

KEEI

MONTHLY KOREA ENERGY TRENDS

2023/11

KOREA ENERGY ECONOMICS INSTITUTE

COAL	-5.8%
PETROLEUM	-8.6%
GAS	8.1%
NUCLEAR	-2.7%
NEW & RENEWABLE	10.8%
August. 2023	

**This publication is derived from Energy Demand & Supply
Statistics and Energy Price Statistics issued until August 2023**



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1. The Economy and the Industry

- **The industrial production index fell more slowly in August, despite the weak performance of several industries, as the production of semiconductors and automobiles increased.**
 - The semiconductor production index rose by 8.3% year-on-year, ending the downward trend that lasted for twelve consecutive months.
 - The production index of basic chemical materials fell by 3.3% year-on-year amid a prolonged slump in the petrochemical sector, and as some petrochemical facilities were shut down (LG Chem's 2nd NCC plant in Yeosu), leading to a drop in the capacity utilization rate (-3.4%) and shipping volume (-3.2%).
 - The iron & steel production index dropped by 0.8% year-on-year owing to the sluggish demand in the construction and machinery sectors, especially the demand for bar-type steel products, as well as a slight decline in the capacity utilization rate (-0.2%), although the demand recovered in other sectors such as the automobile and shipbuilding industries.
 - The automobile production index jumped 7.8% year-on-year, as the supply chain of semiconductors used for cars returned to normal, and the demand recovered in the domestic and international markets.
- **The service production index went up by 1.7% year-on-year in August, as the production increased in several service industries except a few.**
 - The service production index maintained the upward trend, despite the weak performance of the wholesale & retail and food & accommodation sectors, as the production increased in other service industries.

► Major economic and industrial indicators

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
GDP (trillion won)	1 968.8 (2.8)	960.9 (3.1)	- -	969.5 (0.9)	497.3 (0.9)	- -	- -
Total export (\$billion, customs clearance basis)	683.6 (6.1)	467.4 (13.5)	56.6 (6.5)	409.6 (-12.4)	54.2 (-6.0)	50.5 (-16.2)	52.0 (-8.1)
Industrial production index (2020=100)	109.7 (1.4)	111.2 (4.7)	106.4 (1.5)	102.7 (-7.6)	107.5 (-6.0)	103.9 (-8.1)	105.7 (-0.7)
Semi-conductors	136.5 (7.7)	145.1 (22.2)	131.9 (-3.5)	115.1 (-20.7)	134.2 (-15.8)	127.2 (-15.0)	143.0 (8.4)
Basic chemical products	99.1 (-6.4)	102.7 (-3.3)	99.4 (-11.8)	95.5 (-7.0)	91.3 (-6.8)	97.8 (-4.5)	95.1 (-4.3)
Iron&Steel	96.3 (-8.4)	104.6 (-0.5)	99.1 (-7.6)	100.2 (-4.2)	101.9 (-3.2)	101.9 (-5.6)	98.7 (-0.4)
Cars	116.0 (9.1)	110.8 (3.8)	107.5 (21.3)	128.0 (15.5)	132.0 (10.8)	126.5 (6.1)	116.3 (8.2)
Service production index (2020=100)	112.0 (6.5)	109.7 (6.7)	112.1 (9.5)	113.7 (3.6)	117.6 (3.0)	114.2 (1.9)	114.0 (1.7)
Wholesale & Retail	107.1 (1.7)	105.9 (2.3)	106.5 (5.7)	105.8 (-0.1)	107.2 (0.9)	103.4 (-1.8)	102.8 (-3.5)
Food & Accommodation	119.1 (16.9)	116.5 (20.1)	129.0 (26.6)	119.3 (2.4)	119.5 (-4.6)	122.3 (-7.4)	122.6 (-5.0)

Note: Figures are based on the real price of 2020, P means provisional, () is year-on-year growth rates (%).
Source: Bank of Korea, Korea International Trade Association, Korea Statistical Information Service

2. Energy Prices¹

Global Energy Prices

□ **Global oil price increased by 7.5% year-on-year in August partly due to the major OPEC+ nations' decision on supply cuts and a decline in the US crude inventory.**

- Saudi Arabia announced on August 3 that it would extend the voluntary oil production cut (1 million b/d, July-August) by another month, and on the same day, Russia also announced the extension of the oil export cut (300,000 b/d) into September after cutting the export by 500,000 b/d in August.
- All the projections for the US crude inventory for commercial use, announced on August 16, 23 and 30, were much lower than the market expectations.
- Global steam coal price was up 8.5% year-on-year, which was affected by global oil price hikes and the seasonal demand growth.
- Global natural gas price increased amid the uncertainties in Australia's LNG supply and heat waves in Northeast Asia and Europe.

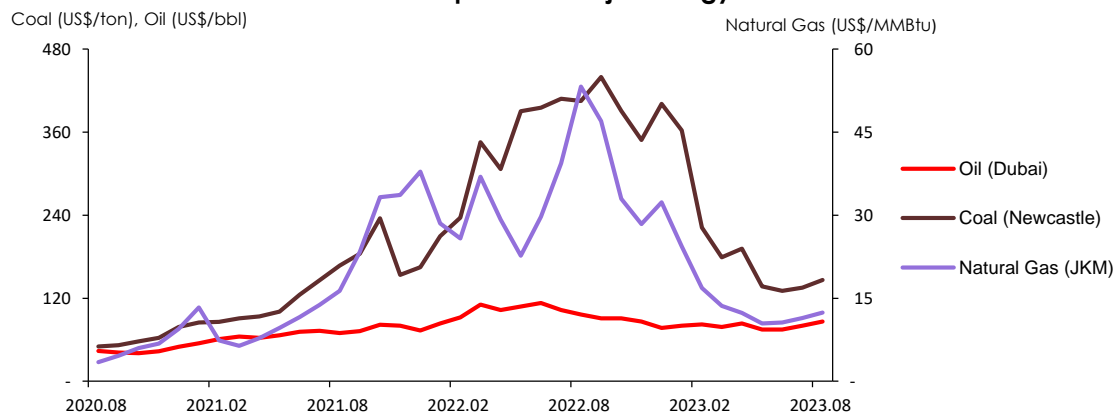
► Global energy prices

	2021	2022				2023			
			M6	M7	M8		M6	M7	M8
Crude oil (US\$/bbl)	69.3 (64.2)	96.4 (39.1)	113.3 (4.7)	103.1 (-8.9)	96.6 (-6.3)	75.0 (0.0)	80.4 (7.3)	86.5 (7.5)	
Coal (US\$/ton)	136.4 (126.5)	357.1 (161.8)	395.0 (1.2)	408.4 (3.4)	404.9 (-0.8)	130.5 (-4.7)	135.1 (3.5)	146.6 (8.5)	
Natural gas (US\$/MMBtu)									
TTF	16.1 (397.9)	40.2 (149.6)	33.4 (15.5)	51.8 (54.8)	69.7 (34.6)	10.3 (3.6)	9.6 (-7.1)	11.2 (17.0)	
JKM	17.9 (325.7)	33.9 (89.2)	29.7 (30.9)	39.4 (32.4)	53.2 (35.2)	10.6 (1.5)	11.4 (7.8)	12.4 (8.7)	

Note: Oil and coal prices are based on Dubai oil and Newcastle thermal coal in Australia, respectively. () is month-on-month growth rates (%).

Source: Korea National Oil Corporation, World Bank, CME Group

► Global prices of major energy sources



¹ For recent price trends, please refer to *Energy Brief* (<https://www.kesis.net/main/mainEng.jsp>).

Domestic energy prices

□ Gasoline and diesel prices at gas stations went up by 8.3% and 12.7% respectively in August from the previous month in line with the upward trend of the global prices.

- o Singapore's gasoline and diesel spot prices rose by 9.4% to \$101.9/bbl and 17.3% to \$119.4/bbl respectively from the previous month, while the won-dollar exchange rate was up 3.1% than the prior month to 1,322.4 won.
- o The retail prices of propane and butane fell by 2.0% and 3.9% respectively from the previous month, as LPG importers (incl. SK Gas) reduced their supply prices.
- o The relative price of propane for industrial use and city gas (propane/city gas) slightly declined to 1.06.

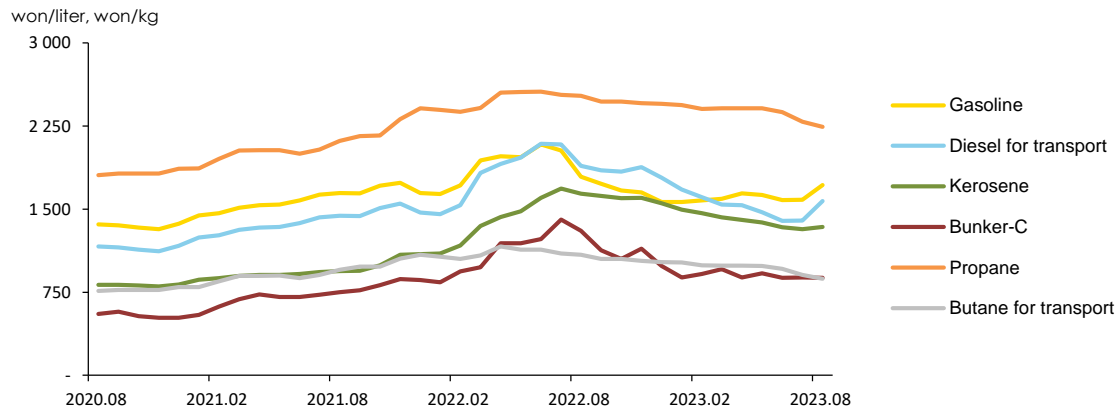
► Domestic petroleum product prices

	2021	2022				2023		
			M6	M7	M8	M6	M7	M8
Gasoline (won/liter)	1 591.2 (15.2)	1 812.7 (13.9)	2 084.0 (5.9)	2 030.0 (-2.6)	1 792.2 (-11.7)	1 580.6 (-3.0)	1 585.5 (0.3)	1 716.8 (8.3)
Diesel for transport (won/liter)	1 392.0 (17.0)	1 843.4 (32.4)	2 089.0 (6.4)	2 084.9 (-0.2)	1 889.3 (-9.4)	1 394.5 (-5.3)	1 396.5 (0.1)	1 573.2 (12.7)
Bunker-C (won/liter)	732.2 (27.8)	1 116.1 (52.4)	1 229.3 (3.3)	1 405.7 (14.3)	1 305.3 (-7.1)	879.3 (-4.5)	883.3 (0.5)	880.5 (-0.3)
Propane (won/kg)	2 093.4 (13.1)	2 480.1 (18.5)	2 558.8 (0.0)	2 531.2 (-1.1)	2 522.4 (-0.4)	2 374.2 (-1.4)	2 287.5 (-3.7)	2 242.8 (-2.0)
Butane for transport (won/liter)	932.3 (17.9)	1 081.8 (16.0)	1 133.7 (-0.1)	1 100.2 (-3.0)	1 088.8 (-1.0)	961.0 (-2.7)	905.3 (-5.8)	870.4 (-3.9)

Note: Gasoline, diesel and butane prices are based on charging station prices, Bunker-C oil price is based on dealership prices, propane price is based on sales shop prices. () is month-on-month growth rates (%).

Source: Korea National Oil Corporation

► Domestic petroleum product prices



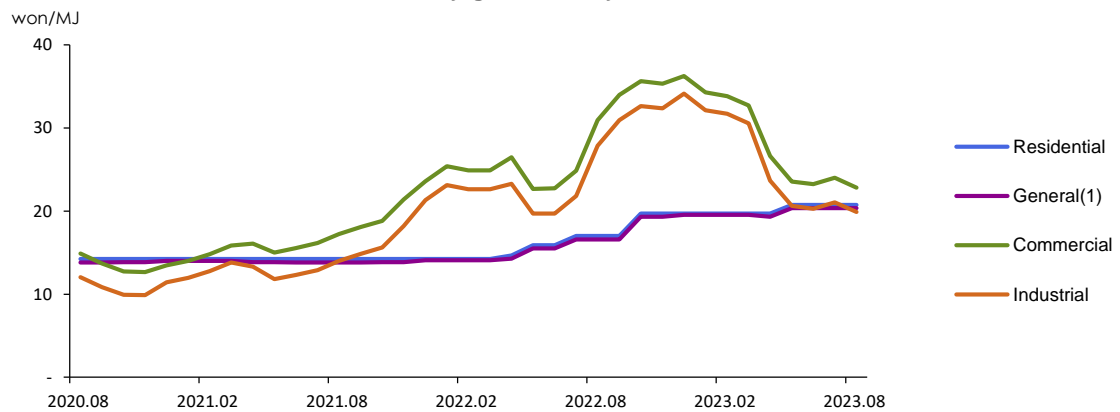
□ **City gas rates for residential and general use were flat in August, while the rates for office heating and industrial use fell by 5.0% and 5.7% respectively on a month-on-month basis.**

- City gas rates for residential and general use remained flat at 20.7 won/MJ and 20.4 won/MJ respectively in August. On a year-on-year basis, however, the rates rose by around 22%.
- City gas rates for office heating and industrial use showed a downward trend, falling to 22.8 won/MJ and 19.9 won/MJ respectively, which was affected by decreased raw material cost.

□ **Electric rates were kept at the same level in August, after energy charge was adjusted on May 16, and electric rate was raised for the summer season in June.**

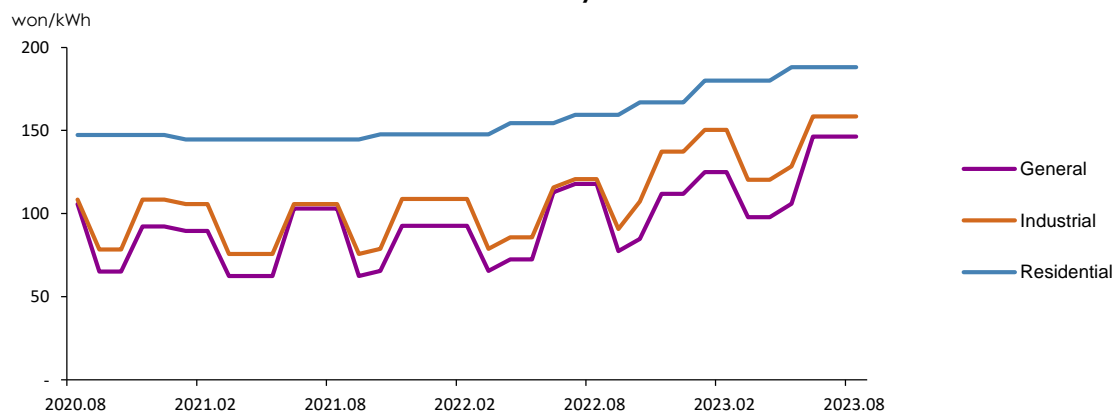
- Electric rates for residential, general, and industrial use increased by 17.9%, 24.2% and 31.2% respectively (in June) on a year-on-year basis, as energy charge was raised three times, and climate change & environmental charge was raised once for the last one year.

► City gas rates by end-use sectors



Source: Seoul City Gas

► Electric rates by end-use sectors



Note: The electric rates by end-use sectors refer to the prices for residential use ([high voltage], the 2nd stage price), general use ([A], low voltage) and Industrial use ([B], high voltage B middle load), including Climate Environmental Price.

Source: KEPCO

3. Energy Supply

- **The total energy import volume dropped by 11.1% year-on-year in August, as the import of almost all energy sources decreased except petroleum products.**
 - The import volume of crude oil declined by 22.3%, as oil refiners conducted routine maintenance on refining facilities, and accordingly, the capacity utilization rate decreased (-15.5%), and due to the high base effect (17.0%) of the same month last year. The import from all oil producing countries declined, including the Middle East region (-13.7%).
 - The import volume of petroleum products increased by 17.4% year-on-year, despite a drop in naphtha import, as the import of LPG and bunker-C oil increased.
 - The import volume of coal fell by 4.1%, as the import of bituminous coal, which accounts for a large share of the total import, dropped by 4.3% year-on-year due to lower input at domestic power stations (-6.1%), although the import of anthracite slightly increased (0.4%).
 - The import volume of natural gas was down 10.1%, partly because the inventory was relatively higher than the same month last year (an increase of approximately 2 million tons, month-end basis).
 - Energy import & export volumes decreased (-11.1%, -24.6%) amid a continued downward trend in global energy prices, and accordingly, the total import & export values fell by 36.7% and 33.0% year-on-year, marking the sixth consecutive month of decline.

► Import and domestic production of energy

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
Import volume (Mtoe)	333.4 (2.8)	223.5 (5.2)	30.2 (9.5)	213.7 (-4.4)	23.8 (-1.6)	25.4 (-15.5)	26.8 (-11.1)
Crude oil (Mbbbl)	1 031.3 (7.4)	696.6 (10.7)	96.9 (17.0)	661.4 (-5.1)	76.8 (3.8)	81.8 (-16.7)	75.3 (-22.3)
Petroleum product (Mbbbl)	367.1 (-6.4)	247.2 (-2.7)	28.4 (-18.2)	238.9 (-3.4)	27.6 (4.0)	27.4 (-19.6)	33.3 (17.4)
Coal (Mton)	125.6 (-0.4)	85.4 (3.8)	12.3 (11.1)	80.5 (-5.7)	8.8 (-21.1)	10.7 (-9.6)	11.8 (-4.1)
LNG (Mton)	46.4 (1.0)	29.8 (-2.7)	3.8 (9.0)	29.1 (-2.3)	2.9 (16.5)	2.6 (-19.6)	3.4 (-10.1)
Import value (billion US\$, CIF)	222.8 (58.0)	148.6 (78.3)	20.9 (68.7)	117.2 (-21.1)	12.0 (-27.1)	12.1 (-43.6)	13.2 (-36.7)
Energy share of total import value (%)	30.4	30.1	31.6	26.9	22.6	24.8	25.9
Foreign energy dependence (%)	94.4	94.1	94.0	93.5	93.1	93.4	93.0
Export volume (Mtoe)	69.0 (11.2)	46.1 (16.4)	7.1 (39.8)	44.2 (-4.1)	5.0 (0.3)	5.3 (-19.1)	5.4 (-24.6)
Export value (billion US\$, FOB)	63.1 (63.5)	43.8 (90.9)	6.7 (114.0)	33.0 (-24.7)	3.4 (-39.9)	3.9 (-39.3)	4.5 (-33.0)
Domestic production							
Hydropower (TWh)	3.5 (15.9)	2.4 (9.5)	0.7 (141.2)	2.5 (3.3)	0.3 (13.9)	0.7 (70.8)	0.4 (-39.0)
Renewable energy (Mtoe)	15.9 (10.5)	10.8 (11.4)	1.4 (16.6)	11.4 (5.6)	1.4 (8.7)	1.5 (6.1)	1.6 (16.2)

Note: p means provisional, () is year-on-year growth rates (%), 'Foreign energy dependence (%) including Nuclear energy, Most of exports are petroleum products.

Source: Korea Energy Economics Institute, Korea International Trade Association

4. Energy Consumption

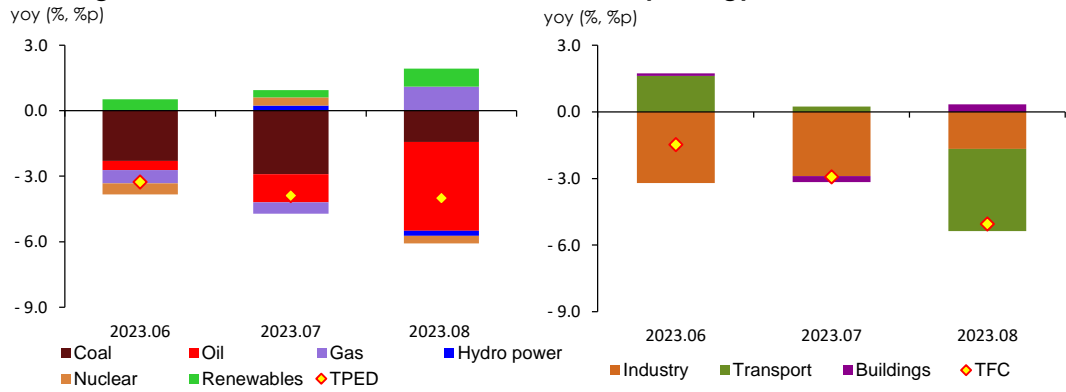
- **Total Primary Energy Demand (TPED) fell by 4.0% year-on-year in August, despite the increased use of renewable energy and gas, as coal and petroleum use declined.**
 - Coal use has been declining in the industrial and power generation sectors simultaneously since January 2023, due to sluggish production in large coal-consuming industries such as iron & steel and petrochemicals amid the economic slowdown, growing renewable & other energy generation, and constraints on transmission lines. Consequently, the total coal use decreased in August.
 - Gas use was up 8.1% year-on-year, led by the power generation and industrial sectors amid increasing electricity use and growing captive power generation in the iron & steel and machinery sectors, although it fell in the building sector due to higher city gas rates for civil use and temperature effect.
 - Petroleum use dropped by 8.6% year-on-year, as its industrial use has steadily declined, mostly in the petrochemical sector, and as it also fell sharply in the transport sector. Meanwhile, the use of nuclear energy was down 2.7%, with the capacity factor falling due to the increased preventive maintenance.
- **Total Final Consumption (TFC) decreased by 5.0% year-on-year in August, with the industrial and transport sectors leading the downward trend, although buildings' energy use increased.**
 - Industrial energy use fell by 2.7% year-on-year, as the production decreased in most subsectors excluding transport equipment and semiconductor sectors. The pace of decline, however, has been slowing for four consecutive months, because energy use fell more slowly in the petrochemical sector.
 - Transport energy use was down 18.6% year-on-year, as it dropped in the road transport sector due to the base effect of the same month last year when petroleum use increased amid a drop in global oil prices, and as it plunged in the domestic aviation sector owing to a drop in the number of domestic flights.
 - Energy use in buildings rose by 1.8% year-on-year, as it increased in the residential, commercial, and public sectors all together. Despite the increased number of cooling degree days (29.7%), the growth rate was in the one-percent range owing to the increased energy rates for civil use.

► Energy consumption

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
TPED (Mtoe)	306.2	206.8	26.1	198.5	22.9	25.4	25.0
	(0.5)	(2.5)	(2.3)	(-4.0)	(-3.3)	(-3.9)	(-4.0)
TFC (Mtoe)	215.5	145.6	17.8	139.1	15.8	17.1	16.9
	(-0.9)	(1.3)	(1.2)	(-4.5)	(-1.5)	(-2.9)	(-5.0)
- Feedstock exclude	143.2	96.0	11.7	92.9	10.3	11.1	11.0
	(0.2)	(1.3)	(5.4)	(-3.2)	(0.0)	(-0.2)	(-6.1)

Note: p means provisional, () is year-on-year growth rates.
Source: Korea Energy Economics Institute

► The growth rates of TPED & TFC and contribution by energy sources and end-use sectors



5. Coal

□ Coal use fell by 5.8% year-on-year in August, with the industrial and power generation sectors leading the downward trend, although the pace of decline slowed.

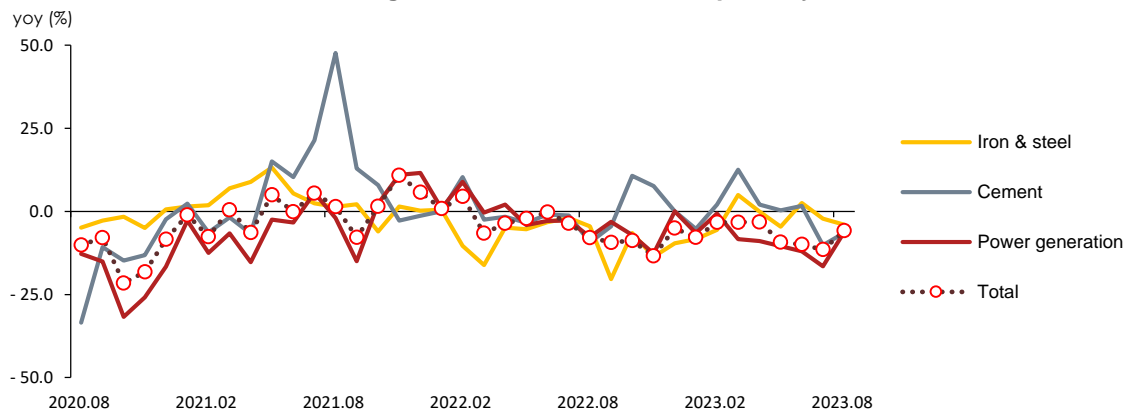
- Industrial coal use maintained a downward trend, as it declined in most subsectors including iron & steel and petrochemical industries due to the economic slowdown.
- In the power generation sector, coal use continued to decline partly due to the constraints on transmission lines in the Metropolitan area, although the pace of decline was much slower, leading the slowdown in the downward trend of the total national coal use.

► Coal consumption

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
Coal (Mton)	117.0	79.4	11.0	73.9	8.9	10.0	10.3
	(-4.7)	(-2.5)	(-7.9)	(-7.0)	(-10.0)	(-11.5)	(-5.8)
Industry	49.4	33.8	4.2	32.3	4.0	4.1	4.0
	(-7.4)	(-4.2)	(-8.4)	(-4.5)	(-7.2)	(-3.2)	(-5.2)
- Coking-coal	23.6	16.1	2.1	15.7	2.0	2.1	2.0
	(-7.5)	(-5.5)	(-3.9)	(-2.2)	(2.4)	(-2.1)	(-3.8)
Buildings	0.4	0.2	0.0	0.1	0.0	0.0	0.0
	(-5.3)	(-1.2)	(12.8)	(-9.0)	(-37.5)	(-61.3)	(-44.6)
Power generation	67.1	45.5	6.7	41.5	4.9	5.9	6.3
	(-2.6)	(-1.2)	(-7.7)	(-8.8)	(-12.1)	(-16.5)	(-6.2)

Note: p means provisional, () is year-on-year growth rates (%).
Source: Korea Energy Economics Institute

► The growth rate of coal consumption by use



6. Petroleum

- The final use of petroleum went down by 8.6% year-on-year in August, as it plunged in the transport sector, although its industrial use fell more slowly.
 - In the industrial sector, petroleum use fell by 2.9% year-on-year, because the use of petroleum as feedstock decreased amid a slump in the petrochemical industry, which has continued for more than a year.
 - In the transport sector, petroleum use decreased by 18.8% year-on-year partly due to the base effect of the previous year when petroleum use increased amid a drop in global oil prices.

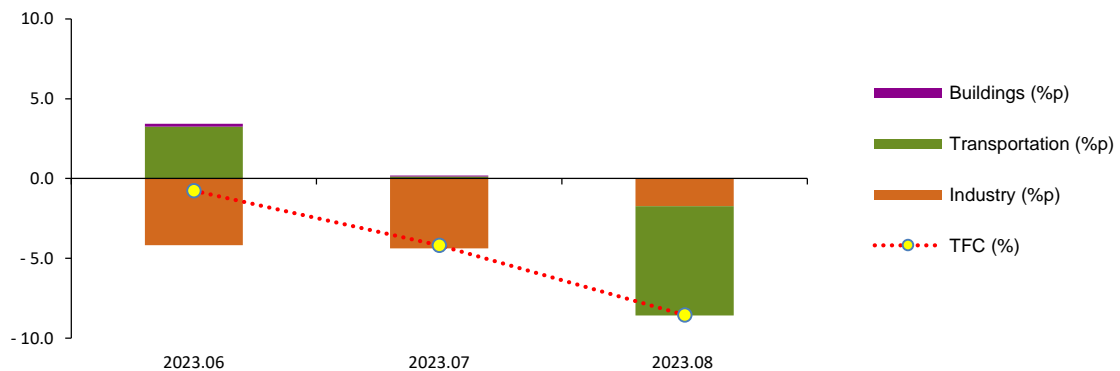
► Petroleum product consumption by end-use sectors

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
TFC (Mbbbl)	798.9	537.5	69.3	505.5	58.8	65.6	63.4
	(-1.3)	(1.5)	(1.9)	(-5.9)	(-0.8)	(-4.2)	(-8.6)
Industry	496.9	339.2	41.5	311.9	35.7	40.2	40.3
	(-1.8)	(2.5)	(-5.6)	(-8.0)	(-6.5)	(-6.9)	(-2.9)
- Naphtha	356.0	243.7	30.5	225.2	25.3	28.4	27.6
	(-3.8)	(0.9)	(-7.3)	(-7.6)	(-6.7)	(-11.6)	(-9.4)
Transport	258.0	170.3	25.2	166.8	20.8	23.0	20.5
	(-0.4)	(-0.1)	(17.0)	(-2.0)	(10.2)	(0.3)	(-18.8)
Buildings	44.0	27.9	2.6	26.8	2.3	2.4	2.6
	(-0.6)	(-0.8)	(2.9)	(-4.1)	(4.4)	(2.3)	(0.7)
Power generation (Mbbbl)	5.02	3.72	0.45	2.16	0.23	0.27	0.21
	(20.0)	(43.8)	(85.1)	(-41.8)	(-33.6)	(-41.2)	(-53.9)

Note: p means provisional, () is year-on-year growth rates (%).
Source: Korea Energy Economics Institute

► The growth rates of petroleum product consumption & contribution(%p) by end-use sectors

yoy(% , %p)



7. Gas

□ **Gas use increased by 8.1% year-on-year in August, led by the power generation and industrial sectors, while it slightly decreased in the building sector.**

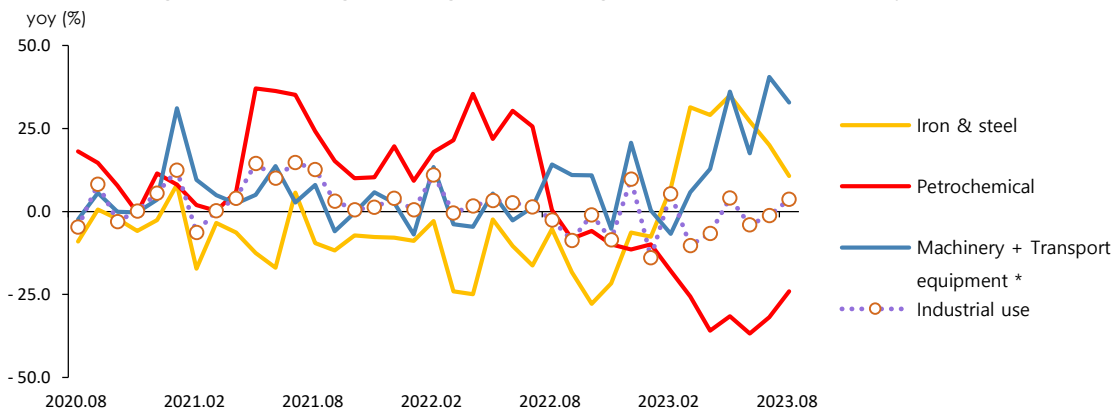
- In the power generation sector, gas use rebounded, ending the recent downward trend, as the total power generation increased (2.3%), while baseload generation remained flat (-0.3%) on a YoY basis.
- In the industrial sector, gas use bounced back, led by a surge in natural gas use in the iron & steel, paper & printing, non-ferrous metals, and machinery sectors, although gas use continued to drop fast in the petrochemical sector amid a prolonged slump.
- As for gas use in buildings, it fell by 3.7% in the residential sector due to the gradual city gas rate increases for civil use and temperature effect, while it grew by 1.8% year-on-year in the commercial sector, which was attributed to the growth in service production (1.7%).

► Natural gas and city gas consumption

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
Gas(TPED) (Mtoe)	59.5	40.6	3.9	38.7	3.8	4.2	4.2
(Natural gas + City gas)	(-1.0)	(-0.4)	(-4.0)	(-4.7)	(-3.3)	(-3.7)	(8.1)
Power generation	30.0	20.3	2.4	19.4	2.1	2.4	2.6
	(-2.3)	(-2.9)	(-4.4)	(-4.4)	(-5.7)	(-8.2)	(8.7)
Industry	10.0	6.7	0.7	6.5	0.8	0.8	0.8
	(0.3)	(1.4)	(-3.2)	(-3.1)	(-3.9)	(-1.1)	(3.8)
Buildings	15.0	10.4	0.5	9.6	0.5	0.5	0.5
	(3.9)	(4.9)	(2.7)	(-8.0)	(-2.3)	(-2.7)	(-0.6)
Natural gas(TPED) (Mton)	45.6	30.5	3.0	29.0	2.9	3.2	3.2
	(-0.5)	(-0.1)	(-3.0)	(-5.0)	(-3.7)	(-3.2)	(7.4)
City gas(TFC) (Bm³)	23.4	16.1	1.1	14.7	1.1	1.1	1.0
	(2.9)	(4.4)	(-0.2)	(-8.4)	(-7.4)	(-9.6)	(-4.5)

Note: p means provisional, () is year-on-year growth rates (%).
Source: Korea Energy Economics Institute

► The growth rate of gas(city gas+natural gas)consumption by major industries



Note: The Transport equipment sector includes only City gas consumption. Natural gas consumption in the transport equipment sector is highly variable, including the amount of LNG loaded (+) and unloaded (-) during the test operation of the LNG carrier.

8. Electricity

- Electricity use posted a year-on-year growth of 0.8% in August, despite a drop in industrial electricity use, as it increased in the building sector.
 - Industrial electricity use dropped by 1.6% year-on-year owing to the sluggish production activities and the growth in commercial captive power generation.
 - Electricity use in buildings grew by 2.9% year-on-year, despite higher electric rates, partly because the number of cooling degree days rapidly increased.

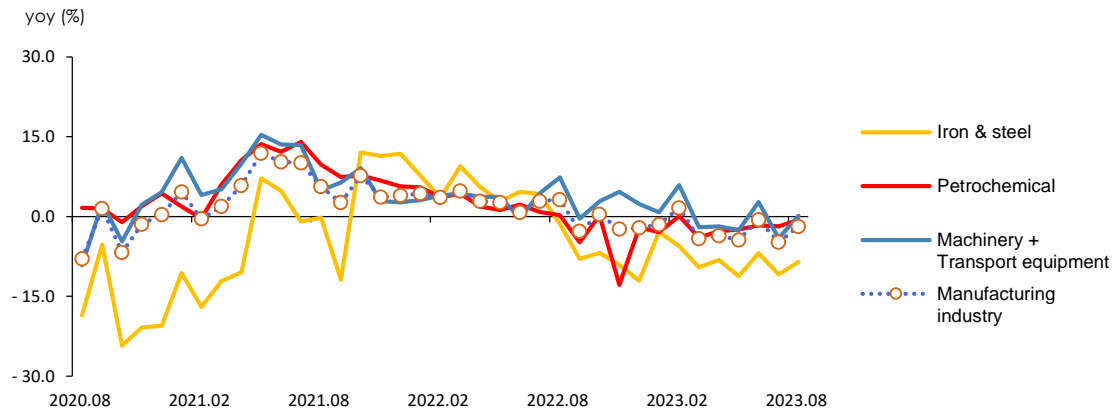
► Electricity consumption by end-use sectors

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
Electricity (TWh)	535.3	362.4	49.1	359.5	42.2	45.7	49.5
	(2.9)	(4.1)	(2.7)	(-0.8)	(0.4)	(-3.6)	(0.8)
Industry	274.1	185.1	23.3	180.5	22.0	22.8	22.9
	(1.7)	(3.3)	(2.6)	(-2.5)	(-0.9)	(-5.0)	(-1.6)
Transport	4.0	2.6	0.4	3.0	0.4	0.4	0.4
	(8.7)	(9.1)	(15.7)	(13.8)	(15.7)	(11.9)	(13.2)
Buildings	257.2	174.7	25.4	176.0	19.8	22.5	26.1
	(4.1)	(4.9)	(2.7)	(0.8)	(1.6)	(-2.5)	(2.9)
Residential	78.6	53.3	8.7	53.3	6.0	7.0	9.1
	(1.3)	(1.5)	(-3.3)	(0.0)	(2.4)	(-4.1)	(4.7)
Commercial	147.0	100.0	13.9	101.0	11.4	12.7	14.1
	(5.9)	(7.0)	(6.5)	(1.0)	(0.8)	(-2.0)	(1.6)

Notes: p means provisional, () is year-on-year growth rates (%).

Source: Korea Energy Economics Institute

► The growth rate of electricity consumption in manufacturing industry

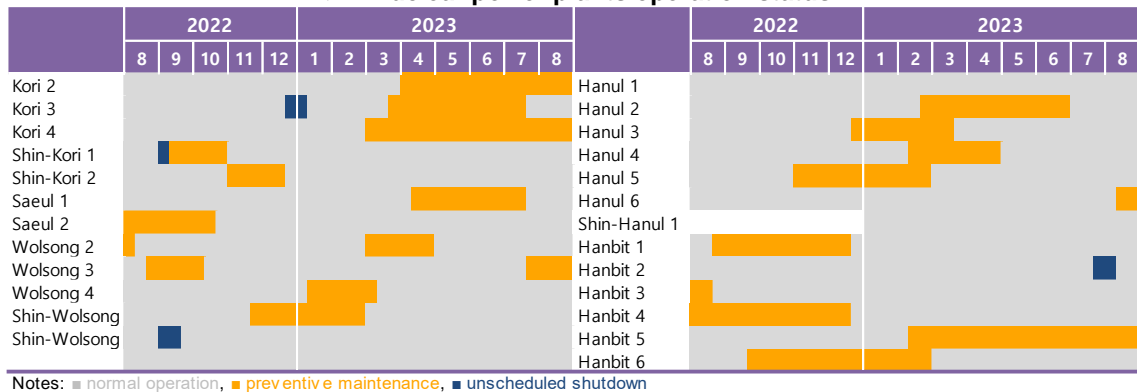


9. Nuclear

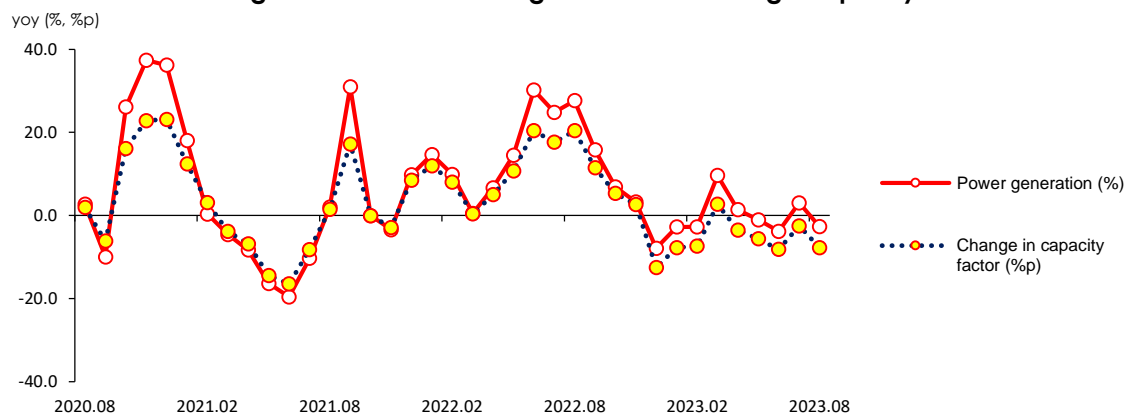
□ The total nuclear generation dropped by 2.7% year-on-year in August, as its capacity factor decreased due to the growth in the daily average preventive maintenance.

- Although the same number of reactors (six) were subject to the scheduled and unscheduled shutdown compared to the same month last year, the daily average preventive maintenance rose by 1.1GW, and consequently, the nuclear capacity factor fell by 7.7%p year-on-year to 86.6%.
- Meanwhile, though the commissioning of Shin Hanul unit 1 reactor (1.4GW, 2022.12.7) was a factor that increased the total nuclear generation, it has a limited impact on the power generation trend in August, because the reactor was test-operated during the same month of the previous year.
- Nuclear energy's share of the total power generation dropped by 1.5%p year-on-year to 28.8%.

► Nuclear power plants operation status



► The growth rate of nuclear generation & average capacity factor

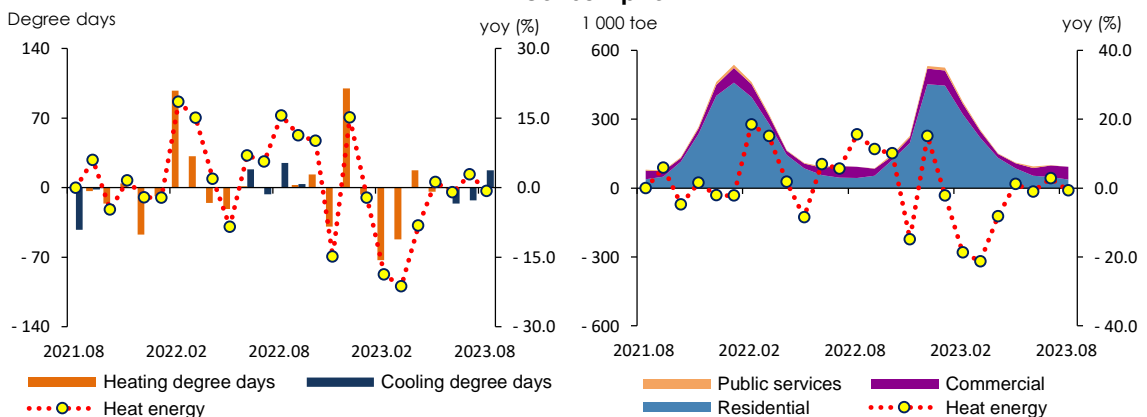


Note: Capacity factor = Ratio of actual power generated to possible power generation when utilizing 100% of available facility. Facility capacity values are based on end-of-the-month data.

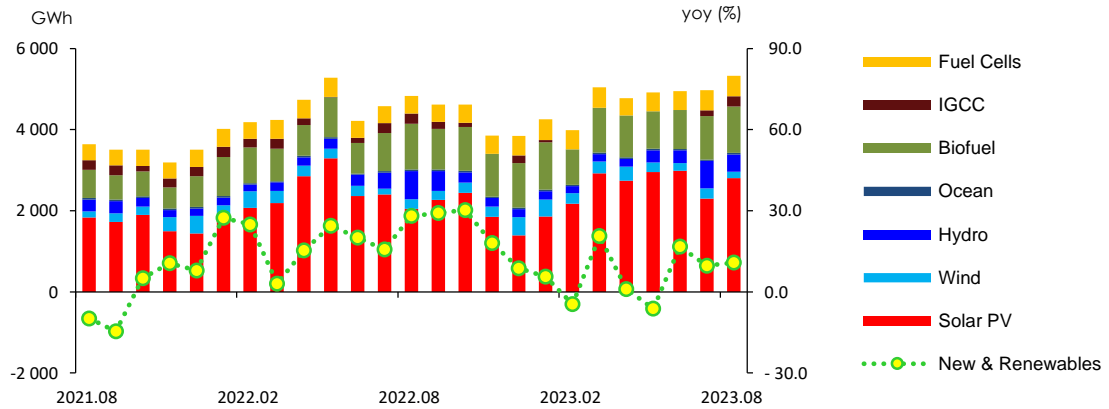
10. Heat and Renewable energy

- **Heat energy use fell by 0.7% year-on-year in August, with the residential sector leading the downward slide, while it increased in the commercial sector.**
 - Heat energy use decreased by 15.9% year-on-year in the residential sector, which was affected by the rate increase (36.4%) and temperature effect, while it grew by 13.2% in the commercial sector due to the increased production in the service industry (1.7%).
- **Renewable & other energy use went up by 10.8% year-on-year, as it increased in the power generation and end-use sectors all together.**
 - In the power generation sector, renewable & other energy generation rose by 10.8% year-on-year, despite a drop in hydropower and wind power generation, as the power generation from solar PV and fuel cells rapidly increased.
 - The final use of renewable and other energy grew by 8.7% year-on-year, as it increased in all end-use sectors for two months in a row.

► Heat energy consumption by sector and the growth rate of total heat energy consumption



► **New & renewable energy generation by source and the growth rate of total new & renewable energy generation**



Note: The power generation from and installed capacity of renewable & other energy sources are based on the data from KEPCO's 'The Monthly Report on Electric Power Statistics'.

11. Industry

□ Industrial energy use dropped by 2.7% year-on-year in August, as it continued to decrease in the iron & steel and petrochemical sectors.

- The pace of decline in industrial energy use has been slowing for four consecutive months, as it fell more slowly in the petrochemical sector, and it grew faster in the transport equipment and machinery sectors, although it fell more sharply in the iron & steel sector.

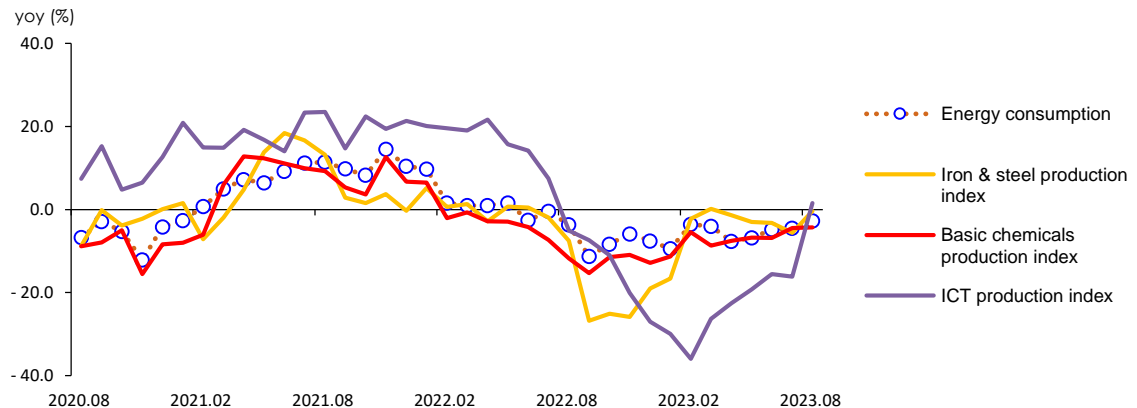
► Industrial energy consumption

	2022p	2023p		2023p			
		M1~8	M8	M1~8	M6	M7	M8
Industry (Mtoe)	131.7	89.6	11.0	84.6	10.1	10.9	10.7
	(-2.2)	(1.0)	(-3.7)	(-5.5)	(-4.8)	(-4.5)	(-2.7)
Petrochemical	67.6	46.4	5.7	42.1	4.8	5.4	5.4
	(-1.3)	(3.2)	(-6.0)	(-9.2)	(-9.0)	(-9.1)	(-5.4)
- Naphtha	43.6	29.8	3.7	27.6	3.1	3.5	3.4
	(-3.9)	(0.7)	(-7.4)	(-7.6)	(-6.7)	(-11.6)	(-9.4)
Iron & Steel	25.9	17.7	2.3	17.5	2.2	2.3	2.2
	(-7.3)	(-4.9)	(-3.6)	(-1.4)	(3.6)	(-1.3)	(-3.3)
- Coking coal	16.6	11.3	1.5	11.1	1.4	1.5	1.4
	(-6.7)	(-4.7)	(-3.1)	(-2.2)	(2.4)	(-2.1)	(-3.8)
Machinery + Transport Equipment	12.9	8.5	1.0	8.7	1.0	1.1	1.1
	(4.1)	(3.3)	(8.9)	(1.6)	(4.3)	(2.6)	(6.1)
Share of feedstock (%)	54.8	55.3	55.5	54.5	54.3	55.2	55.4

Note: p means provisional, () is year-on-year growth rates (%).

Source: Korea Energy Economics Institute

► Industrial energy consumption & production index



12. Transport

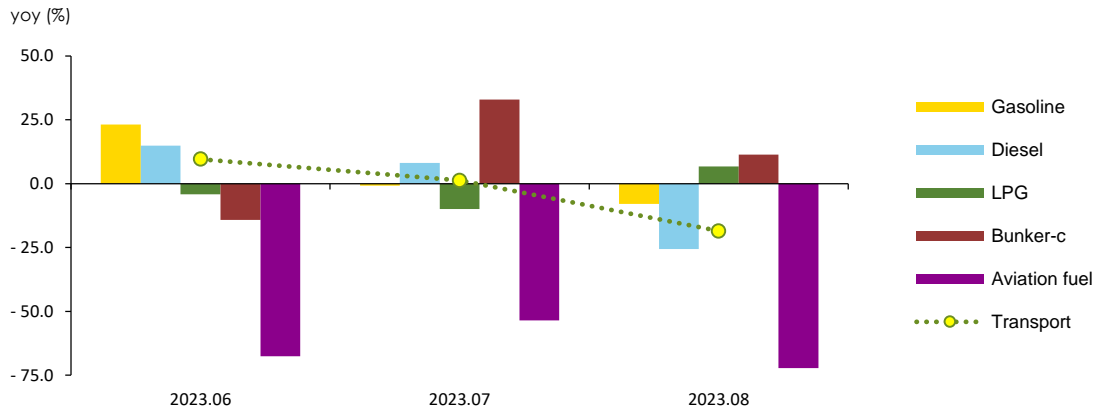
- **Transport energy use decreased by 18.6% year-on-year in August, as the road transport sector's energy use decreased due to the base effect of the previous year.**
 - In the road transport sector, energy use decreased by 16.1% year-on-year due to the base effect of the previous year when petroleum use increased amid a downward trend in oil prices.
 - In the aviation sector, energy use plunged by 72.0% year-on-year, as the number of flights has steadily decreased, and the standards for compiling statistics have changed.

► The growth rate of petroleum consumption in the transport sector

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
Transport (Mtoe)	36.29	23.99	3.55	23.54	2.95	3.25	2.89
	(-0.9)	(-0.7)	(15.8)	(-1.9)	(9.6)	(1.3)	(-18.6)
Road	33.86	22.34	3.30	22.28	2.84	3.12	2.77
	(-1.0)	(-1.0)	(14.8)	(-0.3)	(14.8)	(3.4)	(-16.1)
Domestic navigation	0.46	0.32	0.04	0.31	0.04	0.04	0.04
	(8.5)	(18.5)	(6.9)	(-2.9)	(-9.7)	(35.6)	(12.8)
Domestic aviation	1.67	1.13	0.18	0.75	0.05	0.06	0.05
	(-0.3)	(2.8)	(44.1)	(-33.4)	(-67.3)	(-53.3)	(-72.0)
Rail	0.30	0.20	0.03	0.20	0.02	0.02	0.03
	(-9.9)	(-9.4)	(-1.3)	(-2.2)	(-1.0)	(-6.9)	(-2.1)

Note: p means provisional, () is year-on-year growth rates (%).
Source: Korea Energy Economics Institute

► The growth rates of energy & major petroleum product consumption in the transport sector



13. Building

□ **Buildings' energy use increased in August, as it grew in all subsectors amid the increased number of cooling degree days and stronger service production.**

- In the residential sector, electricity use went up by 4.7% due to temperature conditions, but gas and petroleum use decreased, limiting the growth in the sector's energy use.
- In the commercial sector, energy use increased by 2.6% year-on-year, setting the highest August record of all time, which was attributed to the production growth in the service sector.

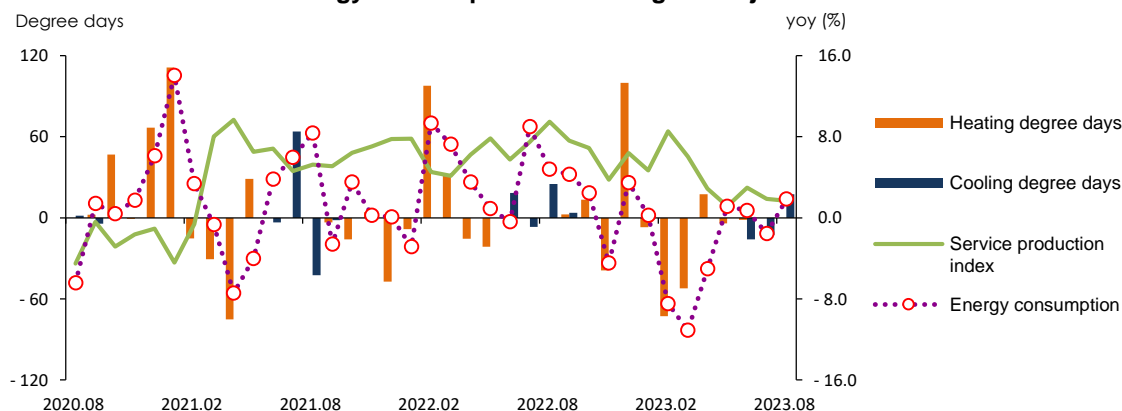
► Energy consumption in buildings

	2022p			2023p			
		M1~8	M8	M1~8	M6	M7	M8
Buildings (Mtoe)	47.4	32.0	3.2	30.9	2.7	3.0	3.3
	(3.0)	(3.8)	(4.8)	(-3.4)	(0.7)	(-1.5)	(1.8)
Residential	23.2	15.7	1.2	14.6	1.0	1.0	1.2
	(1.2)	(2.1)	(0.6)	(-7.1)	(-0.7)	(-2.3)	(0.1)
Commercial	18.9	12.8	1.7	12.8	1.4	1.5	1.7
	(5.4)	(6.4)	(8.0)	(0.3)	(1.9)	(-0.6)	(2.6)
Public services	5.3	3.6	0.4	3.5	0.4	0.4	0.4
	(2.3)	(1.9)	(4.6)	(-0.7)	(0.0)	(-3.2)	(3.5)
Heating degree days	2 567.1	1 577.8	-	1 458.0	-	-	-
	(6.8)	(5.7)	-	(-7.6)	(-100.0)	-	-
Cooling degree days	141.9	138.1	59.0	127.0	2.6	47.9	76.5
	(40.1)	(36.3)	(73.5)	(-8.0)	(-85.9)	(-21.0)	(29.7)
Service production index (2020=100)	112.0	109.7	112.1	113.7	117.6	114.2	114.0
	(6.5)	(6.7)	(9.5)	(3.6)	(3.0)	(1.9)	(1.7)

Note: p means provisional, () is year-on-year growth rates (%).

Source: Korea Energy Economics Institute, Korea Meteorological Administration, Korean Statistical Information Service

► Energy consumption in buildings & major indicators



14. Power Generation

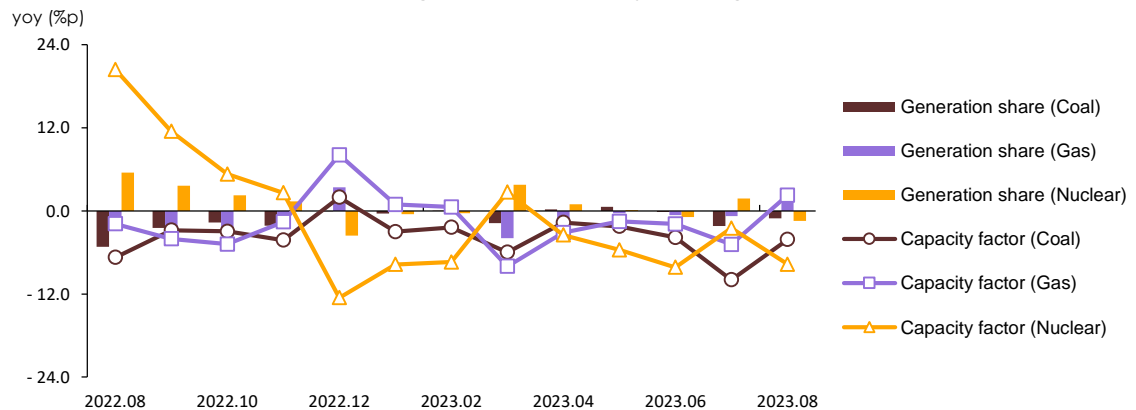
- The total power generation went up by 2.3% year-on-year in August, with the gas-fired generation leading the growth, as electricity use increased.
 - Nuclear generation fell by 2.7% year-on-year, partly because the daily average preventive maintenance grew by 1.1GW than the same month last year.
 - Renewable & other energy generation was up 8.7%, despite a drop in wind power and hydropower generation (-31.8%, -39.0%), as solar PV generation jumped 36.8% due to the growth in its installed capacity (13.8%) and the increased amount & hours of sunlight (20.4%, 34.0%).
 - Coal-fired generation declined at slower pace, even though the transmission constraint issue was ongoing, as the decline in nuclear generation was replaced with coal-fired generation.
 - The total power generation rose by 2.3%, while baseload generation including renewable & other energy fell by 0.3%, and accordingly, gas-fired generation that responds to peak-load demand increased by 10.3% on a year-on-year basis.

► Power generation by energy sources

	2022p	2023p		2023p			
		M1~8	M8	M1~8	M6	M7	M8
Power Generation (TWh)	594.4	400.6	54.0	395.0	47.1	53.2	55.2
	(3.1)	(4.1)	(4.2)	(-1.4)	(-1.0)	(-3.2)	(2.3)
Coal	193.2	129.3	18.9	125.1	15.3	17.9	18.8
	(-2.4)	(-1.9)	(-9.3)	(-3.3)	(-1.5)	(-9.2)	(-0.8)
Oil	2.0	1.4	0.1	1.1	0.1	0.1	0.1
	(-16.5)	(-3.2)	(3.6)	(-22.1)	(-9.3)	(6.5)	(-10.9)
Gas	163.6	111.0	13.2	107.8	12.1	13.9	14.6
	(-2.8)	(-3.6)	(-4.1)	(-2.9)	(-3.4)	(-6.0)	(10.3)
Nuclear	176.1	118.3	16.3	118.4	14.2	15.8	15.9
	(11.4)	(15.7)	(27.6)	(0.0)	(-3.8)	(3.0)	(-2.7)
Renewables	59.6	40.5	5.4	42.7	5.4	5.5	5.9
	(18.9)	(18.1)	(26.5)	(5.5)	(16.1)	(8.6)	(8.7)
Baseload	428.9	288.1	40.6	286.1	34.9	39.2	40.5
	(5.6)	(7.4)	(7.2)	(-0.7)	(-0.1)	(-2.3)	(-0.3)

Notes: p means provisional, () is year-on-year growth rates (%).
Source: Korea Electric Power Corporation

► Power generation by major energy sources



<Appendix> Major indicators & statistics of energy supply and demand

Major Statistics & Indicators of the Economy

	2021	2022					2023			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
GDP (trillion won)	1 915.8 (4.1)	1 968.8 (2.8)	960.9 (3.1)	493.0 (3.1)	- -	- -	969.5 (0.9)	497.3 (0.9)	- -	- -
Private consumption	882.5 (3.7)	917.8 (4.0)	449.3 (3.8)	225.7 (4.0)	- -	- -	463.0 (3.1)	229.3 (1.6)	- -	- -
Facilities investment	181.6 (9.0)	180.5 (-0.7)	87.1 (-6.6)	45.1 (-6.6)	- -	- -	91.7 (5.3)	47.2 (4.7)	- -	- -
Construction investment	265.0 (-1.6)	257.6 (-2.8)	122.6 (-3.7)	70.3 (-3.6)	- -	- -	124.9 (1.8)	71.6 (1.7)	- -	- -
Consumer price index (2020=100)	102.5	107.7	107.0	108.2	108.7	108.6	111.0	111.1	111.2	112.3
USD to KRW exchange rate (won)	1 144.0	1 291.4	1 252.3	1 277.4	1 307.4	1 318.4	1 296.7	1 296.7	1 286.3	1 318.5
Benchmark rate (%)	0.6	2.1	1.7	1.8	2.3	2.5	3.5	3.5	3.5	3.5
Coincident composite index (2020=100)	104.1	108.2	107.9	108.0	108.5	109.0	109.6	110.3	110.0	110.0
Mining & manufacturing production index (2020=100)	108.2	109.7	111.2	114.4	113.1	106.4	102.7	107.5	103.9	105.7
Manufacturing operation ratio index (2020=100)	105.2	105.2	106.7	109.7	107.4	101.3	99.2	104.1	99.7	100.1
Average temperature	13.3	12.9	14.0	22.4	25.9	25.3	14.6	22.3	25.5	26.4
- year-on-year difference	0.3	- 0.4	- 0.2	0.6	- 0.1	0.5	0.5	- 0.0	- 0.4	1.1
Heating degree days	2 404.7 (-1.8)	2 567.1 (6.8)	1 577.8 (5.7)	1.4 -	- -	- -	1 458.0 (-7.6)	- (-100.0)	- -	- -
Cooling degree days	101.3 (18.9)	141.9 (40.1)	138.1 (36.3)	18.5 -	60.6 (-10.0)	59.0 (73.5)	127.0 (-8.0)	2.6 (-85.9)	47.9 (-21.0)	76.5 (29.7)
Energy intensity	0.16 (1.1)	0.16 (-2.2)	0.16 (-0.6)	0.15 (-2.6)	- -	- -	0.15 (-4.9)	0.14 (-4.6)	- -	- -
Per capita consumption										
Oil (bbl)	0.0 (7.3)	0.0 (-1.7)	0.0 (0.8)	0.0 (-12.7)	0.0 (0.0)	0.0 (0.9)	0.0 (-5.6)	0.0 (-0.8)	0.0 (-4.5)	0.0 (-9.6)
Electricity (MWh)	0.0 (4.9)	0.0 (3.1)	0.0 (4.3)	0.0 (2.9)	0.0 (6.1)	0.0 (3.0)	0.0 (-0.7)	0.0 (0.5)	0.0 (-3.5)	0.0 (1.0)
City gas (1 000 m ³)	- (3.5)	- (3.2)	- (4.6)	- (-1.0)	- (6.8)	- (0.0)	- (-8.3)	- (-7.3)	- (-9.5)	- (-4.4)
Total energy (toe)	0.0 (5.4)	0.0 (0.7)	0.0 (2.7)	- (-0.6)	0.0 (2.8)	0.0 (2.5)	0.0 (-3.9)	- (-3.1)	- (-3.8)	- (-3.9)

Note: Figures are based on the real price of 2015, p means provisional, () is year-on-year growth rates (%).

Source: Bank of Korea, Korea Statistical Information Service, Korea Meteorological Administration, Korea Energy Economics Institute

The Index of Production & Operating Ratio by Sectors

	2021	2022					2023			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Industrial production index										
All industry	105.5 (5.5)	110.1 (4.4)	108.6 (5.5)	114.2 (3.8)	110.1 (5.7)	107.9 (6.3)	108.9 (0.2)	114.9 (0.6)	108.6 (-1.4)	109.3 (1.3)
Mining & manufacturing	108.2 (8.2)	109.7 (1.4)	111.2 (4.7)	114.4 (3.3)	113.1 (2.6)	106.4 (1.5)	102.7 (-7.6)	107.5 (-6.0)	103.9 (-8.1)	105.7 (-0.7)
Semiconductor	126.8 (26.8)	136.5 (7.7)	145.1 (22.2)	159.4 (24.9)	149.6 (14.9)	131.9 (-3.5)	115.1 (-20.7)	134.2 (-15.8)	127.2 (-15.0)	143.0 (8.4)
Iron & steel	105.2 (5.2)	96.3 (-8.4)	104.6 (-0.5)	105.3 (0.5)	108.0 (-1.9)	99.1 (-7.6)	100.2 (-4.2)	101.9 (-3.2)	101.9 (-5.6)	98.7 (-0.4)
Cement	103.2 (3.1)	100.2 (-2.9)	99.3 (-1.7)	99.6 (-10.6)	106.7 (0.4)	98.3 (3.3)	92.7 (-6.6)	101.6 (2.0)	82.2 (-23.0)	83.7 (-14.9)
Basic compound	105.9 (5.9)	99.1 (-6.4)	102.7 (-3.3)	98.0 (-4.2)	102.4 (-7.3)	99.4 (-11.8)	95.5 (-7.0)	91.3 (-6.8)	97.8 (-4.5)	95.1 (-4.3)
Transport equipment	106.3 (6.3)	116.0 (9.1)	110.8 (3.8)	119.1 (3.6)	119.2 (9.1)	107.5 (21.3)	128.0 (15.5)	132.0 (10.8)	126.5 (6.1)	116.3 (8.2)
Electric & electronic	107.7 (7.7)	110.8 (2.9)	109.6 (3.7)	114.7 (2.1)	115.6 (3.2)	107.1 (2.0)	107.4 (-2.0)	112.2 (-2.2)	112.1 (-3.0)	104.6 (-2.3)
Service	105.2 (5.2)	112.0 (6.5)	109.7 (6.7)	114.2 (5.7)	112.1 (7.5)	112.1 (9.5)	113.7 (3.6)	117.6 (3.0)	114.2 (1.9)	114.0 (1.7)
Wholesale and retail	105.3 (5.3)	107.1 (1.7)	105.9 (2.3)	106.2 (0.1)	105.3 (0.2)	106.5 (5.7)	105.8 (-0.1)	107.2 (0.9)	103.4 (-1.8)	102.8 (-3.5)
Food & Accommodation	101.9 (1.9)	119.1 (16.9)	116.5 (20.1)	125.2 (18.1)	132.1 (25.6)	129.0 (26.6)	119.3 (2.4)	119.5 (-4.6)	122.3 (-7.4)	122.6 (-5.0)
Production output										
Iron & steel - Pig iron	46 440.5 (2.4)	42 658.2 (-8.1)	29 271.6 (-5.6)	3 699.8 (-2.3)	3 955.1 (-1.5)	3 853.9 (-4.2)	29 893.4 (2.1)	3 716.8 (0.5)	3 965.9 (0.3)	3 893.3 (1.0)
Iron & steel - Crude steel	70 418.0 (5.0)	65 846.2 (-6.5)	46 040.8 (-2.9)	5 584.8 (-6.5)	6 275.5 (2.5)	5 933.5 (-2.8)	44 974.2 (-2.3)	5 529.8 (-1.0)	5 714.0 (-8.9)	5 587.8 (-5.8)
Petrochemical - Basic petrochemicals	34 434.5 (12.7)	32 854.1 (-4.6)	22 803.0 (1.2)	2 573.1 (-2.9)	2 915.8 (-5.9)	2 766.8 (-11.6)	20 383.6 (-10.6)	2 390.1 (-7.1)	2 716.4 (-6.8)	2 598.1 (-6.1)
Petrochemical - Intermediate raw material	15 764.6 (2.6)	13 852.5 (-12.1)	9 519.9 (-9.8)	1 062.2 (-5.3)	1 156.0 (-13.6)	1 195.2 (-17.3)	8 723.8 (-8.4)	975.2 (-8.2)	1 084.7 (-6.2)	993.0 (-16.9)
Petrochemical - 3 major products	23 224.7 (9.2)	22 129.4 (-4.7)	15 614.0 (2.1)	1 790.0 (-3.2)	1 900.5 (-7.8)	1 844.8 (-10.5)	14 232.0 (-8.9)	1 644.7 (-8.1)	1 838.2 (-3.3)	1 891.3 (2.5)
The number of cars	3 462.4 (-1.3)	3 756.5 (8.5)	2 388.1 (1.7)	328.4 (0.8)	324.7 (9.1)	284.4 (21.1)	2 859.7 (19.8)	370.3 (12.8)	353.0 (8.7)	312.0 (9.7)

Note: p means provisional.

Source: Korea Statistical Information Service, Korea Iron & Steel Association, Korea Petrochemical Industry Association

International Energy Prices

	2021	2022					2023			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Crude oil (USD/bbl)										
WTI	67.9 (72.4)	94.2 (38.7)	99.9 (56.1)	114.3 (60.2)	99.4 (37.2)	91.5 (35.1)	75.9 (-24.0)	70.3 (-38.5)	76.0 (-23.5)	81.3 (-11.1)
Dubai	69.3 (64.1)	96.4 (39.1)	101.3 (54.9)	113.3 (58.2)	103.1 (41.4)	96.6 (39.0)	80.2 (-20.9)	75.0 (-33.8)	80.4 (-22.0)	86.5 (-10.5)
Brent	70.8 (63.8)	98.9 (39.7)	103.8 (55.2)	117.5 (60.1)	105.1 (41.5)	97.7 (38.6)	80.7 (-22.2)	75.0 (-36.2)	80.2 (-23.7)	85.1 (-12.9)
Unit value of import (C&F)	70.2 (56.9)	102.3 (45.6)	104.6 (58.6)	117.0 (65.7)	115.6 (56.3)	107.6 (46.1)	83.6 (-20.1)	79.0 (-32.5)	80.2 (-30.6)	84.9 (-21.1)
LNG										
Henry Hub (USD/MMBTU)	3.7 (74.6)	6.5 (75.2)	6.5 (108.9)	7.6 (132.2)	7.2 (88.4)	8.8 (117.8)	2.6 (-60.6)	2.5 (-67.4)	2.6 (-63.3)	2.6 (-69.9)
TTF (USD/MMBTU)	16.0 (396.1)	40.1 (150.0)	39.1 (324.0)	33.4 (225.6)	51.8 (314.4)	69.7 (351.5)	13.1 (-66.6)	10.3 (-69.1)	9.6 (-81.5)	11.2 (-83.9)
JKM (USD/MMBTU)	17.9 (324.7)	33.9 (89.5)	33.2 (207.9)	29.7 (156.6)	39.4 (185.7)	53.2 (225.3)	14.0 (-57.8)	10.6 (-64.3)	11.4 (-70.9)	12.4 (-76.6)
Unit value of import (USD/ton, CIF)	550.8 (41.2)	1 053.5 (91.3)	926.3 (101.9)	762.1 (65.4)	1 032.6 (107.3)	1 198.8 (124.1)	832.9 (-10.1)	687.7 (-9.8)	620.6 (-39.9)	660.0 (-44.9)
Coal (USD/ton)										
Thermal coal (Newcastle)	136.0 (125.8)	356.3 (161.9)	337.1 (201.4)	395.0 (215.3)	408.4 (179.9)	404.9 (142.2)	188.1 (-44.2)	130.5 (-67.0)	135.1 (-66.9)	146.6 (-63.8)
Unit value of import (CIF)	115.1 (48.1)	226.3 (96.7)	234.2 (150.3)	258.8 (164.3)	254.6 (147.9)	242.4 (111.2)	181.9 (-22.3)	165.4 (-36.1)	151.1 (-40.6)	147.4 (-39.2)
Petroleum product (USD/bbl)										
Gasoline	80.3 (72.2)	115.2 (43.4)	125.2 (67.4)	155.2 (93.2)	121.7 (42.6)	110.9 (37.0)	98.3 (-21.5)	92.7 (-40.3)	99.0 (-18.7)	107.7 (-2.9)
Kerosene	75.1 (67.9)	126.7 (68.6)	130.5 (87.9)	164.3 (116.4)	134.9 (74.6)	132.2 (78.5)	101.4 (-22.3)	90.0 (-45.2)	98.9 (-26.7)	116.6 (-11.8)
Diesel	77.6 (57.2)	135.3 (74.3)	139.5 (93.8)	176.8 (124.3)	145.3 (81.9)	139.7 (82.5)	103.5 (-25.8)	92.2 (-47.8)	101.8 (-30.0)	119.4 (-14.6)
Bunker-C	64.4 (64.3)	82.3 (27.8)	91.8 (51.5)	99.1 (53.1)	79.4 (19.9)	78.2 (20.0)	70.0 (-23.7)	66.9 (-32.5)	75.0 (-5.5)	85.1 (8.8)
Propane	647.9 (63.2)	737.1 (13.8)	793.1 (36.6)	750.0 (41.5)	725.0 (16.9)	670.0 (1.5)	566.3 (-28.6)	450.0 (-40.0)	400.0 (-44.8)	470.0 (-29.9)
Butane	629.6 (55.9)	734.2 (16.6)	795.0 (40.9)	750.0 (42.9)	725.0 (16.9)	660.0 (0.8)	563.8 (-29.1)	440.0 (-41.3)	375.0 (-48.3)	460.0 (-30.3)
Naphtha	70.6 (74.6)	83.1 (17.7)	90.0 (36.7)	84.3 (19.6)	81.6 (8.1)	72.0 (1.8)	67.9 (-24.5)	56.9 (-32.6)	62.1 (-23.9)	70.2 (-2.5)

Note: 1.() is year-on-year growth rates(%).

2.Gasoline type is 95RON, diesel is 0.001%, Bunker-C is high-sulfur oil(180cst/3.5%), for propane and butane, CP is reference value.

Source: Korea National Oil Corporation, World Bank, Korea Energy Economics Institute, CME Group, Korea International Trade Association

Domestic Energy Prices

	2021	2022					2023			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Petroleum product										
Gasoline (won/liter)	1 590.5 (15.1)	1 812.4 (14.0)	1 892.3 (22.6)	2 084.0 (32.1)	2 030.0 (24.6)	1 792.2 (8.9)	1 610.8 (-14.9)	1 580.6 (-24.2)	1 585.5 (-21.9)	1 716.8 (-4.2)
Diesel (won/liter)	1 391.3 (16.9)	1 841.8 (32.4)	1 843.9 (37.5)	2 089.0 (52.0)	2 084.9 (46.3)	1 889.3 (31.2)	1 524.2 (-17.3)	1 394.5 (-33.2)	1 396.5 (-33.0)	1 573.2 (-16.7)
Bunker-C (won/liter)	731.7 (27.6)	1 115.2 (52.4)	1 134.3 (65.8)	1 229.3 (74.0)	1 405.7 (93.0)	1 305.3 (74.0)	900.3 (-20.6)	879.3 (-28.5)	883.3 (-37.2)	880.5 (-32.5)
Propane (won/kg)	2 092.6 (13.1)	2 479.6 (18.5)	2 488.6 (23.9)	2 558.8 (28.0)	2 531.2 (24.3)	2 522.4 (19.3)	2 372.2 (-4.7)	2 374.2 (-7.2)	2 287.5 (-9.6)	2 242.8 (-11.1)
Butane (won/liter)	931.8 (17.8)	1 081.7 (16.1)	1 103.3 (24.7)	1 133.7 (29.1)	1 100.2 (21.4)	1 088.8 (14.3)	964.3 (-12.6)	961.0 (-15.2)	905.3 (-17.7)	870.4 (-20.1)
City gas(won/MJ)										
Residential	14.2 (-5.7)	16.6 (16.7)	15.4 (8.2)	15.9 (11.6)	17.0 (19.5)	17.0 (19.5)	20.2 (31.4)	20.7 (30.6)	20.7 (22.0)	20.7 (22.0)
General(1)	13.9 (-6.5)	16.3 (17.3)	15.1 (8.7)	15.5 (12.1)	16.6 (20.2)	16.6 (20.2)	19.9 (32.0)	20.4 (31.4)	20.4 (22.6)	20.4 (22.6)
Commercial	17.2 (14.2)	28.7 (66.6)	25.4 (62.7)	22.7 (46.2)	24.9 (54.0)	30.9 (79.4)	27.6 (9.0)	23.3 (2.2)	24.0 (-3.4)	22.8 (-26.2)
Industry	14.4 (14.2)	25.9 (79.9)	22.6 (75.8)	19.7 (60.0)	21.8 (69.1)	27.9 (99.3)	25.0 (10.6)	20.3 (3.0)	21.1 (-3.5)	19.9 (-28.7)
Heat(won/Mcal)										
Residential	65.2 (-1.4)	74.1 (13.7)	68.2 (4.6)	67.0 (2.7)	74.5 (14.2)	74.5 (14.2)	93.3 (36.9)	94.2 (40.6)	101.6 (36.4)	101.6 (36.4)
Commercial	84.7 (-1.4)	96.3 (13.7)	88.5 (4.6)	87.0 (2.7)	96.7 (14.2)	96.7 (14.2)	121.2 (36.9)	122.3 (40.6)	131.9 (36.4)	131.9 (36.4)
Public	74.0 (-1.4)	84.1 (13.7)	77.3 (4.5)	76.0 (2.7)	84.5 (14.2)	84.5 (14.2)	105.8 (36.8)	106.8 (40.6)	115.2 (36.3)	115.2 (36.3)
Electricity(won/kWh)										
Residential	142.3 (-3.4)	147.8 (3.9)	145.4 (2.2)	147.2 (3.4)	147.2 (3.4)	147.2 (3.4)	170.0 (16.9)	174.0 (18.2)	174.0 (18.2)	174.0 (18.2)
General	79.4 (-5.9)	84.9 (7.0)	85.2 (3.7)	105.6 (4.9)	105.6 (4.9)	105.6 (4.9)	109.9 (28.9)	132.4 (25.4)	132.4 (25.4)	132.4 (25.4)
Industry	91.0 (-5.2)	98.8 (8.6)	95.3 (3.3)	108.4 (4.7)	108.4 (4.7)	108.4 (4.7)	129.2 (35.5)	144.4 (33.2)	144.4 (33.2)	144.4 (33.2)

Note: 1. () is year-on-year growth rates(%).

2. Electricity prices are based on Residential(High-voltage, 201-400kWh), General((A) I , Low-voltage), Industry((B), High-voltageB, optionII mid-load).
Source: Korea National Oil Corporation, Seoul City Gas, Korean District Heating Corporation, Korea Electric Power Corporation

Total Primary Energy Demand (TPED)

	2021	2022p					2023p			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Coal (Mton)	122.8 (0.6)	117.0 (-4.7)	79.4 (-2.5)	9.9 (-0.2)	11.4 (-3.6)	11.0 (-7.9)	73.9 (-7.0)	8.9 (-10.0)	10.0 (-11.5)	10.3 (-5.8)
- Coking coal excluded	97.2 (-0.1)	93.4 (-4.0)	63.3 (-1.7)	7.9 (0.3)	9.2 (-4.2)	8.9 (-8.8)	58.1 (-8.2)	6.9 (-13.0)	7.9 (-13.7)	8.3 (-6.3)
Oil (Mbbl)	830.7 (7.1)	814.5 (-1.9)	547.3 (0.6)	60.1 (-12.9)	69.8 (-0.2)	70.4 (0.7)	516.1 (-5.7)	59.6 (-0.9)	66.5 (-4.6)	63.5 (-9.8)
LNG (Mton)	45.8 (10.4)	45.6 (-0.5)	30.5 (-0.1)	3.0 (-2.7)	3.3 (-3.6)	3.0 (-3.0)	29.0 (-5.0)	2.9 (-3.7)	3.2 (-3.2)	3.2 (7.4)
Hydro (TWh)	3.1 (-21.2)	3.5 (15.9)	2.4 (9.5)	0.3 (-28.6)	0.4 (8.3)	0.7 (141.2)	2.5 (3.3)	0.3 (13.9)	0.7 (70.8)	0.4 (-39.0)
Nuclear (TWh)	158.0 (-1.4)	176.1 (11.4)	118.3 (15.7)	14.7 (30.2)	15.4 (24.8)	16.3 (27.6)	118.4 (0.0)	14.2 (-3.8)	15.8 (3.0)	15.9 (-2.7)
Others (Mtoe)	14.4 (13.8)	15.9 (10.5)	10.8 (11.4)	1.3 (10.4)	1.4 (15.4)	1.4 (16.6)	11.4 (5.6)	1.4 (8.7)	1.5 (6.1)	1.6 (16.2)
TPED (Mtoe)	304.9 (5.2)	306.2 (0.5)	206.8 (2.5)	23.7 (-0.8)	26.4 (2.6)	26.1 (2.3)	198.5 (-4.0)	22.9 (-3.3)	25.4 (-3.9)	25.0 (-4.0)

Note: p means provisional, () is year-on-year growth rates (%).
Source: Korea Energy Economics Institute

Share of TPED by Sources

(unit: %)

	2021	2022p					2023p			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Coal	24.4	23.1	23.3	25.3	26.0	25.4	22.6	23.8	24.0	24.9
- Coking coal excluded	18.6	17.7	17.8	19.5	20.3	19.7	17.0	17.6	18.2	19.3
Oil	39.9	39.7	39.4	38.9	39.5	40.4	39.2	39.8	39.8	37.9
LNG	19.6	19.5	19.3	16.5	16.2	15.0	19.1	16.4	16.3	16.7
Hydro	0.2	0.2	0.2	0.3	0.3	0.6	0.3	0.3	0.6	0.4
Nuclear	11.0	12.2	12.2	13.3	12.4	13.3	12.7	13.2	13.3	13.5
Others	4.7	5.2	5.2	5.5	5.2	5.2	5.7	6.2	5.8	6.3
TPED	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: p means provisional.
Source: Korea Energy Economics Institute

Total Final Consumption (TFC)

(Unit: Mtoe)

	2021	2022p					2023p			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Industry	134.6 (7.5)	131.7 (-2.2)	89.6 (1.0)	10.6 (-2.6)	11.4 (-0.4)	11.0 (-3.7)	84.6 (-5.5)	10.1 (-4.8)	10.9 (-4.5)	10.7 (-2.7)
Transport	36.6 (5.4)	36.3 (-0.9)	24.0 (-0.7)	2.7 (-17.8)	3.2 (2.7)	3.6 (15.8)	23.5 (-1.9)	3.0 (9.6)	3.3 (1.3)	2.9 (-18.6)
Residential	22.9 (2.6)	23.2 (1.2)	15.7 (2.1)	1.0 (-7.4)	1.0 (7.9)	1.2 (0.6)	14.6 (-7.1)	1.0 (-0.7)	1.0 (-2.3)	1.2 (0.1)
commercial	17.9 (1.7)	18.9 (5.4)	12.8 (6.4)	1.4 (3.6)	1.6 (7.6)	1.7 (8.0)	12.8 (0.3)	1.4 (1.9)	1.5 (-0.6)	1.7 (2.6)
Public	5.2 (4.0)	5.3 (2.3)	3.6 (1.9)	0.4 (5.0)	0.5 (17.0)	0.4 (4.6)	3.5 (-0.7)	0.4 (0.0)	0.4 (-3.2)	0.4 (3.5)
TFC	217.3 (6.0)	215.5 (-0.9)	145.6 (1.3)	16.0 (-5.2)	17.6 (1.7)	17.8 (1.2)	139.1 (-4.5)	15.8 (-1.5)	17.1 (-2.9)	16.9 (-5.0)
Coal (Mton)	53.8 (4.9)	49.9 (-7.4)	33.9 (-4.2)	4.3 (3.4)	4.3 (-5.0)	4.2 (-8.3)	32.4 (-4.5)	4.0 (-7.2)	4.1 (-3.3)	4.0 (-5.3)
Oil (Mbbbl)	809.1 (7.6)	798.9 (-1.3)	537.5 (1.5)	59.3 (-11.7)	68.5 (1.1)	69.3 (1.9)	505.5 (-5.9)	58.8 (-0.8)	65.6 (-4.2)	63.4 (-8.6)
- Non-energy oil excluded	350.6 (4.3)	345.8 (-1.4)	225.8 (-1.7)	24.1 (-20.0)	27.8 (-1.5)	31.4 (15.0)	220.8 (-2.2)	26.1 (8.4)	29.0 (4.4)	26.5 (-15.6)
Electricity (TWh)	520.3 (4.7)	535.3 (2.9)	362.4 (4.1)	42.1 (2.7)	47.4 (5.9)	49.1 (2.7)	359.5 (-0.8)	42.2 (0.4)	45.7 (-3.6)	49.5 (0.8)
City gas (Bm³)	22.7 (3.3)	23.4 (2.9)	16.1 (4.4)	1.2 (-1.2)	1.2 (6.6)	1.1 (-0.2)	14.7 (-8.4)	1.1 (-7.4)	1.1 (-9.6)	1.0 (-4.5)
Heat:others (1 000 toe)	9.8 (6.3)	10.0 (1.9)	6.7 (2.9)	0.7 (1.6)	0.7 (11.2)	0.7 (12.9)	6.5 (-3.0)	0.7 (-1.9)	0.8 (6.2)	0.8 (7.5)

Note: p means provisional, () is year-on-year growth rates (%).

Source: Korea Energy Economics Institute

Share of the Total Final Consumption by Sources

(unit: %)

	2021	2022p					2023p			
			M1~8	M6	M7	M8	M1~8	M6	M7	M8
Industry	61.9	61.1	61.5	66.2	64.5	61.9	60.8	63.9	63.4	63.4
Transport	16.9	16.8	16.5	16.8	18.2	19.9	16.9	18.7	19.0	17.1
Residential	10.6	10.8	10.8	6.0	5.9	6.5	10.5	6.1	5.9	6.8
Commercial	8.3	8.8	8.8	8.5	8.8	9.3	9.2	8.8	9.0	10.0
Public	2.4	2.5	2.4	2.4	2.6	2.4	2.5	2.5	2.6	2.6
TFC	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Coal	15.6	14.7	14.8	17.1	15.6	15.1	14.9	16.3	15.5	15.1
Oil	47.5	47.2	46.9	47.1	49.1	49.8	46.2	47.6	48.8	47.3
- Non-energy oil excluded	21.5	21.3	20.6	20.0	20.9	23.7	20.9	21.9	22.4	20.5
Electricity	20.6	21.4	21.4	22.6	23.1	23.7	22.2	23.0	23.0	25.1
City gas	11.7	12.1	12.2	8.9	8.0	7.3	12.0	8.8	8.1	7.8
Heat:others	4.5	4.7	4.6	4.3	4.1	4.1	4.7	4.3	4.5	4.6

Note: p means provisional.

Source: Korea Energy Economics Institute

Statistics on Energy Production Facilities

	2020	2021	2022	2023			2023		
				M6	M7	M8	M6	M7	M8
Total capacity (GW)	129.2 (3.1)	134.0 (3.7)	138.0 (3.0)	134.2 (2.4)	134.3 (2.3)	134.7 (2.3)	141.0 (5.0)	142.6 (6.2)	143.4 (6.5)
Nuclear	23.3 -	23.3 -	24.7 (6.0)	23.3 -	23.3 -	23.3 -	24.7 (6.0)	24.7 (6.0)	24.7 (6.0)
Bituminous coal	36.5 (0.1)	36.9 (1.3)	37.3 (1.0)	36.3 (-0.4)	36.3 (-0.4)	36.3 (-0.4)	38.2 (5.4)	38.2 (5.4)	38.3 (5.6)
Gas	41.2 (4.1)	41.2 (0.1)	41.2 -	41.2 (0.1)	41.2 (0.1)	41.2 (0.1)	41.7 (1.2)	43.1 (4.5)	43.2 (4.8)
Refinery capacity (mil BPSD)	3.2 -	3.2 -	3.2 -	3.2 -	3.2 -	3.2 -	3.2 -	3.2 -	3.2 -

Note: () is year-on-year growth rates (%).

Source: Korea Electric Power Corporation, Korea National Oil Corporation

Statistics on Energy Consumption

	2020	2021	2022	2023			2023		
				M6	M7	M8	M6	M7	M8
The number of household demanding city gas (mil)	20.1 (2.4)	20.5 (2.0)	20.9 (1.7)	20.6 (2.3)	20.6 (2.0)	20.6 (2.3)	20.8 (1.1)	20.8 (1.2)	20.8 (0.9)
Registered cars (mil)	24.4 (2.9)	24.9 (2.2)	25.5 (2.4)	25.2 (2.3)	25.3 (2.3)	25.3 (2.3)	25.8 (2.1)	25.8 (2.0)	25.8 (1.9)
- gasoline	11.4 (4.1)	11.8 (3.1)	12.1 (2.6)	11.9 (2.7)	12.0 (2.7)	12.0 (2.6)	12.2 (2.6)	12.2 (2.4)	12.3 (2.4)
- diesel	10.0 (0.3)	9.9 (-1.2)	9.8 (-1.2)	9.8 (-1.0)	9.8 (-1.1)	9.8 (-1.1)	9.6 (-1.9)	9.6 (-2.0)	9.6 (-2.2)
- LPG	2.0 (-1.3)	1.9 (-1.7)	1.9 (-2.1)	1.9 (-1.9)	1.9 (-1.9)	1.9 (-1.9)	1.9 (-3.0)	1.9 (-3.2)	1.9 (-3.5)
- hybrid	0.6 (33.1)	0.9 (34.0)	1.1 (28.5)	1.0 (32.2)	1.0 (31.7)	1.0 (31.0)	1.3 (29.4)	1.3 (29.4)	1.3 (29.7)

Note: () is year-on-year growth rates (%).

Source: Korea City Gas Association, Ministry of Land, Infrastructure and Transport