	947,292	150,608	2,949	3,834	610	70
2013	915,075	145,485	2,949	4,237	674	70
2014	927,524	147,465	3,009	3,885	618	70
2015	1,026,107	163,138	3,059	3,885	618	70
2016	1,078,119	171,408	3,064	3,885	618	70
2017	1,118,167	177,775	3,105	3,885	618	70
2018	1,116,281	177,475	3,204	3,885	618	70
2019	1,071,923	170,422	3,204	3,885	618	70
2020	980,259	155,849	3,204	3,885	618	70
2021	960,147	152,651	3,204	3,885	618	70
2022	1,031,283	163,961	3,204	3,885	618	70

Source: Korea National Oil Corporation, Statistics Korea(KOSIS)

12 Energy Consumption in the Korean Peninsula

13-1. Energy Indicators(2021)

	Population (mil.person)	GDP	GDP(ppp)	Energy Prod.	Net Imports	TPES	Elec. Cons.	CO ₂ Emis
		(bil. USD (2015))		(mil. toe)			(TWh)	(Mt of CO ₂)
Australia	25.74	1,401.25	1,265.19	426.45	-296.88	130.25	252.96	360.94
Austria	8.96	405.08	457.02	12.12	17.74	33.29	75.06	60.49
Belgium	11.59	497.27	560.33	18.00	45.18	55.53	88.98	86.36
Canada	38.25	1,691.62	1,732.65	539.12	-248.86	290.34	563.65	505.59
Chile	19.67	274.69	459.25	12.97	27.24	39.55	83.79	84.96
Columbia	49.94	330.61	710.82	98.06	-64.03	42.39	79.59	77.35
Czech Rep.	10.70	211.06	401.29	24.57	17.09	42.69	70.36	92.26
Denmark	5.85	341.93	314.88	9.21	5.65	16.21	36.06	27.62
Estonia	1.33	28.89	48.49	4.41	0.08	4.56	9.39	8.29
Finland	5.54	256.28	254.43	19.35	12.87	33.22	86.70	35.90
France	68.22	2,573.71	2,871.38	127.15	107.31	235.43	471.27	291.76
Germany	83.20	3,554.15	4,118.11	101.66	188.64	287.94	543.19	624.09
Greece	10.67	201.17	297.77	4.75	17.20	20.33	52.79	49.66
Hungary	9.71	150.76	317.63	10.85	14.82	27.46	45.82	45.06
Iceland	0.37	20.05	18.64	5.19	0.89	5.88	19.05	1.55
Ireland	5.02	447.71	498.87	2.97	11.09	13.77	31.06	33.65
Israel	9.37	382.09	378.48	17.09	6.55	22.80	63.82	57.02
Italy	59.11	1,867.58	2,281.21	34.17	114.70	149.51	312.83	309.65
Japan	125.50	4,464.29	5,221.75	53.40	354.30	399.62	1,000.88	998.14
Korea	51.95	1,693.41	2,234.48	52.43	248.55	291.76	592.34	558.62
DPR of Korea	25.97	28.57	103.23	15.41	0.87	16.28	21.53	54.33
Latvia	1.88	31.30	56.76	2.71	1.84	4.48	7.23	6.59
Luxembourg	0.64	68.98	70.58	0.31	3.92	3.61	7.78	7.86
Mexico	128.02	1,204.95	2,297.34	153.87	27.71	178.43	336.69	375.49
Netherlands	17.53	846.64	942.23	26.31	49.76	71.15	117.59	134.42
New Zealand	5.13	210.31	204.50	14.17	5.86	19.81	41.71	31.01
Norway	5.41	420.79	341.73	213.89	-185.59	28.68	130.75	36.16
Poland	38.16	598.18	1,277.79	59.87	44.37	108.00	171.27	299.27
Portugal	10.29	215.09	331.44	6.20	14.85	20.12	50.79	34.98
Slovak Rep.	5.45	99.02	181.80	7.18	9.36	18.00	29.44	30.64
Slovenia	2.11	52.16	79.02	3.36	3.23	6.62	14.77	12.26
Spain	47.33	1,238.59	1,678.99	35.21	86.74	115.52	248.44	211.49
Sweden	10.42	567.23	540.15	36.17	10.65	47.72	135.59	34.42
Switzerland	8.71	759.67	591.95	11.38	11.85	22.78	63.68	34.83
Turkey	84.15	1,129.80	2,647.52	46.93	114.99	159.43	301.88	400.79
United Kingdom	67.53	3,038.78	2,874.11	100.17	61.40	158.73	306.55	320.81
United States	330.60	20,529.70	20,529.70	2,214.33	-89.69	2,138.97	4,169.88	4,549.26

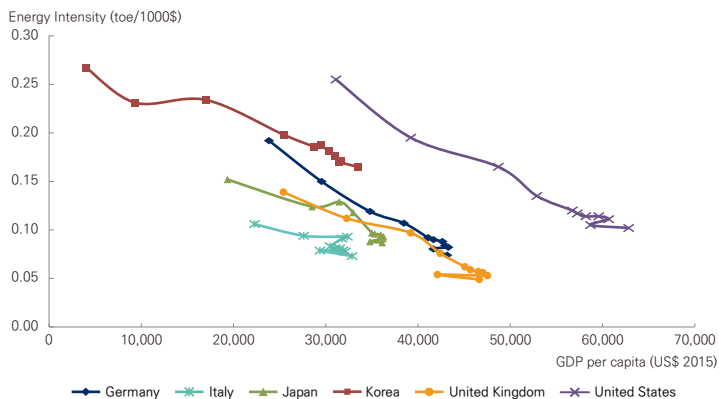
Note: CO₂ emissions from fuel combustion only. Emissions are calculated using the IEA's energy balances and the Revised 1966 IPCC Guidelines.

TPES/Pop.	TPES/GDP	TPES/ GDP(PPP)	Elec. Cons./ Pop.	CO ₂ /TPES	CO ₂ /Pop.	CO ₂ /GDP	CO ₂ / GDP(PPP)	
(toe/capita)	(toe/1,000USD)		(kWh/ capita)	(tCO ₂ /toe)	(tCO ₂ / capita)	(kgCO ₂ /USD)		
5.06	0.09	0.10	9,828	2.77	14.02	0.26	0.29	Australia
3.72	0.08	0.07	8,382	1.82	6.75	0.15	0.13	Austria
4.79	0.11	0.10	7,678	1.55	7.45	0.17	0.15	Belgium
7.59	0.17	0.17	14,737	1.74	13.22	0.30	0.29	Canada
2.01	0.14	0.09	4,260	2.15	4.32	0.31	0.19	Chile
0.85	0.13	0.06	1,594	1.82	1.55	0.23	0.11	Columbia
3.99	0.20	0.11	6,577	2.16	8.62	0.44	0.23	Czech Rep.
2.77	0.05	0.05	6,160	1.70	4.72	0.08	0.09	Denmark
3.43	0.16	0.09	7,067	1.82	6.24	0.29	0.17	Estonia
5.99	0.13	0.13	15,644	1.08	6.48	0.14	0.14	Finland
3.45	0.09	0.08	6,908	1.24	4.28	0.11	0.10	France
3.46	0.08	0.07	6,529	2.17	7.50	0.18	0.15	Germany
1.91	0.10	0.07	4,948	2.44	4.65	0.25	0.17	Greece
2.83	0.18	0.09	4,719	1.64	4.64	0.30	0.14	Hungary
15.76	0.29	0.32	51,070	0.26	4.16	0.08	0.08	Iceland
2.74	0.03	0.03	6,188	2.44	6.70	0.08	0.07	Ireland
2.43	0.06	0.06	6,814	2.50	6.09	0.15	0.15	Israel
2.53	0.08	0.07	5,292	2.07	5.24	0.17	0.14	Italy
3.18	0.09	0.08	7,975	2.50	7.95	0.22	0.19	Japan
5.62	0.17	0.13	11,402	1.91	10.75	0.33	0.25	Korea
0.63	0.57	0.16	829	3.34	2.09	1.90	0.53	DPR of Korea
2.38	0.14	0.08	3,842	1.47	3.50	0.21	0.12	Latvia
5.63	0.05	0.05	12,135	2.18	12.27	0.11	0.11	Luxembourg
1.39	0.15	0.08	2,630	2.10	2.93	0.31	0.16	Mexico
4.06	0.08	0.08	6,707	1.89	7.67	0.16	0.14	Netherlands
3.86	0.09	0.10	8,137	1.57	6.05	0.15	0.15	New Zealand
5.30	0.07	0.08	24,177	1.26	6.69	0.09	0.11	Norway
2.83	0.18	0.08	4,488	2.77	7.84	0.50	0.23	Poland
1.96	0.09	0.06	4,935	1.74	3.40	0.16	0.11	Portugal
3.30	0.18	0.10	5,401	1.70	5.62	0.31	0.17	Slovak Rep.
3.14	0.13	0.08	7,006	1.85	5.82	0.24	0.16	Slovenia
2.44	0.09	0.07	5,249	1.83	4.47	0.17	0.13	Spain
4.58	0.08	0.09	13,015	0.72	3.30	0.06	0.06	Sweden
2.62	0.03	0.04	7,313	1.53	4.00	0.05	0.06	Switzerland
1.90	0.14	0.06	3,587	2.51	4.76	0.35	0.15	Turkey
2.35	0.05	0.06	4,539	2.02	4.75	0.11	0.11	United Kingdom
6.47	0.10	0.10	12,613	2.13	13.76	0.22	0.22	United States

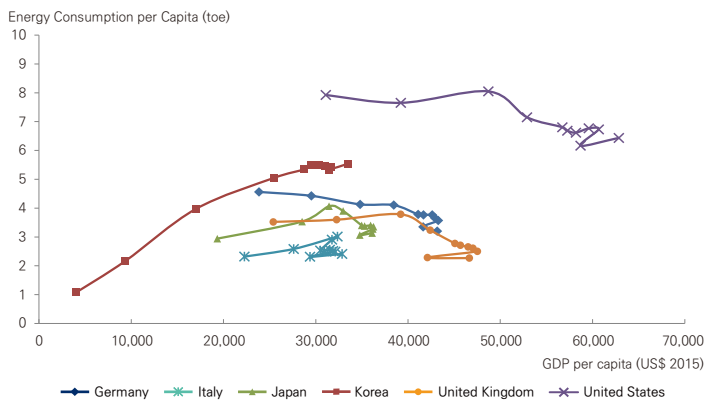
Source : IEA, Key World Energy Statistics 2023

12 Energy Consumption in the Korean Peninsula

Energy Intensity by Country



Energy Consumption per capita by Country



13-2. Energy Indicators of Major Countries

		1980	1990	2000	2010	2020	2021	2022*
Germany								
Population	millions	78.30	79.36	81.46	80.28	83.16	83.20	83.80
GDP	bil. 2015 US\$	1,867.16	2,343.81	2,834.93	3,087.59	3,463.26	3,554.15	3,617.35
GDP/Pop.	2015 US\$	23,846.3	29,533.9	34,801.4	38,460.3	41,645.8	42,719.7	43,168.0
TPES	Mtoe	357.19	351.23	336.60	329.55	278.52	287.94	268.61
TPES/Pop.	toe/capita	4.56	4.43	4.13	4.11	3.35	3.46	3.21
TPES/GDP	toe/thou. US\$	0.19	0.15	0.12	0.11	0.08	0.08	0.07
Italy								
Population	millions	56.43	56.72	56.94	59.82	59.44	59.11	58.94
GDP	bil. 2015 US\$	1,256.96	1,566.24	1,841.82	1,900.01	1,745.62	1,867.58	1,936.21
GDP/Pop.	2015 US\$	22,273.2	27,614.1	32,345.5	31,762.6	29,368.3	31,595.0	32,849.5
TPES	Mtoe	130.84	146.57	171.54	173.74	137.49	149.51	142.15
TPES/Pop.	toe/capita	2.32	2.58	3.01	2.90	2.31	2.53	2.41
TPES/GDP	toe/thou. US\$	0.11	0.09	0.09	0.09	0.08	0.08	0.07
Japan								
Population	millions	117.06	123.61	126.83	128.04	125.71	125.50	124.95
GDP	bil. 2015 US\$	2,263.08	3,525.48	3,988.12	4,220.36	4,370.56	4,464.29	4,512.27
GDP/Pop.	2015 US\$	19,332.6	28,521.0	31,444.6	32,961.3	34,767.6	35,571.5	36,113.4
TPES	Mtoe	344.52	436.91	515.87	499.53	385.11	399.62	391.70
TPES/Pop.	toe/capita	2.94	3.54	4.07	3.90	3.06	3.18	3.14
TPES/GDP	toe/thou. US\$	0.15	0.12	0.13	0.12	0.09	0.09	0.09
Korea								
Population	millions	38.12	42.87	47.01	49.55	51.78	51.95	51.81
GDP	bil. 2015 US\$	154.60	401.44	798.68	1,261.03	1,626.01	1,693.41	1,736.78
GDP/Pop.	2015 US\$	4,055.2	9,364.2	16,990.3	25,447.5	31,401.6	32,595.7	33,522.8
TPES	Mtoe	41.26	92.91	186.57	250.03	276.10	291.76	287.18
TPES/Pop.	toe/capita	1.08	2.17	3.97	5.05	5.33	5.62	5.54
TPES/GDP	toe/thou. US\$	0.27	0.23	0.23	0.20	0.17	0.17	0.17
United Kingdom								
Population	millions	56.33	57.24	58.89	62.76	67.08	67.53	67.79
GDP	bil. 2015 US\$	1,430.37	1,846.14	2,308.01	2,660.60	2,824.23	3,038.78	3,161.73
GDP/Pop.	2015 US\$	25,392.7	32,253.8	39,194.5	42,393.2	42,101.7	44,998.4	46,639.3
TPES	Mtoe	198.44	205.94	222.99	203.06	153.26	158.73	153.72
TPES/Pop.	toe/capita	3.52	3.60	3.79	3.24	2.29	2.35	2.27
TPES/GDP	toe/thou. US\$	0.14	0.11	0.10	0.08	0.05	0.05	0.05
United States								
Population	millions	227.73	250.18	282.40	309.77	330.15	330.60	333.46
GDP	bil. 2015 US\$	7,080.82	9,811.03	13,754.34	16,383.05	19,377.41	20,529.70	20,954.39
GDP/Pop.	2015 US\$	31,093.6	39,215.7	48,705.5	52,887.1	58,692.4	62,098.1	62,840.0
TPES	Mtoe	1,804.81	1,914.47	2,272.86	2,215.78	2,035.04	2,138.97	2,146.23
TPES/Pop.	toe/capita	7.93	7.65	8.05	7.15	6.16	6.47	6.44
TPES/GDP	toe/thou. US\$	0.26	0.20	0.17	0.14	0.11	0.10	0.10

Source : World Energy Balance, IEA, 2023

1. Energy Conversion Factors/Oil Equivalent

Energy by Source		Unit	Gross Calorific Values(kcal)							
			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)	Nm³	7,000	7,000	7,000	10,500	10,550	10,430	10,290	10,190
	City Gas(LPG)	Nm³	-	-	-	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
	Bituminous (Coking)	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

○ Energy

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

○ Mass

Units	kg	tonne	Long ton(lt)	Short ton(st)	pound(lb)
kg	1	0.001	9.84×10^{-4}	1.102×10^{-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	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}	1

○ Volume

Units	m³	liter	ft³	gal(U.S)	gal(U.K)	bbl
m³	1	10^3	35.3146	264.1721	219.969	6.2892
liter	10^{-3}	1	0.0353	0.2641	0.2199	6.2892×10^{-3}
ft³	2.8316×10^{-2}	28.3168	1	7.4805	6.2288	0.178
gal(U.S)	3.7854×10^{-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

