

KEEI MONTHLY KOREA ENERGY TRENDS

2023/08
KOREA ENERGY ECONOMICS INSTITUTE

COAL	-9.5%
PETROLEUM	-8.4%
GAS	-0.3%
NUCLEAR	-1.0%
NEW & RENEWABLE	-5.7%
May. 2023	

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



Table of Contents

1.	The Economy and the Industry.....	5
2.	Energy Prices	7
3.	Energy Supply	11
4.	Energy Consumption	12
5.	Coal	14
6.	Petroleum	15
7.	Gas.....	16
8.	Electricity.....	18
9.	Nuclear	19
10.	Heat and Renewable energy	20
11.	Industry	22
12.	Transport	23
13.	Building.....	24
14.	Power Generation	25
App.	Major Indicators & Statistics of Energy Supply and Demand	26



1. The Economy and the Industry

- **The industrial production index has decreased for eight consecutive months until May due to weak production in most of the subsectors amid a prolonged slump in the manufacturing industry.**
 - The semiconductor production index dropped by 16.7% year-on-year as a result of the production cut by domestic manufacturers in the midst of sluggish business, base effect, lower exports and higher inventory levels, though it has been decreasing more slowly since February.
 - The production index of basic chemical materials fell by 6.2% year-on-year, as domestic demand for and exports of petrochemical products decreased (-17.1%, -3.6%) amid business contraction. The pace of the decline, however, has been slowing for three months in a row.
 - The iron & steel production index was down 2.6% year-on-year despite the favorable conditions in some of the industries that are major source of demand such as the automobile sector, as sluggish construction business led to lower outputs of iron & steel products used for construction projects such as bar type products.
 - The automobile production index was up 18.5% year-on-year, continuing the upward trend for 13 consecutive months, affected by stronger domestic and global demands for eco-friendly cars and the launch of new models by some manufacturers, and as the parts supply issue was addressed.

- **The service production index went up by 1.9% year-on-year, although the growth has been slowing for four straight months, as production declined in some of the sectors.**
 - The production index of the wholesale & retail industries fell by 1.4% year-on-year, marking the 2nd consecutive month of decline, as wholesale and retail production decreased except in the motor vehicles and parts sales business amid rising prices and weak consumption.
 - The food & accommodation production index declined by 4.9%, ending the upward trend since December 2021, because the production plunged in some of the subsectors (i.e. food and beverage businesses) except the accommodation business.

► Major economic and industrial indicators

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
GDP (trillion won)	1 968.8 (2.8)	468.0 (3.1)	- -	472.2 (0.9)	472.2 (0.9)	- -	- -
Total export (\$billion, customs clearance basis)	683.6 (6.1)	292.8 (17.9)	61.6 (21.4)	252.9 (-13.6)	54.9 (-13.9)	49.5 (-14.5)	52.1 (-15.4)
Industrial production index (2020=100)	109.7 (1.4)	111.1 (6.1)	113.4 (8.6)	101.0 (-9.2)	108.9 (-7.6)	101.6 (-9.1)	104.8 (-7.6)
Semi-conductors	136.5 (7.7)	143.9 (29.7)	149.5 (26.7)	103.9 (-27.8)	113.1 (-26.9)	110.4 (-21.1)	124.6 (-16.7)
Basic chemical products	99.1 (-6.4)	104.4 (-0.4)	101.0 (-2.9)	96.1 (-7.9)	99.6 (-8.7)	94.4 (-7.5)	94.7 (-6.2)
Iron&Steel	96.3 (-8.4)	104.8 (1.0)	106.6 (0.7)	100.0 (-4.6)	107.9 (0.2)	101.8 (-1.0)	103.8 (-2.6)
Cars	116.0 (9.1)	108.1 (-0.1)	114.4 (14.9)	129.7 (19.9)	142.6 (27.1)	133.2 (16.7)	135.6 (18.5)
Service production index (2020=100)	112.0	107.8	112.8	112.8	117.5	113.9	114.9

	(6.5)	(6.1)	(7.8)	(4.7)	(6.0)	(2.9)	(1.9)
Wholesale & Retail	107.1	105.9	109.7	106.7	112.0	105.3	108.2
	(1.7)	(2.5)	(4.7)	(0.8)	(0.5)	(-2.6)	(-1.4)
Food & Accommodation	119.1	109.2	129.5	118.0	119.9	119.5	123.2
	(16.9)	(17.8)	(21.0)	(8.1)	(17.9)	(1.7)	(-4.9)

Note: Figures are based on the real price of 2015, P means provisional, () is year-on-year growth rates (%)
Source: Bank of Korea, Korea International Trade Association, Korea Statistical Information Service

2. Energy Prices¹

Global Energy Prices

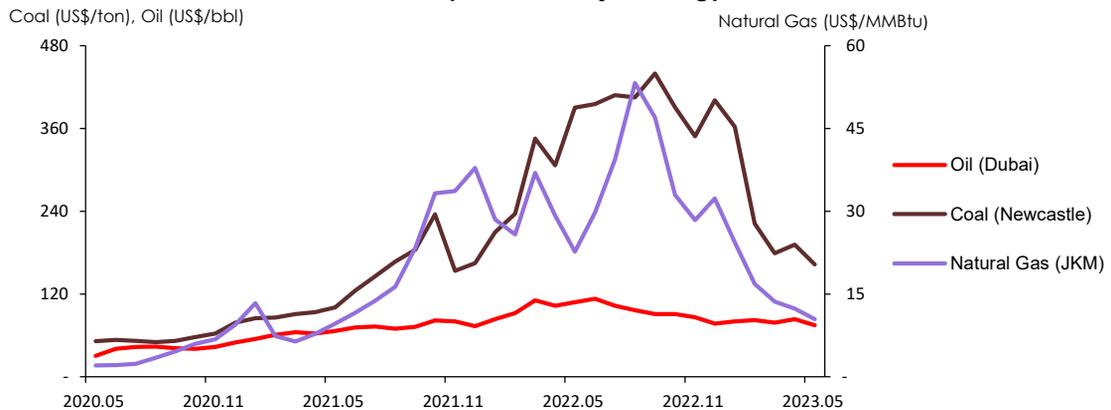
- **Global oil price decreased by 10.2% in May from the previous month, as difficulties of debt ceiling negotiations triggered concerns about the economic slowdown.**
 - The US Republican Party urged the Biden administration to cut government spending by abolishing the climate change fund and ending the student loan forgiveness plan, and the US Treasury Secretary Janet Yellen warned that the US could default on June 1, if the congress fails to lift debt ceiling, raising uncertainties about the debt ceiling negotiation, and accordingly, concerns about the economic slowdown has increased.
 - Global steam coal price decreased in May, which was affected by a drop in global oil prices, a seasonal slowdown in demand and the sluggish Chinese economy.
 - Global natural gas price fell sharply in May, because demand decreased due to high inventory levels.

► Global energy prices

	2021	2022			2023			
			M3	M4	M5	M3	M4	M5
Crude oil (US\$/bbl)	69.3 (64.2)	96.4 (39.1)	110.9 (20.1)	102.8 (-7.3)	108.2 (5.2)	78.5 (-4.4)	83.4 (6.3)	75.0 (-10.2)
Coal (US\$/ton)	136.4 (126.5)	357.1 (161.8)	345.3 (46.1)	306.6 (-11.2)	390.4 (27.3)	179.3 (-19.3)	191.8 (7.0)	163.2 (-14.9)
Natural gas (US\$/MMBtu)								
TTF	16.1 (397.9)	40.2 (149.6)	41.8 (55.2)	31.8 (-23.9)	29.0 (-9.0)	13.7 (-16.9)	13.4 (-2.3)	10.0 (-25.7)
JKM	17.9 (325.7)	33.9 (89.2)	37.0 (43.1)	29.2 (-20.9)	22.7 (-22.3)	13.6 (-19.4)	12.3 (-9.2)	10.5 (-15.3)

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 This report presents the energy price trend of the month for which energy consumption data is available. For more on the latest price trend, see *Energy Supply and Demand Brief*.

Domestic energy prices

- **The prices of gasoline and diesel at gas stations dropped by 0.7% and 4.2% respectively in May than the prior month, reflecting the downward trend in global prices.**
 - Gasoline price declined for the first time in three months, and diesel price fell for the sixth consecutive month (-4.2%).
 - The retail price of LPG remained flat compared to the previous month, as domestic LPG importers (SK Gas, E1) fixed their supply prices.
 - The relative price of propane to city gas for industrial customers (propane/city gas) went up by 14.6% from the previous month to 1.24.

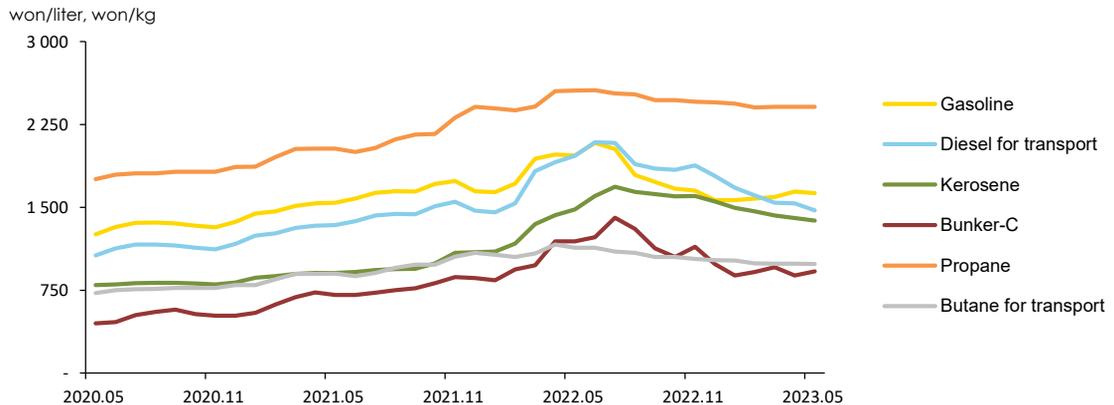
► Domestic petroleum product prices

	2021	2022			2023			
			M3	M4	M5	M3	M4	M5
Gasoline (won/liter)	1 591.2 (15.2)	1 812.7 (13.9)	1 938.5 (13.1)	1 976.5 (2.0)	1 967.1 (-0.5)	1 592.2 (0.9)	1 640.9 (3.1)	1 628.8 (-0.7)
Diesel for transport (won/liter)	1 392.0 (17.0)	1 843.4 (32.4)	1 827.0 (18.9)	1 906.4 (4.3)	1 964.2 (3.0)	1 539.7 (-4.2)	1 535.7 (-0.3)	1 472.0 (-4.2)
Bunker-C (won/liter)	732.2 (27.8)	1 116.1 (52.4)	974.0 (3.9)	1 191.7 (22.3)	1 190.4 (-0.1)	956.9 (4.5)	882.5 (-7.8)	920.7 (4.3)
Propane (won/kg)	2 093.4 (13.1)	2 480.1 (18.5)	2 412.1 (1.4)	2 552.2 (5.8)	2 558.2 (0.2)	2 409.7 (0.2)	2 409.0 (-0.0)	2 408.8 (-0.0)
Butane for transport (won/liter)	932.3 (17.9)	1 081.8 (16.0)	1 083.0 (3.1)	1 163.2 (7.4)	1 134.6 (-2.5)	989.4 (-0.3)	988.3 (-0.1)	987.8 (-0.1)

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



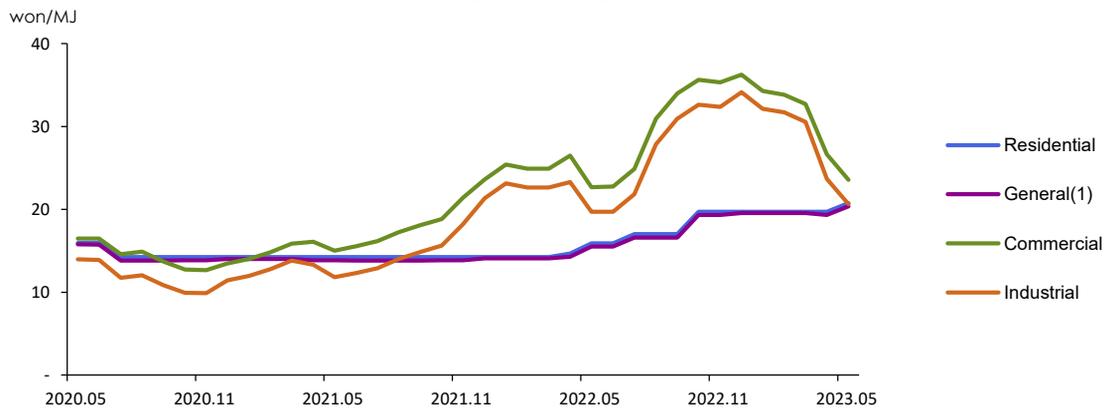
□ **City gas rates for residential and general use increased in May from the previous month, while the rates for office heating and industrial use decreased.**

- City gas rates for residential and general use went up by around 5% respectively, because its material cost increased (1.0 won/MJ), and the supply price also slightly increased.
- City gas rates for office heating and industrial use are adjusted every month according to the fuel cost pass-through scheme, and the rates fell by 11.6% and 12.8% respectively in May than the prior month, as the material cost decreased (-3.2 won/MJ), a result of lower LNG import cost.
- The accumulated factors that could have raised the material cost of city gas for civilian use were reflected, and global natural gas prices were also reflected in the material cost of city gas for commercial use. Consequently, the residential city gas rate surpassed the industrial city gas rate for the first time in one year and nine months since August 2021.
- City gas rates for residential, general, office heating and industrial use went up by 30.6%, 31.3%, 3.8%, and 4.7% respectively on a year-on-year basis to 20.7 won, 20.4 won, 23.5 won and 20.6 won per MJ.

□ **Electric rates for residential, general and industrial use rose by 4.4%, 8.2% and 6.6% respectively in May compared to the previous month, as energy charge was raised.**

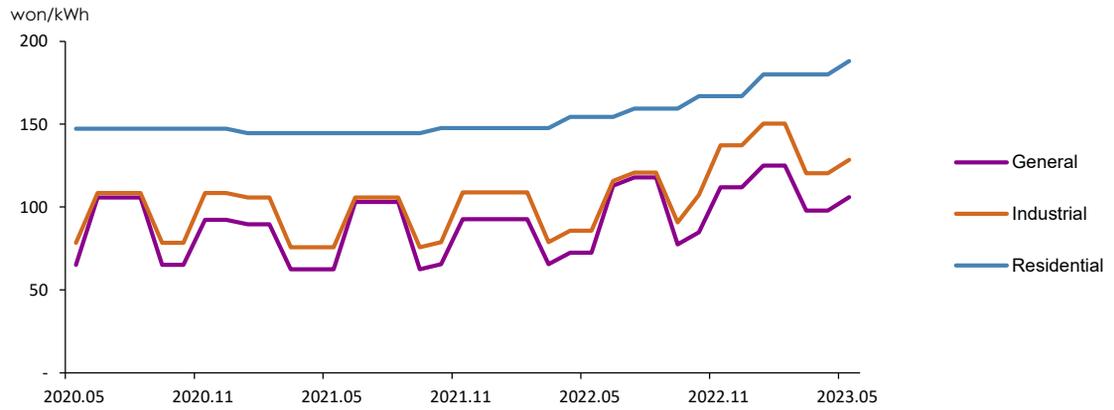
- Energy charge was raised for the first time in four months (8.0 won/kWh) since January (11.4 won/kWh), and it was thus raised by 19.4 won/kWh this year in total.
- On a year-on-year basis, electric rates for residential, general and industrial use went up by 21.7%, 46.3% and 49.8% respectively to 188.0 won, 105.9 won and 128.4 won per kWh.

▶ **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 declined by 2.1% year-on-year in May, as the import of all energy sources declined except crude oil.**
 - The import volume of crude oil grew by 5.1% year-on-year, as the unit import price of crude oil from major oil producing countries decreased, and especially the price of Middle Eastern crude that accounts for about 70% of the total import volume has been steadily decreasing since February.
 - The import volume of petroleum products dropped by 5.5% year-on-year, as the import of naphtha and LPG continued to decrease.
 - The import volume of coal fell by 11.3%, as the import of bituminous coal that accounts for the largest share of the total decreased by 9.7% year-on-year due to falling demand as a power generation input (-8.8%) and as a raw material for iron & steel production.
 - The import volume of natural gas went down by 7.9% year-on-year despite lower unit import price (-19.1%, Australian natural gas), as gas use declined in the power generation sector as a result of lower amount of gas input.
 - The total energy export & import values fell by 24.0% and 34.8% respectively on a year-on-year basis due to a drop in unit export & import prices.

► Import and domestic production of energy

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Import volume (Mtoe)	333.4 (2.8)	139.1 (7.4)	26.3 (3.8)	137.7 (-1.0)	29.4 (1.4)	24.2 (-6.4)	25.8 (-2.1)
Crude oil (Mbbl)	1 031.3 (7.4)	427.5 (10.1)	81.6 (0.8)	427.5 (0.0)	91.8 (7.3)	81.1 (-5.9)	85.8 (5.1)
Petroleum product (Mbbl)	367.1 (-6.4)	158.1 (5.7)	28.6 (-7.5)	150.5 (-4.8)	31.3 (-0.9)	24.4 (-15.0)	27.0 (-5.5)
Coal (Mton)	125.6 (-0.4)	50.1 (6.1)	10.5 (17.9)	49.2 (-1.7)	11.1 (12.1)	8.4 (-1.1)	9.3 (-11.3)
LNG (Mton)	46.4 (1.0)	20.3 (1.2)	3.4 (-0.2)	20.2 (-0.4)	4.0 (-18.5)	3.2 (-8.5)	3.1 (-7.9)
Import value (billion US\$, CIF)	222.8 (58.0)	89.8 (88.0)	17.7 (77.9)	79.9 (-11.0)	16.8 (-15.2)	13.0 (-26.3)	13.5 (-24.0)
Energy share of total import value (%)	30.4	29.8	28.1	28.4	28.1	25.0	24.8
Foreign energy dependence (%)	94.2	94.0	93.1	93.7	93.1	92.9	93.2
Export volume (Mtoe)	69.0 (11.2)	27.5 (15.5)	6.0 (7.4)	28.6 (3.9)	6.0 (6.8)	5.2 (-4.9)	6.3 (4.6)
Export value (billion US\$, FOB)	63.1 (63.5)	25.2 (91.4)	6.5 (110.2)	21.3 (-15.3)	4.5 (-18.6)	3.7 (-29.0)	4.3 (-34.8)
Domestic production							
Hydropower (TWh)	3.5 (15.9)	1.0 (-10.4)	0.2 (-26.6)	1.0 (2.7)	0.2 (-12.7)	0.2 (-6.6)	0.3 (21.6)
Renewable energy (Mtoe)	16.0 (11.0)	6.8 (10.2)	1.5 (20.5)	6.8 (1.3)	1.5 (14.2)	1.4 (0.6)	1.4 (-6.6)

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) decreased by 4.9% year-on-year in May, as the demand for all energy sources decreased.**
 - Coal use fell more sharply, as its industrial use started to decline, led by the iron & steel sector, and it continued to plunge in the power generation sector.
 - Gas use dropped in the power generation and building sectors, while its industrial use increased, driven by growing natural gas use for captive power plants despite a drop in industrial production amid the worsening economic situation. As a result, the total gas use declined much more slowly.
 - Petroleum use continued to drop rapidly, even though its industrial use fell more slowly, as it started to decrease in the transport sector. The use of nuclear energy slightly decreased despite the effect of the commissioning of Shin Hanul unit 1 (December 2022) due to the growth in preventive maintenance.

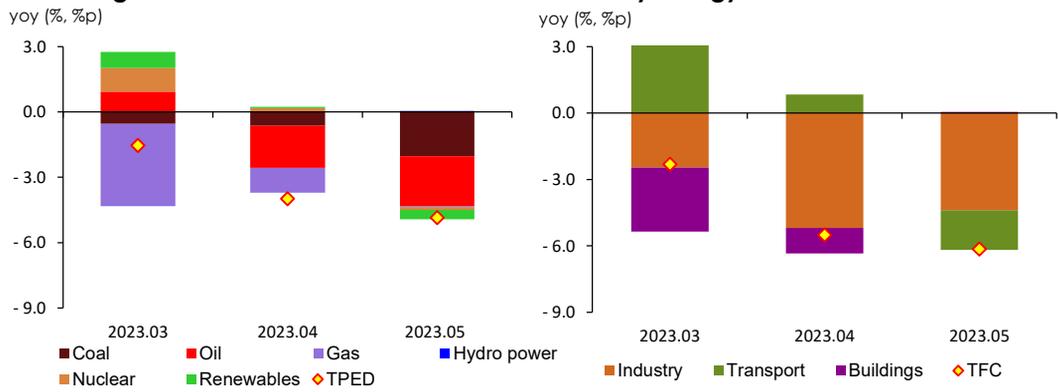
- **Total Final Consumption (TFC) decreased by 6.1% year-on-year in May, as energy use declined in the industrial and transport sectors due to the economic recession and higher energy prices.**
 - Industrial energy use fell by 8.1% year-on-year, even though the number of work days increased by 0.5 day, as the production decreased in most of the subsectors except the machinery & transport equipment sectors partly owing to the economic downturn at home and abroad.
 - Transport energy use dropped by almost 9% compared to the same month last year due to the base effect of the same period last year when gas stations' stockpiling demand surged following the additional fuel tax cuts. In the aviation sector, energy use also declined, as the number of domestic flights decreased amid growing overseas travel.
 - Energy use in buildings slightly increased, led by the residential sector despite higher energy rates, though it decreased in the commercial sector, which was due to the base effect of the same month last year when energy use fell by 7.9% in the residential sector and grew by 8.9% in the commercial sector following the termination of social distancing rules.

► Energy consumption

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
TPED (Mtoe)	304.5	129.9	24.6	124.5	25.7	22.5	23.4
	(0.4)	(3.1)	(3.2)	(-4.1)	(-1.5)	(-4.0)	(-4.9)
TFC (Mtoe)	214.0	93.5	17.3	88.5	18.2	15.9	16.3
	(-0.8)	(2.6)	(3.7)	(-5.3)	(-2.3)	(-5.5)	(-6.1)
- Feedstock exclude	141.7	62.2	11.3	59.8	12.1	10.4	10.6
	(0.4)	(1.8)	(5.4)	(-3.9)	(-1.3)	(-1.5)	(-5.9)

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 dropped by 9.5% year-on-year in May, as it started to decline in the industrial sector and fell more sharply in the power generation sector.**

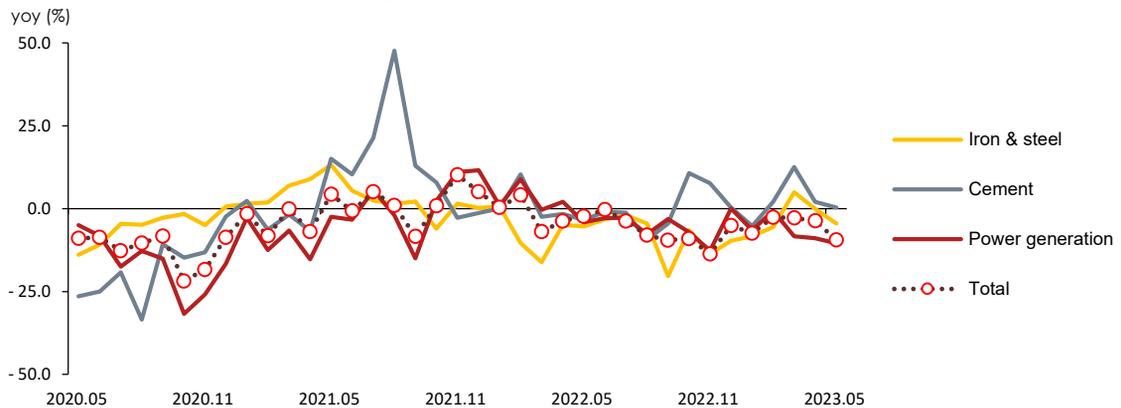
- Industrial coal use started a downward slide (-8.4%) after two consecutive months of growth, as it dropped faster in the iron & steel sector.
- Coal use for power generation slightly increased (0.6%) for the first time this year, as nuclear and renewable & other energy generation declined, but it was deemed to have steadily declined due to statistical limitations.

► Coal consumption

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Coal (Mton)	114.0	45.9	9.1	43.4	8.3	7.9	8.2
	(-4.9)	(-1.7)	(-2.3)	(-5.3)	(-2.9)	(-3.6)	(-9.5)
Industry	46.5	19.7	4.2	19.0	4.0	3.7	3.9
	(-8.1)	(-5.5)	(-0.2)	(-3.5)	(3.8)	(3.2)	(-8.4)
-Coking-coal	23.6	9.9	2.0	9.6	2.0	1.9	1.9
	(-7.5)	(-7.2)	(-7.1)	(-2.8)	(4.9)	(0.3)	(-4.2)
Buildings	0.4	0.1	0.0	0.1	0.0	0.0	0.0
	(-5.1)	(-4.7)	(28.6)	(-2.1)	(-6.9)	(-23.5)	(1.1)
Power generation	67.1	26.1	4.8	24.3	4.3	4.2	4.3
	(-2.6)	(1.5)	(-4.1)	(-6.7)	(-8.3)	(-8.9)	(-10.4)

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 8.4% year-on-year in May, as it decreased in both of the industrial and transport sectors.

- In the industrial sector, petroleum use fell by 8.4% year-on-year, as the use of raw materials continued to decline amid a slowdown in petrochemical business.
- In the transport sector, petroleum use decreased by 9.7% year-on-year due to the base effect from the same month last year when petroleum use surged in the road transport sector.
- In the building sector, petroleum use increased by 3.6% year-on-year owing to the base effect from the same month last year when petroleum use declined in the residential sector after the social distancing rules were all lifted in April.

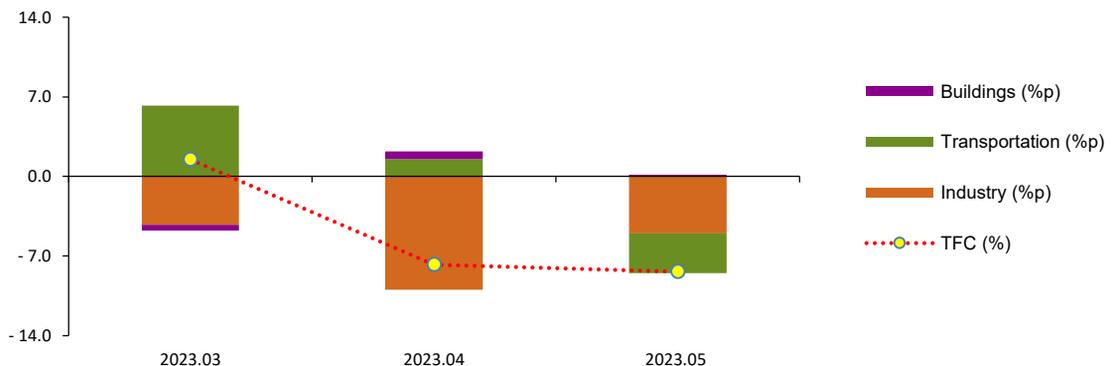
▶ Petroleum product consumption by end-use sectors³

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
TFC (Mbbl)	798.9	340.4	68.8	317.9	68.9	58.4	63.1
	(-1.3)	(4.1)	(6.2)	(-6.6)	(1.5)	(-7.8)	(-8.4)
Industry	496.9	216.2	41.0	195.8	42.4	36.7	37.6
	(-1.8)	(6.7)	(2.0)	(-9.5)	(-6.4)	(-14.7)	(-8.4)
- Naphtha	356.0	153.9	28.6	144.2	31.9	26.6	27.0
	(-3.8)	(3.3)	(1.6)	(-6.3)	(-0.3)	(-15.6)	(-5.6)
Transport	258.0	103.3	25.1	102.6	22.9	18.6	22.7
	(-0.4)	(-0.5)	(14.8)	(-0.7)	(22.6)	(5.5)	(-9.7)
Buildings	44.0	20.8	2.7	19.5	3.6	3.1	2.8
	(-0.6)	(1.6)	(-1.2)	(-6.3)	(-8.7)	(15.9)	(3.6)
Power generation (Mbbl)	5.02	2.47	0.31	1.46	0.31	0.27	0.28
	(20.0)	(73.4)	(15.3)	(-40.9)	(-24.0)	(7.5)	(-10.0)

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

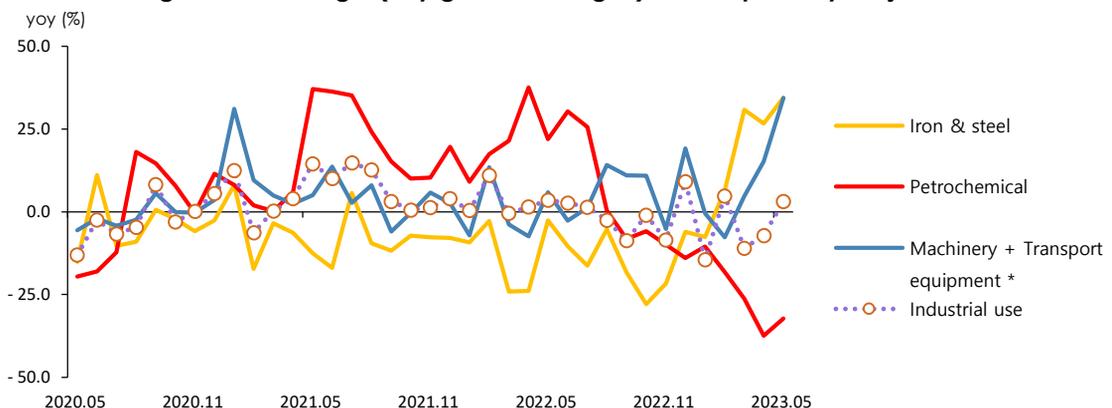
- **Gas use declined by 0.3% year-on-year in May, as it steadily declined in the power generation and building sectors, although it rebounded in the industrial sector.**
 - In the power generation sector, gas use decreased by almost 5% due to lower electricity use (-1.8%), but the recent rapid pace of decline moderated as the baseload generation (nuclear + coal + renewable & others) decreased (-1.0%).
 - In the industrial sector, gas use started to increase, even though it continued to decline in the petrochemical sector amid a business slowdown, owing to the rapidly growing use of directly imported natural gas for captive power generation in the iron & steel and machinery sectors.
 - In the building sector, gas use declined in the residential and commercial sectors due to a rise in average temperature and city gas rates for civilian use. It fell sharply in the commercial sector (-7.6%) partly due to base effect, though it fell just slightly in the residential sector (-0.1%).

► gas and city gas consumption

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Gas(TPED) (Mtoe)	59.5	28.3	4.1	26.4	5.2	4.3	4.1
(Natural gas + City gas)	(-1.1)	(1.0)	(-0.8)	(-6.8)	(-15.6)	(-8.0)	(-0.3)
Power generation	29.7	12.9	2.2	12.2	2.6	2.1	2.1
	(-3.2)	(-2.5)	(-0.0)	(-5.1)	(-16.0)	(-7.0)	(-4.9)
Industry	10.0	4.4	0.8	4.2	0.8	0.8	0.8
	(0.2)	(2.3)	(2.7)	(-4.5)	(-10.3)	(-6.4)	(3.9)
Buildings	15.2	9.0	0.7	8.1	1.5	1.0	0.7
	(5.3)	(6.7)	(-4.7)	(-10.0)	(-19.4)	(-15.4)	(-1.8)
Natural gas(TPED) (Mton)	45.3	21.2	3.0	19.8	3.9	3.2	3.0
	(-1.0)	(0.9)	(-1.5)	(-6.9)	(-16.1)	(-5.7)	(-0.2)
City gas(TFC) (Bm³)	23.6	12.7	1.4	11.4	2.2	1.6	1.3
	(3.9)	(6.0)	(-0.2)	(-10.3)	(-16.5)	(-14.9)	(-6.6)

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 dropped by 1.8% year-on-year in May, led by the industrial sector, although it grew in the building sector.**
 - Industrial electricity use fell by 4.3%, even though it grew in the transport equipment sector, as it declined in other large electricity consuming industries.
 - Electricity use in buildings went up by 1.0% year-on-year, as it grew in all of the residential, commercial and public sectors.

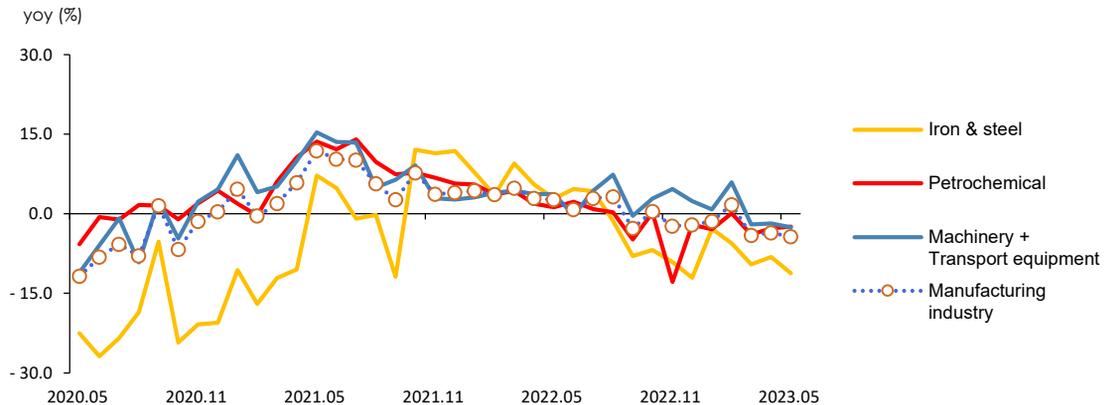
► Electricity consumption by end-use sectors

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Electricity (TWh)	535.3	223.8	41.2	222.1	43.1	41.4	40.5
	(2.9)	(4.3)	(3.7)	(-0.8)	(-3.5)	(-3.1)	(-1.8)
Industry	274.1	115.5	22.5	112.7	22.6	21.8	21.5
	(1.7)	(3.9)	(2.8)	(-2.4)	(-4.3)	(-3.8)	(-4.3)
Transport	4.0	1.6	0.3	1.8	0.3	0.3	0.4
	(8.7)	(6.6)	(8.6)	(14.0)	(14.4)	(14.6)	(15.9)
Buildings	257.2	106.7	18.4	107.6	20.2	19.3	18.6
	(4.1)	(4.7)	(4.6)	(0.8)	(-2.9)	(-2.5)	(1.0)
Residential	78.6	31.4	5.6	31.2	5.8	5.9	5.7
	(1.3)	(1.7)	(0.2)	(-0.8)	(-4.0)	(-2.6)	(1.2)
Commercial	147.0	61.8	10.5	62.8	11.8	10.9	10.6
	(5.9)	(6.6)	(7.7)	(1.5)	(-2.6)	(-2.6)	(0.3)

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

Source: Korea Energy Economics Institute

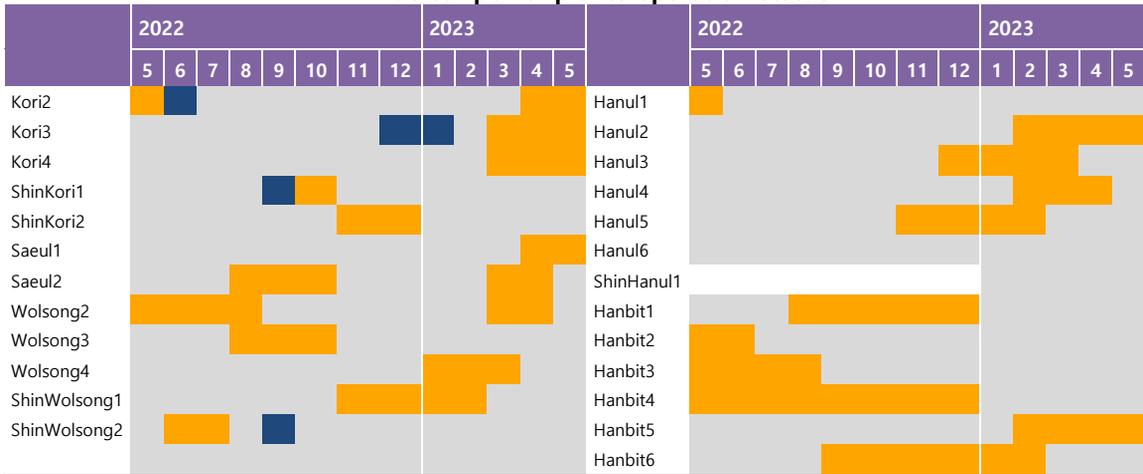
► The growth rate of electricity consumption in manufacturing industry



9. Nuclear

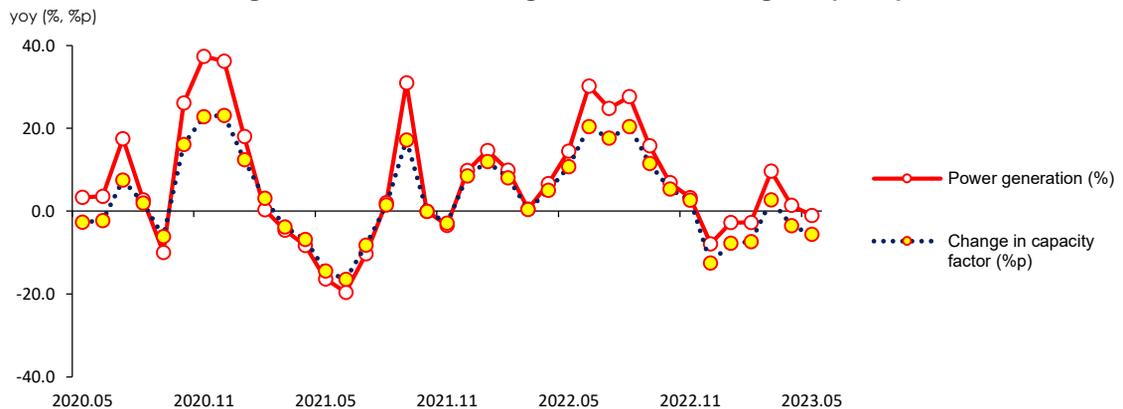
- The total nuclear generation was down 1.0% year-on-year in May despite the growth in nuclear installed capacity, because the average capacity factor decreased.
 - On a year-on-year basis, the same number of reactors were subject to the scheduled and unscheduled shutdown in May (six reactors), but the average capacity factor decreased by 5.6%p.
 - Nuclear energy's share of the total power generation slightly increased (0.1%p), remaining almost flat (31.7%) compared to the same month last year.

► Nuclear power plants operation status



Notes: ■ normal operation, ■ preventive maintenance, ■ unscheduled shutdown

► The growth rate of nuclear generation & average capacity factor



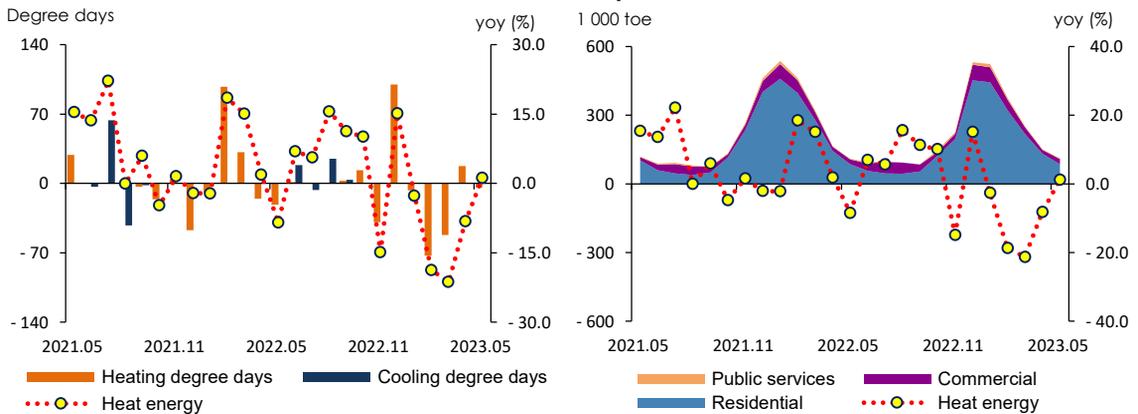
Note: Capacity factor = Ratio of actual power generated to possible power generation when utilizing 100% of available facility. Facility capacity values are based on end-of-the-month data

10. Heat and Renewable energy

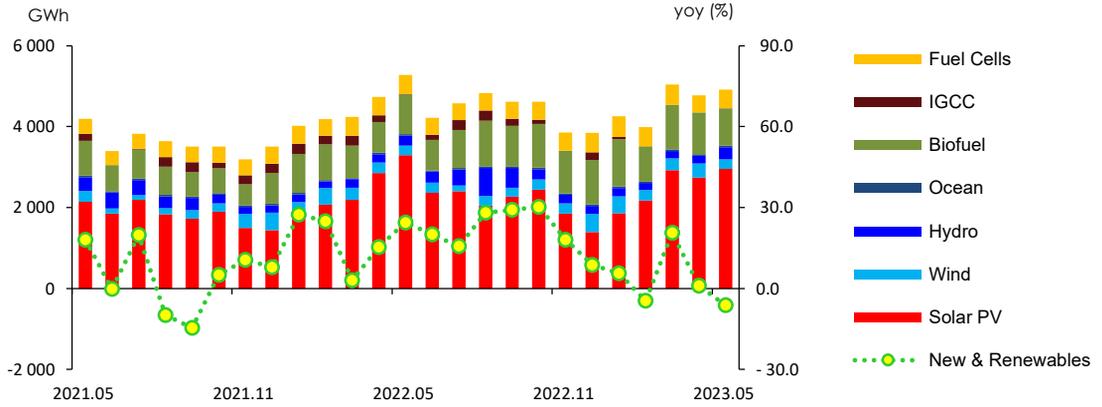
- **Heat energy use went up by 1.2% year-on-year in May, led mostly by the commercial sector, although it declined in the residential sector.**
 - In the residential sector, heat energy use dropped by 0.9% year-on-year, marking the fifth consecutive month of decline, affected by higher average temperature and price effect, while it increased in the commercial sector amid growing service sector production (production index, 1.9%), despite the effect of higher rate.

- **Renewable & other energy use decreased by 5.7% year-on-year in May, as it declined in both of the power generation and end-use sectors.**
 - Renewable & other energy generation dropped by 6.2% year-on-year, as power generation from most renewable & other energy sources declined including solar PV, except hydropower and a few other energy sources.
 - The final use of renewable & other energy fell by 4.0% year-on-year, as it fell in most of the end-use sectors except the transport sector.

► 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

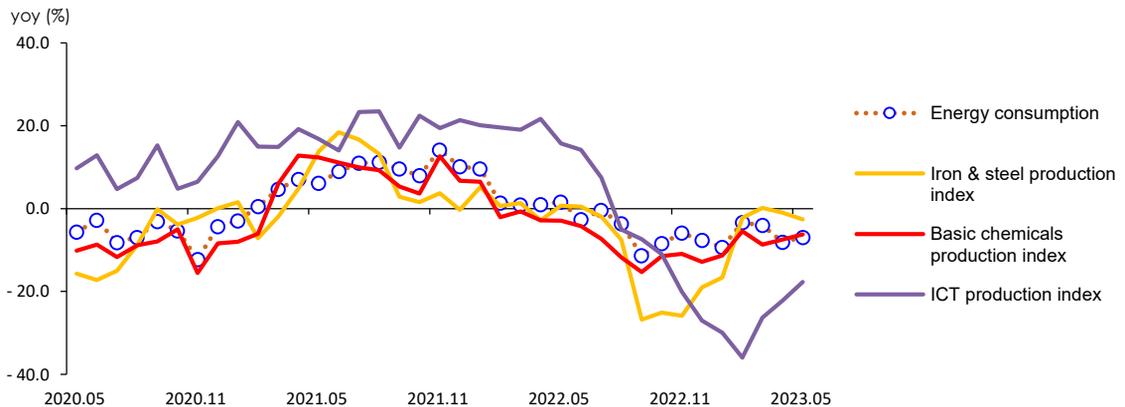
- Industrial energy use decreased by 7.0% year-on-year in May, as most of the sectors consumed less energy, except a few sectors.
 - Industrial energy use continued a downward trend, as it decreased in most of the sectors including petrochemical and iron & steel due to the global economic downturn, although energy use increased in the machinery and transport equipment sectors amid the increased number of work days (+0.5 day).

► Industrial energy consumption

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Industry (Mtoe)	130.0	55.8	10.9	52.2	10.9	9.9	10.2
	(-2.2)	(2.9)	(1.6)	(-6.4)	(-4.1)	(-8.1)	(-7.0)
Petrochemical	66.0	28.8	5.5	25.9	5.5	4.8	5.0
- Naphtha	(-1.6)	(6.5)	(2.9)	(-10.0)	(-8.1)	(-16.0)	(-9.0)
	43.6	18.8	3.5	17.7	3.9	3.3	3.3
	(-3.9)	(3.2)	(1.4)	(-6.3)	(-0.3)	(-15.6)	(-5.6)
Iron & Steel	25.9	10.9	2.2	10.7	2.2	2.1	2.2
	(-7.3)	(-6.1)	(-3.8)	(-2.5)	(4.8)	(0.4)	(-3.2)
- Coking coal	16.6	7.0	1.4	6.7	1.4	1.3	1.4
	(-6.7)	(-6.4)	(-6.3)	(-3.7)	(4.0)	(-0.5)	(-5.0)
Machinery + Transport Equipment	13.0	5.4	1.0	5.4	1.0	1.0	1.0
	(4.7)	(3.6)	(4.2)	(0.1)	(-8.2)	(0.7)	(3.2)
Share of feedstock (%)	55.5	55.9	55.2	55.0	56.4	55.3	55.5

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 fell by 8.9% year-on-year due to the base effect from the same month last year when energy use surged in the road transport sector.**

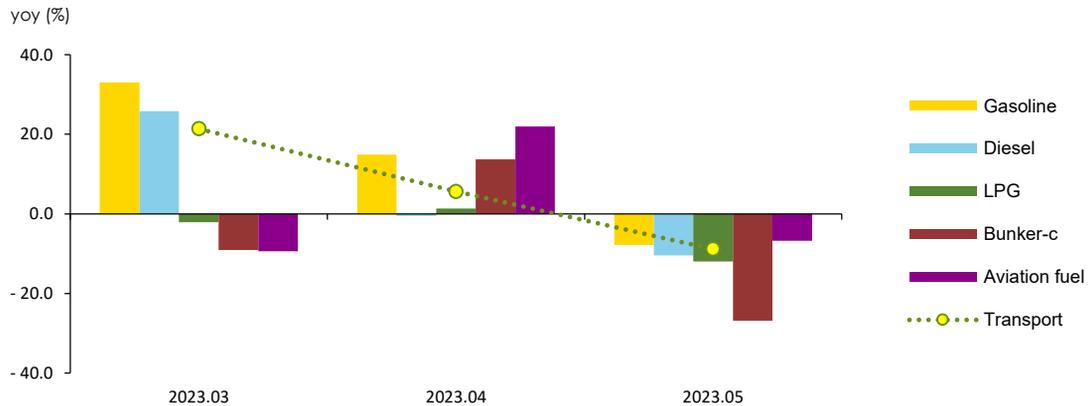
- In the road transport sector, energy use decreased due to the base effect from the same month last year when energy use soared by over 15%, after the additional fuel tax cut was implemented in May.
- In the aviation sector, energy use fell by 6.6%, as the number of domestic flights dropped by 14.9% compared to the same month last year.

► The growth rate of petroleum consumption in the transport sector

	2022p			2023p				
		M1~5	M5	M1~5	M3	M4	M5	
Transport (Mtoe)	36.35	14.56	3.51	14.47	3.23	2.65	3.20	
	(-0.8)	(-0.9)	(12.9)	(-0.6)	(21.4)	(5.6)	(-8.9)	
Road	33.92	13.57	3.33	13.57	3.05	2.48	3.03	
	(-0.8)	(-1.0)	(15.1)	(0.0)	(23.9)	(4.9)	(-8.8)	
Domestic navigation	0.46	0.21	0.04	0.19	0.04	0.04	0.03	
	(8.5)	(30.8)	(24.5)	(-9.0)	(-11.3)	(13.3)	(-22.8)	
Domestic aviation	1.67	0.66	0.11	0.59	0.12	0.11	0.11	
	(-0.3)	(-2.6)	(-26.0)	(-10.8)	(-9.3)	(22.1)	(-6.6)	
Rail	0.30	0.12	0.02	0.12	0.02	0.02	0.02	
	(-9.9)	(-11.4)	(-13.2)	(-1.3)	(-0.1)	(-4.5)	(2.0)	

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. Buildings

- **Energy use in buildings slightly increased in May, as it grew in the residential and public sectors, while it declined in the commercial sector.**
 - In the residential sector, energy use increased by 1.1% year-on-year partly due to base effect, even though its retail price increased.
 - In the commercial sector, energy use decreased by 0.8% year-on-year partly due to base effect, although the production recovered in the service industry.

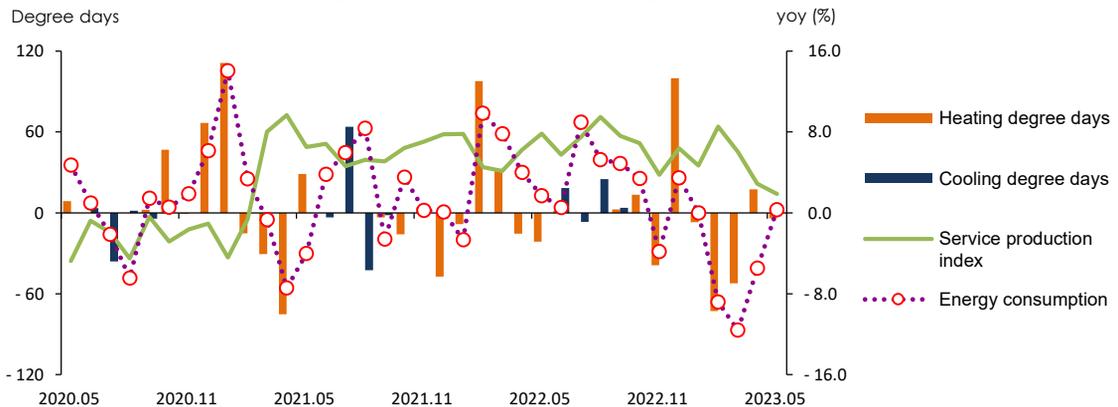
► Energy consumption in buildings

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Buildings (Mtoe)	47.7	23.1	2.9	21.9	4.1	3.3	2.9
	(3.4)	(3.9)	(1.7)	(-5.3)	(-11.6)	(-5.5)	(0.3)
Residential	23.3	12.6	1.2	11.4	2.1	1.5	1.2
	(1.4)	(3.0)	(-7.9)	(-9.0)	(-16.8)	(-11.3)	(1.1)
Commercial	19.1	8.3	1.3	8.2	1.5	1.4	1.3
	(6.4)	(7.1)	(8.9)	(-1.0)	(-5.0)	(-1.1)	(-0.8)
Public services	5.3	2.3	0.4	2.3	0.4	0.4	0.4
	(2.3)	(-1.6)	(12.0)	(-1.2)	(-6.0)	(4.7)	(1.5)
Heating degree days	2 567.1	1 576.4	36.1	1 458.0	267.6	148.3	32.1
	(6.8)	(5.6)	(-37.3)	(-7.5)	(-16.3)	(13.4)	(-11.1)
Cooling degree days	141.9	-	-	-	-	-	-
	(40.1)	-	-	-	-	-	-
Service production index (2020=100)	112.0	107.8	112.8	112.8	117.5	113.9	114.9
	(6.5)	(6.1)	(7.8)	(4.7)	(6.0)	(2.9)	(1.9)

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

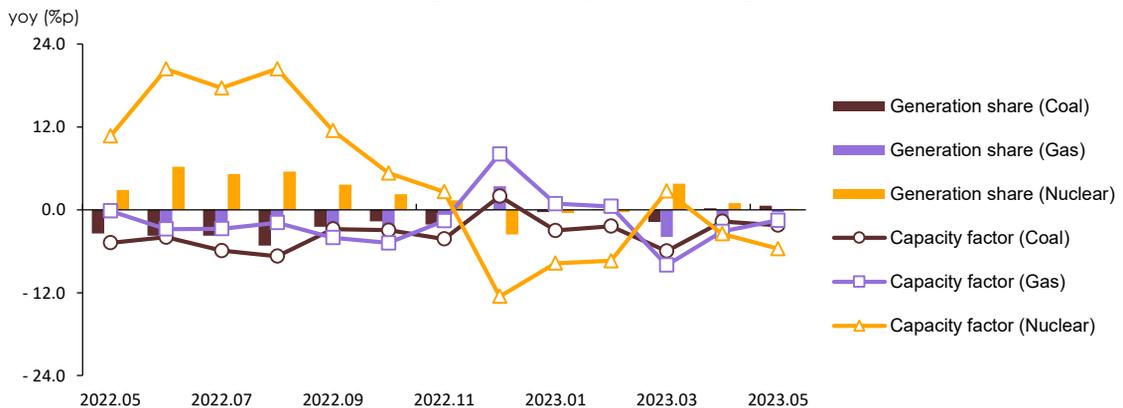
- **The total power generation and fuel input decreased by 1.4% and 5.2% respectively in May on a year-on-year basis, as electricity use declined.**
 - Nuclear generation went down by 1.0% year-on-year, as the daily average of preventive maintenance grew by 1.4GW, even though the installed capacity increased (1.4GW) with the commissioning of Shin Hanul unit 1 (2022.12.7).
 - Renewable & other energy generation dropped by 4.6% year-on-year, as solar PV generation fell by 10.2% even with the increased installed capacity (12.5%), as sunlight hours and solar radiation decreased (-28.2%, -19.6%), and bioenergy generation also dropped by 5.8%.
 - Coal-fired generation rebounded slightly, ending the recent downward trend, because nuclear and renewable & other energy generation decreased.
 - Power generation from gas plants, which are peak load power plants, went down by 2.7% year-on-year, as the total power generation fell by 1.4%, and baseload generation including renewable & other energy fell by mere 1.0%.

► Power generation by energy sources

	2022p			2023p			
		M1~5	M5	M1~5	M3	M4	M5
Power Generation (TWh)	594.4	244.0	46.2	239.4	47.9	44.1	45.5
	(3.1)	(4.6)	(4.2)	(-1.9)	(-3.5)	(-1.7)	(-1.4)
Coal	193.2	75.1	13.6	73.1	12.7	13.1	13.6
	(-2.4)	(3.1)	(-6.6)	(-2.7)	(-9.6)	(-1.1)	(0.6)
Oil	2.0	1.1	0.1	0.8	0.2	0.1	0.1
	(-16.5)	(25.9)	(-27.2)	(-28.0)	(-6.0)	(-7.6)	(25.3)
Gas	163.6	70.5	12.2	67.2	14.2	11.9	11.8
	(-2.8)	(-2.6)	(-0.3)	(-4.7)	(-14.8)	(-7.3)	(-2.7)
Nuclear	176.1	72.0	14.6	72.5	15.2	13.6	14.5
	(11.4)	(9.2)	(14.5)	(0.7)	(9.6)	(1.4)	(-1.0)
Renewables	59.6	25.3	5.8	25.9	5.7	5.4	5.5
	(18.9)	(19.3)	(22.7)	(2.2)	(15.2)	(2.2)	(-4.6)
Baseload	428.9	172.4	33.9	171.5	33.6	32.1	33.6
	(5.6)	(7.8)	(6.1)	(-0.5)	(2.3)	(0.5)	(-1.0)

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				
			M1~5	M3	M4	M5	M1~5	M3	M4	M5	
GDP (trillion won)	1 915.8 (4.1)	1 968.8 (2.8)	468.0 (3.1)	468.0 (3.1)	-	-	472.2 (0.9)	472.2 (0.9)	-	-	
Private consumption	882.5 (3.7)	917.8 (4.0)	223.6 (3.7)	223.6 (3.7)	-	-	233.8 (4.6)	233.8 (4.6)	-	-	
Facilities investment	181.6 (9.0)	180.5 (-0.7)	42.0 (-6.7)	42.0 (-6.7)	-	-	44.5 (5.9)	44.5 (5.9)	-	-	
Construction investment	265.0 (-1.6)	257.6 (-2.8)	52.3 (-4.0)	52.3 (-4.0)	-	-	53.3 (1.9)	53.3 (1.9)	-	-	
Consumer price index (2020=100)	102.5	107.7	106.1	106.1	106.9	107.6	110.6	110.6	110.8	111.1	
USD to KRW exchange rate (won)	1 144.0	1 291.4	1 223.1	1 221.0	1 232.3	1 269.9	1 294.4	1 305.7	1 320.0	1 328.2	
Benchmark rate (%)	0.6	2.1	1.4	1.3	1.5	1.8	3.5	3.5	3.5	3.5	
Coincident composite index (2020=100)	104.1	108.2	107.5	107.6	107.5	107.8	109.3	109.5	110.0	110.3	
Mining & manufacturing production index (2020=100)	108.2	109.7	111.1	117.8	111.8	113.4	101.0	108.9	101.6	104.8	
Manufacturing operation ratio index (2020=100)	105.2	105.2	107.0	113.1	107.8	109.3	97.9	105.6	99.0	101.9	
Average temperature	13.3	12.9	7.7	7.7	13.8	18.0	8.5	9.4	13.1	17.9	
- year-on-year difference	0.3	-0.4	-0.4	-1.0	0.6	1.4	0.7	1.7	-0.7	-0.1	
Heating degree days	2 404.7 (-1.8)	2 567.1 (6.8)	1 576.4 (5.6)	319.7 (11.0)	130.8 (-10.5)	36.1 (-37.3)	1 458.0 (-7.5)	267.6 (-16.3)	148.3 (13.4)	32.1 (-11.1)	
Cooling degree days	101.3 (18.9)	141.9 (40.1)	-	-	-	-	-	-	-	-	
Energy intensity	0.16 (1.0)	0.16 (-2.2)	0.18 (1.1)	0.18 (1.1)	-	-	0.17 (-4.8)	0.17 (-4.8)	-	-	
Per capita consumption											
Oil (bbl)	0.0 (7.3)	0.0 (-1.7)	0.0 (3.7)	0.0 (3.5)	0.0 (-4.0)	0.0 (2.8)	0.0 (-5.8)	0.0 (2.1)	0.0 (-7.1)	0.0 (-8.1)	
Electricity (MWh)	0.0 (4.9)	0.0 (3.1)	0.0 (4.6)	0.0 (6.6)	0.0 (4.8)	0.0 (3.9)	0.0 (-0.6)	0.0 (-3.4)	0.0 (-2.9)	0.0 (-1.7)	
City gas (1 000 m ³)	- (3.5)	- (4.1)	- (6.3)	- (10.8)	- (8.4)	- (0.0)	- (-10.2)	- (-16.4)	- (-14.8)	- (-6.5)	
Total energy (toe)	0.0 (5.3)	0.0 (0.7)	0.0 (3.3)	0.0 (2.5)	- (-1.0)	- (3.4)	0.0 (-4.0)	- (-1.4)	- (-3.9)	- (-4.7)	

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			
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Industrial production index										
All industry	105.5 (5.5)	110.1 (4.4)	107.4 (5.6)	112.7 (4.2)	109.5 (5.5)	111.2 (7.3)	107.7 (0.3)	114.9 (2.0)	108.4 (-1.0)	110.0 (-1.1)
Mining & manufacturing	108.2 (8.2)	109.7 (1.4)	111.1 (6.1)	117.8 (4.8)	111.8 (4.9)	113.4 (8.6)	101.0 (-9.2)	108.9 (-7.6)	101.6 (-9.1)	104.8 (-7.6)
Semiconductor	126.8 (26.8)	136.5 (7.7)	143.9 (29.7)	154.7 (26.8)	139.9 (31.4)	149.5 (26.7)	103.9 (-27.8)	113.1 (-26.9)	110.4 (-21.1)	124.6 (-16.7)
Iron & steel	105.2 (5.2)	96.3 (-8.4)	104.8 (1.0)	107.7 (1.3)	102.8 (-2.8)	106.6 (0.7)	100.0 (-4.6)	107.9 (0.2)	101.8 (-1.0)	103.8 (-2.6)
Cement	103.2 (3.1)	100.2 (-2.9)	97.9 (-1.2)	104.5 (-8.4)	110.7 (-5.5)	112.8 (4.3)	94.9 (-3.1)	106.2 (1.6)	100.6 (-9.1)	103.5 (-8.2)
Basic compound	105.9 (5.9)	99.1 (-6.4)	104.4 (-0.4)	109.1 (-0.7)	102.0 (-2.9)	101.0 (-2.9)	96.1 (-7.9)	99.6 (-8.7)	94.4 (-7.5)	94.7 (-6.2)
Transport equipment	106.3 (6.3)	116.0 (9.1)	108.1 (-0.1)	112.2 (-7.2)	114.1 (-2.1)	114.4 (14.9)	129.7 (19.9)	142.6 (27.1)	133.2 (16.7)	135.6 (18.5)
Electric & electronic	107.7 (7.7)	110.8 (2.9)	107.9 (4.6)	113.3 (1.7)	109.4 (2.7)	112.7 (9.6)	106.4 (-1.4)	114.3 (0.9)	105.2 (-3.8)	108.4 (-3.8)
Service	105.2 (5.2)	112.0 (6.5)	107.8 (6.1)	110.8 (4.1)	110.7 (6.2)	112.8 (7.8)	112.8 (4.7)	117.5 (6.0)	113.9 (2.9)	114.9 (1.9)
Wholesale and retail	105.3 (5.3)	107.1 (1.7)	105.9 (2.5)	111.4 (2.2)	108.1 (2.0)	109.7 (4.7)	106.7 (0.8)	112.0 (0.5)	105.3 (-2.6)	108.2 (-1.4)
Food & Accommodation	101.9 (1.9)	119.1 (16.9)	109.2 (17.8)	101.7 (5.5)	117.5 (19.0)	129.5 (21.0)	118.0 (8.1)	119.9 (17.9)	119.5 (1.7)	123.2 (-4.9)
Production output										
Iron & steel - Pig iron	46 440.5 (2.4)	42 658.2 (-8.1)	17 762.7 (-7.4)	3 549.6 (-10.9)	3 422.7 (-5.8)	3 581.6 (-3.9)	18 317.3 (3.1)	3 799.8 (7.0)	3 651.7 (6.7)	3 768.2 (5.2)
Iron & steel - Crude steel	70 418.0 (5.0)	65 846.2 (-6.5)	28 247.0 (-3.4)	5 707.6 (-5.8)	5 521.6 (-4.0)	5 801.6 (-1.3)	28 142.6 (-0.4)	5 834.7 (2.2)	5 681.1 (2.9)	5 794.7 (-0.1)
Petrochemical - Basic petrochemicals	34 434.5 (12.7)	32 854.1 (-4.6)	14 547.4 (6.6)	3 015.5 (6.6)	2 856.7 (2.1)	2 794.3 (-0.7)	12 679.0 (-12.8)	2 644.9 (-12.3)	2 406.4 (-15.8)	2 414.3 (-13.6)
Petrochemical - Intermediate raw material	15 764.6 (2.6)	13 852.5 (-12.1)	6 106.6 (-8.1)	1 294.3 (-8.1)	1 185.9 (-7.4)	1 206.1 (-8.4)	5 670.8 (-7.1)	1 168.9 (-9.7)	1 088.2 (-8.2)	1 077.1 (-10.7)
Petrochemical - 3 major products	23 224.7 (9.2)	22 129.4 (-4.7)	10 078.7 (8.2)	2 101.5 (9.4)	1 931.9 (4.0)	1 963.3 (2.1)	8 857.8 (-12.1)	1 902.7 (-9.5)	1 755.1 (-9.1)	1 598.9 (-18.6)
The number of cars	3 462.4 (-1.3)	3 756.5 (8.5)	1 450.7 (-2.6)	302.2 (-9.5)	306.5 (-5.3)	307.0 (19.8)	1 824.5 (25.8)	409.8 (35.6)	382.3 (24.7)	382.1 (24.5)

Note: p means provisional

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

International Energy Prices

	2021	2022				2023				
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Crude oil (USD/bbl)										
WTI	67.9 (72.4)	94.2 (38.7)	98.8 (64.4)	108.3 (73.6)	101.6 (64.7)	109.3 (67.7)	75.9 (-23.2)	73.4 (-32.2)	79.4 (-21.8)	71.6 (-34.4)
Dubai	69.3 (64.1)	96.4 (39.1)	99.5 (60.9)	110.9 (72.2)	102.8 (63.4)	108.2 (63.0)	79.9 (-19.8)	78.5 (-29.2)	83.4 (-18.8)	75.0 (-30.7)
Brent	70.8 (63.8)	98.9 (39.7)	102.0 (60.9)	112.5 (71.2)	105.9 (62.1)	112.0 (63.9)	81.1 (-20.5)	79.2 (-29.6)	83.4 (-21.3)	75.7 (-32.4)
Unit value of import (C&F)	70.2 (56.9)	102.3 (45.6)	99.4 (60.5)	103.1 (60.7)	110.2 (69.2)	110.1 (63.1)	84.9 (-14.5)	84.2 (-18.2)	84.1 (-23.7)	84.5 (-23.2)
LNG										
Henry Hub (USD/MMBTU)	3.7 (74.6)	6.5 (75.2)	5.7 (106.5)	5.0 (89.9)	6.7 (149.7)	8.2 (175.8)	2.6 (-55.3)	2.4 (-51.6)	2.2 (-67.2)	2.3 (-71.8)
TTF (USD/MMBTU)	16.0 (396.1)	40.1 (150.0)	31.6 (343.8)	41.8 (584.2)	31.8 (345.0)	29.0 (226.3)	14.7 (-53.5)	13.7 (-67.2)	13.4 (-57.9)	10.0 (-65.6)
JKM (USD/MMBTU)	17.9 (324.7)	33.9 (89.5)	28.6 (221.6)	37.0 (478.5)	29.2 (274.5)	22.7 (135.2)	15.5 (-45.8)	13.6 (-63.2)	12.3 (-57.8)	10.5 (-53.9)
Unit value of import (USD/ton, CIF)	550.8 (41.2)	1 053.5 (91.3)	883.4 (102.9)	1 016.6 (131.9)	695.0 (80.3)	723.3 (77.2)	939.0 (6.3)	918.5 (-9.6)	698.9 (0.6)	679.1 (-6.1)
Coal (USD/ton)										
Thermal coal (Newcastle)	136.0 (125.8)	356.3 (161.9)	297.6 (226.2)	345.3 (279.8)	306.6 (226.6)	390.4 (288.7)	223.7 (-24.8)	179.3 (-48.1)	191.8 (-37.4)	163.2 (-58.2)
Unit value of import (CIF)	115.1 (48.1)	226.3 (96.7)	223.6 (158.1)	215.5 (140.4)	253.4 (177.0)	267.0 (182.8)	198.3 (-11.3)	205.9 (-4.5)	200.7 (-20.8)	196.1 (-26.6)
Petroleum product (USD/bbl)										
Gasoline	80.3 (72.2)	115.2 (43.4)	122.8 (74.6)	131.1 (78.5)	126.9 (71.5)	147.0 (92.9)	97.5 (-20.6)	98.5 (-24.9)	100.3 (-21.0)	90.2 (-38.6)
Kerosene	75.1 (67.9)	126.7 (68.6)	122.6 (86.6)	133.5 (99.8)	134.4 (101.4)	143.0 (99.3)	101.1 (-17.5)	98.8 (-26.0)	96.8 (-28.0)	88.5 (-38.1)
Diesel	77.6 (57.2)	135.3 (74.3)	130.8 (92.1)	141.7 (103.4)	148.8 (116.1)	153.5 (107.6)	102.9 (-21.3)	102.8 (-27.5)	98.7 (-33.7)	89.2 (-41.9)
Bunker-C	64.4 (64.3)	82.3 (27.8)	95.5 (65.5)	103.1 (69.7)	111.1 (88.3)	104.5 (74.9)	66.5 (-30.3)	67.1 (-34.9)	73.0 (-34.3)	67.6 (-35.3)
Propane	647.9 (63.2)	737.1 (13.8)	840.0 (48.1)	895.0 (43.2)	940.0 (67.9)	850.0 (71.7)	642.0 (-23.6)	720.0 (-19.6)	555.0 (-41.0)	555.0 (-34.7)
Butane	629.6 (55.9)	734.2 (16.6)	845.0 (55.6)	920.0 (54.6)	960.0 (81.1)	860.0 (81.1)	647.0 (-23.4)	740.0 (-19.6)	545.0 (-43.2)	555.0 (-35.5)
Naphtha	70.6 (74.6)	83.1 (17.7)	96.3 (55.4)	110.6 (70.7)	96.6 (55.3)	94.7 (44.2)	70.9 (-26.4)	72.7 (-34.2)	70.9 (-26.6)	61.9 (-34.7)

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				
		M1~5	M3	M4	M5	M1~5	M3	M4	M5	
Petroleum product										
Gasoline (won/liter)	1 590.5 (15.1)	1 812.4 (14.0)	1 846.4 (23.2)	1 938.5 (28.1)	1 976.5 (28.8)	1 967.1 (27.6)	1 600.7 (-13.3)	1 592.2 (-17.9)	1 640.9 (-17.0)	1 628.8 (-17.2)
Diesel (won/liter)	1 391.3 (16.9)	1 841.8 (32.4)	1 737.6 (33.9)	1 827.0 (39.2)	1 906.4 (43.0)	1 964.2 (46.7)	1 565.8 (-9.9)	1 539.7 (-15.7)	1 535.7 (-19.4)	1 472.0 (-25.1)
Bunker-C (won/liter)	731.7 (27.6)	1 115.2 (52.4)	1 026.8 (56.2)	974.0 (42.0)	1 191.7 (63.2)	1 190.4 (68.5)	911.9 (-11.2)	956.9 (-1.8)	882.5 (-25.9)	920.7 (-22.7)
Propane (won/kg)	2 092.6 (13.1)	2 479.6 (18.5)	2 459.3 (24.0)	2 412.1 (18.9)	2 552.2 (25.5)	2 558.2 (25.9)	2 414.6 (-1.8)	2 409.7 (-0.1)	2 409.0 (-5.6)	2 408.8 (-5.8)
Butane (won/liter)	931.8 (17.8)	1 081.7 (16.1)	1 100.7 (26.8)	1 083.0 (20.5)	1 163.2 (29.4)	1 134.6 (26.2)	995.5 (-9.6)	989.4 (-8.6)	988.3 (-15.0)	987.8 (-12.9)
City gas(won/MJ)										
Residential	14.2 (-5.7)	16.6 (16.7)	14.6 (2.9)	14.2 -	14.7 (3.0)	15.9 (11.6)	19.9 (35.9)	19.7 (38.4)	19.7 (34.4)	20.7 (30.6)
General(1)	13.9 (-6.5)	16.3 (17.3)	14.4 (3.4)	14.1 (0.6)	14.3 (3.1)	15.5 (12.1)	19.7 (36.4)	19.5 (38.6)	19.3 (35.5)	20.4 (31.3)
Commercial	17.2 (14.2)	28.7 (66.6)	24.9 (64.2)	24.9 (56.9)	26.5 (64.7)	22.7 (51.3)	30.2 (21.4)	32.7 (31.3)	26.6 (0.6)	23.5 (3.8)
Industry	14.4 (14.2)	25.9 (79.9)	22.3 (75.0)	22.6 (63.7)	23.3 (75.1)	19.7 (67.0)	27.7 (24.5)	30.6 (35.1)	23.6 (1.6)	20.6 (4.7)
Heat(won/Mcal)										
Residential	65.2 (-1.4)	74.1 (13.7)	65.9 (1.1)	65.2 -	67.0 (2.7)	67.0 (2.7)	89.9 (36.3)	89.9 (37.8)	89.9 (34.2)	89.9 (34.2)
Commercial	84.7 (-1.4)	96.3 (13.7)	85.6 (1.1)	84.7 -	87.0 (2.7)	87.0 (2.7)	116.7 (36.3)	116.7 (37.8)	116.7 (34.2)	116.7 (34.2)
Public	74.0 (-1.4)	84.1 (13.7)	74.8 (1.1)	74.0 -	76.0 (2.7)	76.0 (2.7)	101.9 (36.3)	101.9 (37.8)	101.9 (34.2)	101.9 (34.2)
Electricity(won/kWh)										
Residential	142.3 (-3.4)	147.8 (3.9)	144.3 (1.4)	142.3 -	147.2 (3.4)	147.2 (3.4)	167.6 (16.2)	166.0 (16.7)	166.0 (12.8)	174.0 (18.2)
General	79.4 (-5.9)	84.9 (7.0)	73.0 (2.8)	60.2 -	65.1 (8.1)	65.1 (8.1)	96.3 (32.0)	83.9 (39.4)	83.9 (28.9)	91.9 (41.2)
Industry	91.0 (-5.2)	98.8 (8.6)	87.5 (2.3)	73.5 -	78.4 (6.7)	78.4 (6.7)	120.0 (37.2)	106.4 (44.8)	106.4 (35.7)	114.4 (45.9)

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			
		M1~5	M3	M4	M5	M1~5	M3	M4	M5	
Coal (Mton)	119.9 (-0.0)	114.0 (-4.9)	45.9 (-1.7)	8.5 (-7.0)	8.2 (-3.8)	9.1 (-2.3)	43.4 (-5.3)	8.3 (-2.9)	7.9 (-3.6)	8.2 (-9.5)
- Coking coal excluded	94.4 (-0.8)	90.4 (-4.2)	36.0 (-0.0)	6.6 (-4.3)	6.3 (-3.0)	7.0 (-0.9)	33.8 (-6.0)	6.3 (-5.1)	6.0 (-4.9)	6.3 (-11.0)
Oil (Mbbbl)	830.7 (7.1)	814.5 (-1.9)	347.1 (3.5)	69.4 (3.3)	64.3 (-4.2)	69.0 (2.5)	326.5 (-5.9)	70.8 (2.0)	59.6 (-7.2)	63.3 (-8.3)
LNG (Mton)	45.8 (10.4)	45.3 (-1.0)	21.2 (0.9)	4.6 (7.6)	3.4 (-1.4)	3.0 (-1.5)	19.8 (-6.9)	3.9 (-16.1)	3.2 (-5.7)	3.0 (-0.2)
Hydro (TWh)	3.1 (-21.2)	3.5 (15.9)	1.0 (-10.4)	0.2 (3.2)	0.2 (-12.8)	0.2 (-26.6)	1.0 (2.7)	0.2 (-12.7)	0.2 (-6.6)	0.3 (21.6)
Nuclear (TWh)	158.0 (-1.4)	176.1 (11.4)	72.0 (9.2)	13.9 (0.5)	13.4 (6.7)	14.6 (14.5)	72.5 (0.7)	15.2 (9.6)	13.6 (1.4)	14.5 (-1.0)
Others (Mtoe)	14.4 (13.8)	16.0 (11.0)	6.8 (10.3)	1.3 (3.1)	1.4 (5.5)	1.5 (20.6)	6.8 (1.3)	1.5 (14.2)	1.4 (0.6)	1.4 (-6.6)
TPED (Mtoe)	303.2 (5.1)	304.5 (0.4)	129.9 (3.1)	26.1 (2.3)	23.4 (-1.2)	24.6 (3.2)	124.5 (-4.1)	25.7 (-1.5)	22.5 (-4.0)	23.4 (-4.9)

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

Share of TPED by Sources

(unit: %)

	2021	2022p					2023p			
		M1~5	M3	M4	M5	M1~5	M3	M4	M5	
Coal	24.0	22.7	21.4	19.9	21.3	22.4	21.2	19.7	21.5	21.4
- Coking coal excluded	18.1	17.2	16.1	14.8	15.5	16.6	15.9	14.3	15.5	15.6
Oil	40.1	40.0	39.6	39.7	40.4	42.1	39.5	41.2	40.1	41.8
LNG	19.7	19.5	21.4	23.1	18.9	16.1	20.7	19.7	18.5	16.8
Hydro	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Nuclear	11.1	12.3	11.8	11.3	12.2	12.7	12.4	12.6	12.9	13.2
Others	4.7	5.2	5.2	5.1	5.9	6.0	5.5	6.0	6.1	5.9
TPED	100.0									

Note: p means provisional
Source: Korea Energy Economics Institute

Total Final Consumption (TFC)

(Unit: Mtoe)

	2021	2022p					2023p				
		M1~5	M3	M4	M5	M1~5	M3	M4	M5		
Industry	133.0 (7.2)	130.0 (-2.2)	55.8 (2.9)	11.4 (0.9)	10.8 (1.0)	10.9 (1.6)	52.2 (-6.4)	10.9 (-4.1)	9.9 (-8.1)	10.2 (-7.0)	
Transport	36.6 (5.4)	36.4 (-0.8)	14.6 (-0.9)	2.7 (-7.2)	2.5 (-19.6)	3.5 (12.9)	14.5 (-0.6)	3.2 (21.4)	2.7 (5.6)	3.2 (-8.9)	
Residential	22.9 (2.6)	23.3 (1.4)	12.6 (3.0)	2.5 (9.7)	1.7 (3.4)	1.2 (-7.9)	11.4 (-9.0)	2.1 (-16.8)	1.5 (-11.3)	1.2 (1.1)	
commercial	17.9 (1.7)	19.1 (6.4)	8.3 (7.1)	1.6 (9.4)	1.4 (5.6)	1.3 (8.9)	8.2 (-1.0)	1.5 (-5.0)	1.4 (-1.1)	1.3 (-0.8)	
Public	5.2 (4.0)	5.3 (2.3)	2.3 (-1.6)	0.5 (-5.6)	0.4 (1.2)	0.4 (12.0)	2.3 (-1.2)	0.4 (-6.0)	0.4 (4.7)	0.4 (1.5)	
TFC	215.7 (5.8)	214.0 (-0.8)	93.5 (2.6)	18.7 (1.2)	16.8 (-2.2)	17.3 (3.7)	88.5 (-5.3)	18.2 (-2.3)	15.9 (-5.5)	16.3 (-6.1)	
Coal (Mton)	51.0 (3.6)	46.9 (-8.1)	19.8 (-5.5)	3.9 (-13.9)	3.6 (-10.2)	4.2 (-0.2)	19.1 (-3.5)	4.0 (3.8)	3.7 (3.1)	3.9 (-8.4)	
Oil (Mbbbl)	809.1 (7.6)	798.9 (-1.3)	340.4 (4.1)	67.9 (2.7)	63.3 (-3.5)	68.8 (6.2)	317.9 (-6.6)	68.9 (1.5)	58.4 (-7.8)	63.1 (-8.4)	
- Non-energy oil excluded	350.6 (4.3)	345.8 (-1.4)	142.5 (-1.1)	26.3 (-6.6)	23.2 (-18.3)	31.3 (9.5)	139.2 (-2.3)	30.3 (14.8)	24.7 (6.5)	28.3 (-9.4)	
Electricity (TWh)	520.3 (4.7)	535.3 (2.9)	223.8 (4.3)	44.7 (6.4)	42.7 (4.5)	41.2 (3.7)	222.1 (-0.8)	43.1 (-3.5)	41.4 (-3.1)	40.5 (-1.8)	
City gas (Bm ³)	22.7 (3.3)	23.6 (3.9)	12.7 (6.0)	2.6 (10.5)	1.9 (8.1)	1.4 (-0.2)	11.4 (-10.3)	2.2 (-16.5)	1.6 (-14.9)	1.3 (-6.6)	
Heat-others (1 000 toe)	9.8 (6.3)	10.1 (2.6)	4.6 (1.0)	0.9 (0.8)	0.8 (-2.8)	0.7 (2.7)	4.3 (-6.2)	0.8 (-10.3)	0.7 (-4.1)	0.7 (-3.2)	

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				
		M1~5	M3	M4	M5	M1~5	M3	M4	M5		
Industry	61.7	60.7	59.7	60.9	64.1	63.0	59.0	59.8	62.4	62.5	
Transport	17.0	17.0	15.6	14.3	14.9	20.3	16.3	17.7	16.7	19.7	
Residential	10.6	10.9	13.4	13.6	10.4	6.8	12.9	11.6	9.7	7.4	
Commercial	8.3	8.9	8.8	8.7	8.2	7.6	9.2	8.4	8.6	8.0	
Public	2.4	2.5	2.4	2.5	2.4	2.2	2.5	2.4	2.6	2.4	
TFC	100.0										
Coal	15.0	14.0	13.5	13.2	13.8	15.5	13.7	13.9	14.9	15.1	
Oil	47.9	47.5	46.2	46.0	47.4	50.7	45.6	48.1	46.5	49.4	
- Non-energy oil excluded	21.6	21.5	20.3	18.7	18.4	24.1	20.7	21.9	20.5	23.0	
Electricity	20.7	21.5	20.6	20.6	21.8	20.5	21.6	20.3	22.4	21.4	
City gas	11.8	12.3	14.7	15.2	12.4	9.3	14.3	13.1	11.6	10.0	
Heat-others	4.6	4.7	4.9	5.0	4.5	4.0	4.9	4.6	4.5	4.1	

Note: p means provisional
Source: Korea Energy Economics Institute

Statistics on Energy Production Facilities

	2020	2021	2022			2023			
			M3	M4	M5	M3	M4	M5	
Total capacity (GW)	129.2 (3.1)	134.0 (3.7)	138.0 (3.0)	133.7 (3.3)	133.9 (4.3)	134.1 (3.4)	139.1 (4.0)	139.1 (3.9)	140.8 (5.0)
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 (2.4)	36.3 (5.8)	36.3 (2.5)	37.2 (2.4)	37.2 (2.4)	38.2 (5.4)
Gas	41.2 (4.1)	41.2 (0.1)	41.2 -	41.2 (0.1)	41.2 (0.1)	41.2 (0.1)	41.2 -	41.2 -	41.7 (1.2)
Refinery capacity (mil BPSD)	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			
			M3	M4	M5	M3	M4	M5	
The number of household demanding city gas (mil)	20.1 (2.4)	20.5 (2.0)	20.9 (1.7)	20.6 (1.8)	20.6 (1.8)	20.6 (1.8)	21.0 (1.8)	20.9 (1.7)	20.9 (1.3)
Registered cars (mil)	24.4 (2.9)	24.9 (2.2)	25.5 (2.4)	25.1 (2.2)	25.1 (2.3)	25.2 (2.4)	25.6 (2.3)	25.7 (2.2)	25.7 (2.2)
- gasoline	11.4 (4.1)	11.8 (3.1)	12.1 (2.6)	11.8 (2.9)	11.9 (2.8)	11.9 (2.8)	12.2 (2.7)	12.2 (2.6)	12.2 (2.6)
- diesel	10.0 (0.3)	9.9 (-1.2)	9.8 (-1.2)	9.9 (-1.4)	9.9 (-1.2)	9.8 (-1.0)	9.7 (-1.5)	9.7 (-1.7)	9.7 (-1.8)
- LPG	2.0 (-1.3)	1.9 (-1.7)	1.9 (-2.1)	1.9 (-1.7)	1.9 (-1.9)	1.9 (-1.9)	1.9 (-2.5)	1.9 (-2.6)	1.9 (-2.8)
- hybrid	0.6 (33.1)	0.9 (34.0)	1.1 (28.5)	0.9 (32.6)	1.0 (32.5)	1.0 (32.8)	1.2 (28.9)	1.2 (28.5)	1.3 (28.6)

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

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