

KEEI

MONTHLY KOREA ENERGY TRENDS

2023/04

KOREA ENERGY ECONOMICS INSTITUTE

COAL	-7.3%
PETROLEUM	-11.0%
GAS	-2.8%
NUCLEAR	-2.8%
NEW & RENEWABLE	-10.1%
JANUARY, 2023	

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



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1. The Economy and the Industry

□ The mining & manufacturing production index has been down for four consecutive months until January due to weak production in most of the subsectors except the automobile sector.

- The semiconductor production index fell by 34% year-on-year, which has been declining faster for six straight months, as its export value decreased (-44.5%), and facilities were operated at a much-reduced capacity (-40.4%, based on the index) due to continuously low demand amid sluggish domestic and global economies.
- The production index of basic chemical materials dropped by 11.2% year-on-year, as business was slow amid demand contraction, and the scheduled maintenance was extended.
- The iron & steel production index was down around 18% year-on-year due to lower demand amid a slump in construction business, sluggish export, the impact of Typhoon Hinnamnor, although the pace of the decline was slower, as the process of normalizing Pohang steel plants started.
- The automobile production index went up by 10.7% year-on-year, posting nine consecutive months of growth, partly because of the improved semiconductor supply.

□ The service production index rose by 4.8% year-on-year in January, which was attributed to Lunar New Year holiday and growing travel demand.

- The wholesale & retail production index grew by 1.0% year-on-year, as the production increased in all subsectors, and the index of the financial and insurance industry also grew by 10.4%, after the key interest rate was raised (3.25% → 3.5% Jan. 13, 2023).
- The food & accommodation production index increased by 8.1% year-on-year, as there was the first New Year holiday since the termination of social distancing rules, and travel demand steadily increased.

► Major economic and industrial indicators

	2021		2022p				2023p
		M1	M1		M11	M12	M1
GDP (trillion won)	1 915.8 (4.1)	-	-	1 964.8 (2.6)	-	512.2 (1.3)	-
Total export (\$billion, customs clearance basis)	644.4 (25.7)	48.0 (11.4)	55.5 (15.5)	683.6 (6.1)	51.8 (-14.2)	54.8 (-9.7)	46.4 (-16.4)
Industrial production index (2020=100)	108.2 (8.2)	104.4 (9.9)	110.4 (5.7)	109.7 (1.4)	106.8 (-5.5)	108.7 (-10.5)	96.0 (-13.0)
Semi-conductors	126.8 (26.8)	104.7 (22.6)	141.1 (34.8)	136.5 (7.7)	108.3 (-22.6)	114.7 (-25.1)	93.3 (-33.9)
Basic chemical products	105.9 (5.9)	104.6 (-8.0)	111.4 (6.5)	99.1 (-6.4)	87.2 (-10.9)	96.8 (-12.9)	98.9 (-11.2)
Iron&Steel	105.2 (5.2)	104.6 (1.6)	110.0 (5.2)	96.3 (-8.4)	79.3 (-25.9)	86.1 (-19.0)	90.3 (-17.9)
Cars	106.3 (6.3)	109.3 (19.8)	101.8 (-6.9)	116.0 (9.1)	136.4 (21.4)	131.9 (11.4)	112.7 (10.7)
Service production index (2020=100)	105.2 (5.2)	97.2 (-4.4)	104.8 (7.8)	112.0 (6.5)	113.4 (3.8)	126.8 (6.4)	109.8 (4.8)
Wholesale & Retail	105.3 (5.3)	101.3 (-0.7)	104.9 (3.6)	107.1 (1.7)	109.1 (-0.8)	112.3 (0.3)	106.0 (1.0)

Food & Accommodation	101.9	77.5	105.3	119.1	120.1	130.0	113.8
	(1.9)	(-34.8)	(35.9)	(16.9)	(3.9)	(12.8)	(8.1)

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

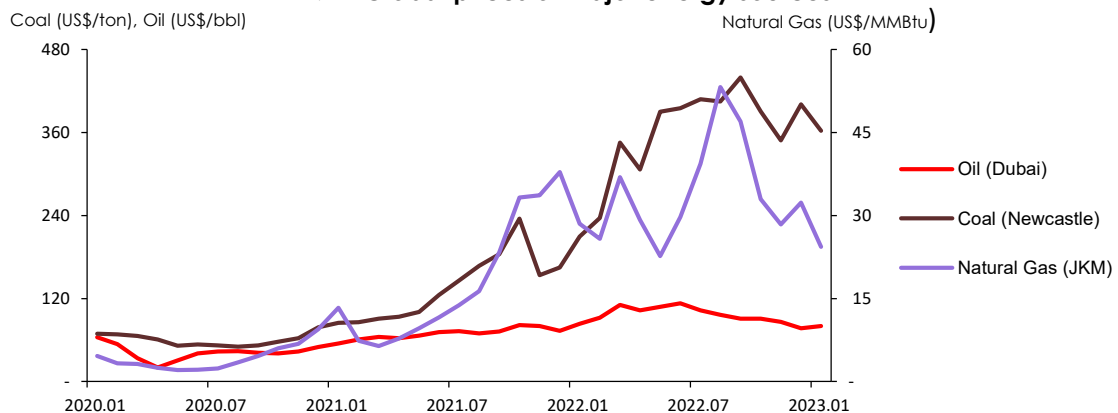
- **Global oil price went up by 4.1% in January from the previous month amid weak US dollar and an expectation of demand recovery for petroleum in China.**
 - The US dollar index fell by 1.7% than the previous month along with growing market anticipation that the interest rate would be raised by no more than 25bp in the Federal Open Market Committee meeting, scheduled between Jan.31-Feb.1, as consumer prices continued to grow at slower pace.
 - As China's COVID-19 restrictions were eased, petroleum demand is expected to pick up in China, which put an upward pressure on global oil prices.
 - Global steam coal price dropped by 9.6% in January from the previous month, as abnormally high winter temperatures, such as in Europe, led to lower demand for power generation.
 - Global natural gas price plunged in January, as lower heating demand and strong supply led to an oversupply.

► Global energy prices

	2020	2021	2022		2023		
			M1	M1	M11	M12	M1
Crude oil (US\$/bbl)	42.2	69.3	54.8	83.5	96.4	86.3	77.2
	(-33.6)	(64.2)	(10.0)	(14.0)	(39.1)	(-5.4)	(-10.5)
Coal (US\$/ton)	60.2	136.4	84.9	209.6	357.1	348.6	400.9
	(-22.8)	(126.5)	(8.5)	(27.3)	(161.8)	(-10.7)	(15.0)
Natural gas (US\$/MMBtu)							
TTF	3.2	16.1	7.3	28.2	40.2	35.9	36.7
	(-32.3)	(397.9)	(24.8)	(-25.0)	(149.6)	(-6.5)	(2.2)
JKM	4.2	17.9	13.3	28.5	33.9	28.4	32.3
	(-24.9)	(325.7)	(40.9)	(-24.6)	(89.2)	(-13.9)	(14.0)

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 fell by 0.1% and 6.1% respectively in January from the previous month in line with the downward trend in global prices.

- Gasoline price just slightly declined, despite a drop in global price in December, as tax cut rate was reduced. Meanwhile, diesel price fell by 6.1% than the previous month in line with the downward slide in global price, and consequently, the price gap between gasoline and diesel was further narrowed.
- Domestic LPG price declined, as their supply prices were cut or fixed in January, even though Saudi Aramco lifted the contract price for December.
- The relative price of propane in terms of city gas (propane/city gas) for industrial customers went up by 4.5% to 0.83 from the previous month, rebounding for the first time in seven months, as the supply price of propane and retail price of city gas fell by 1.5% and 5.8% respectively than the prior month.

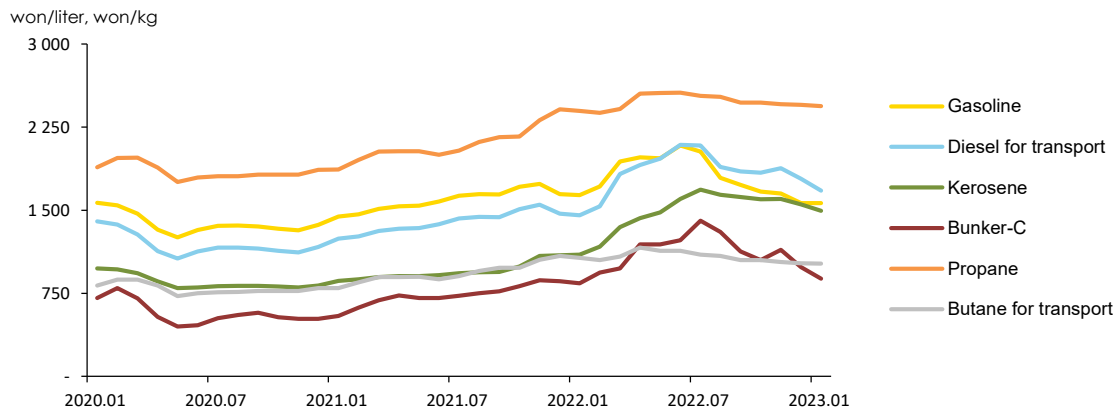
► Domestic petroleum product prices

	2020	2021		2022				2023
			M1	M1		M11	M12	M1
Gasoline (won/liter)	1 381.3 (-6.2)	1 591.2 (15.2)	1 441.8 (5.4)	1 635.2 (-0.7)	1 812.7 (13.9)	1 650.3 (-1.0)	1 563.8 (-5.2)	1 562.9 (-0.1)
Diesel for transport (won/liter)	1 189.5 (-11.3)	1 392.0 (17.0)	1 242.4 (6.3)	1 453.5 (-1.0)	1 843.4 (32.4)	1 879.2 (2.2)	1 783.3 (-5.1)	1 675.4 (-6.1)
Bunker-C (won/liter)	572.9 (-23.0)	732.2 (27.8)	545.5 (5.1)	840.4 (-2.2)	1 116.1 (52.4)	1 142.2 (8.7)	986.7 (-13.6)	883.8 (-10.4)
Propane (won/kg)	1 850.3 (-1.0)	2 093.4 (13.1)	1 868.1 (0.2)	2 395.0 (-0.6)	2 480.1 (18.5)	2 455.4 (-0.6)	2 449.7 (-0.2)	2 440.0 (-0.4)
Butane for transport (won/liter)	790.8 (-1.9)	932.3 (17.9)	797.2 (0.0)	1 071.8 (-1.4)	1 081.8 (16.0)	1 032.2 (-1.6)	1 021.4 (-1.0)	1 019.7 (-0.2)

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



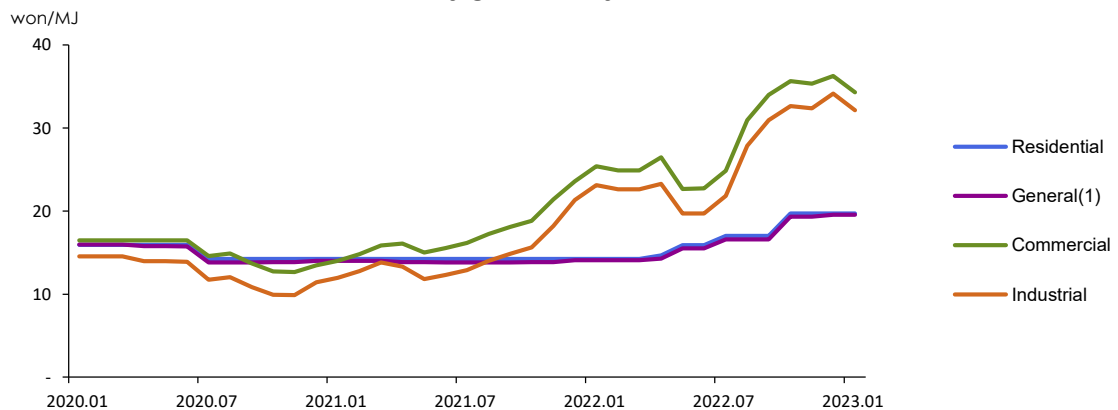
□ In January, city gas retail rates for private use (residential, general) were fixed, while the rates for commercial use (office heating, industrial) were lowered by around 5.5%.

- City gas retail rates for residential and general use remained the same as the previous month, as material cost and wholesale & retail supply costs were fixed.
- City gas retail rates for office heating and industrial use declined by 5.4% and 5.8% respectively from the previous month due to lower material cost.

□ Electric rate increased by 13.1 won/kWh in January than the previous month, as climate change & environmental charge and energy charge were raised.

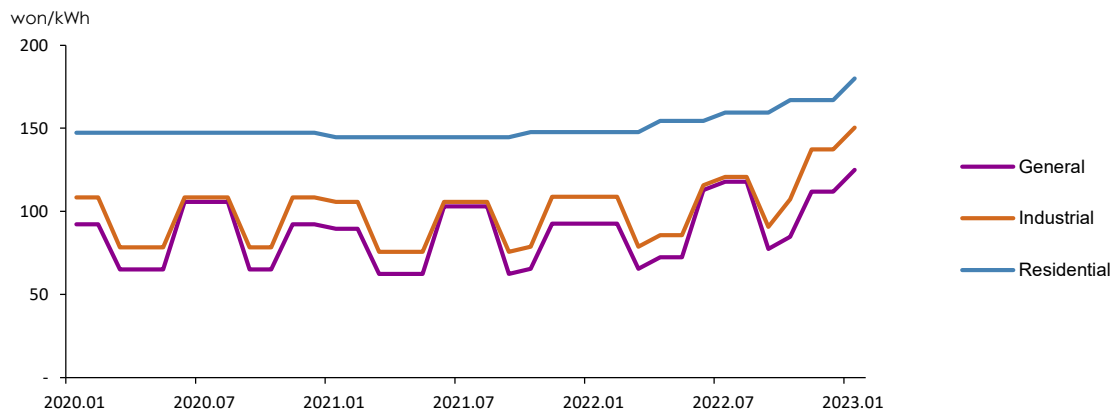
- Climate change & environmental charge was raised for the second time (1.7 won/kWh) since April 2022(1.4 won/kWh), and energy charge was raised by 11.4 won/kWh after it was raised in April (4.9 won/kWh) and October (7.4 won/kWh) 2022.
- The fuel cost pass-through adjustment rate was fixed at 5.0 won/kWh considering the upper and lower limits of the rate adjustment, although it was calculated to be 25.0 won/kWh for 1Q 2023.

► 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 went down by 9.2% year-on-year in January, as the import of most energy sources declined.**
 - The import volume of crude oil declined in all the regions, posting a year-on-year drop of 14% in total, as the unit importing price increased due to higher freight cost, even though global oil price declined. In the case of crude oil from the Middle East region, the unit importing price rose by around 2%, and the import volume fell by about 8%.
 - The import volume of petroleum products went down by around 8% year-on-year, mostly LPG and bunker-C oil.
 - The import volume of bituminous coal decreased by 4.9%, as its global price remained at a high level(-5%, yoy) after it reached \$246.0/ton (Australian New Castle price) in March 2022, and also owing to lower demand in the power generation (-7.4%) sector and base effect (37.3%).
 - The import volume of natural gas dropped by 4.2% year-on-year due to base effect of the same month last year when Korea Gas Corporation increased the import volume in order to manage inventory, even though its global price has been down for four months in a row.
 - The import value of energy (based on CIF) dropped for the first time in 22 months, as global prices of major energy sources grew at slower pace, and the energy import volume dropped by more than 9% on a year-on-year basis.

► Import and domestic production of energy

	2021		2022p				2023p
		M1	M1		M11	M12	M1
Import volume							
Crude oil (Mbbl)	960.1	76.9	94.8	1 031.3	82.9	87.6	81.6
	(-2.1)	(-17.1)	(23.3)	(7.4)	(3.2)	(0.7)	(-13.9)
Petroleum product (Mbbl)	392.3	28.9	36.2	367.1	31.5	30.5	33.4
	(13.0)	(-26.7)	(25.4)	(-6.4)	(-0.1)	(-19.4)	(-7.9)
Bituminous coal (Mton)	119.6	7.9	10.8	120.2	10.1	10.5	10.3
	(1.7)	(-24.4)	(37.3)	(0.5)	(-3.1)	(4.6)	(-4.9)
Anthracite (Mton)	6.5	0.6	0.5	5.4	0.5	0.3	0.4
	(3.0)	(-2.2)	(-29.5)	(-16.8)	(-32.9)	(-31.5)	(-10.5)
LNG (Mton)	45.9	4.4	5.0	46.4	3.8	4.5	4.8
	(14.9)	(6.7)	(13.0)	(1.0)	(-2.1)	(16.9)	(-4.2)
Import volume (Mtoe)	324.3	25.7	31.5	331.1	27.2	28.8	28.6
	(3.9)	(-15.6)	(22.8)	(2.1)	(-0.8)	(0.4)	(-9.2)
Import value (billion US\$, CIF)	137.1	8.2	18.5	217.9	17.5	18.6	17.8
	(58.5)	(-32.4)	(125.2)	(59.0)	(19.4)	(17.9)	(-3.5)
Energy share of total import value (%)	22.1	18.4	30.5	29.8	29.8	31.3	30.3
Foreign energy dependence (%)	94.7	95.9	95.6	94.2	94.8	97.1	95.6
Domestic production							
Hydropower (TWh)	3.1	0.2	0.2	3.5	0.2	0.2	0.2
	(-21.2)	(-14.4)	(-1.6)	(15.9)	(19.6)	(9.4)	(8.3)
Anthracite (Mton)	0.9	0.1	0.1	0.8	0.1	0.1	0.1
	(-11.9)	(-3.8)	(-6.5)	(-8.7)	(-13.8)	(-10.4)	(-23.6)
Renewable energy (Mtoe)	14.4	1.2	1.3	15.9	1.2	1.3	1.2
	(13.9)	(15.9)	(16.3)	(10.8)	(5.4)	(-2.9)	(-10.7)

Note: p means provisional, () is year-on-year growth rates (%), *Foreign energy dependence (%) including Nuclear energy
Source: Korea Energy Economics Institute

4. Energy Consumption

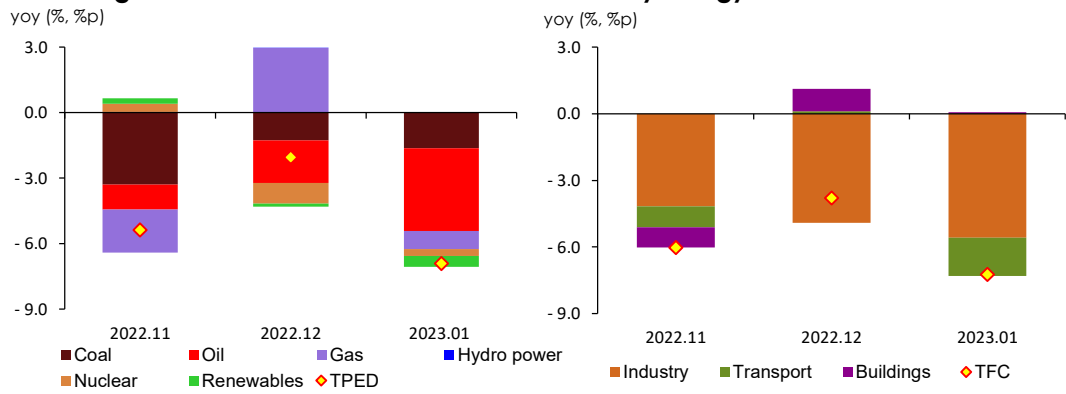
- **Total Primary Energy Demand (TPED) was down 6.9% year-on-year in January, as demand for all energy sources decreased amid the economic slowdown.**
 - Coal use fell by 7.3% year-on-year, as it declined in the power generation sector partly due to constraints on transmission lines in the metropolitan area, and as its industrial use continued to drop, especially in the iron & steel and cement sectors, affected by a stagnant economy.
 - Petroleum use went down by 5.8% year-on-year, as its industrial use declined, mostly in the petrochemical sector amid sluggish business and the scheduled maintenance, and as it also decreased in the transport sector due to reduced tax cut benefits and growing overseas travel.
 - Gas (natural gas + city gas) use decreased by 3.0% year-on-year, as it declined in the industrial (-14.5%) and building sectors due to the economic downturn and temperature effect respectively, even though it grew in the power generation sector as a result of stronger demand for electricity and lower baseload generation.
- **Total Final Consumption (TFC) decreased by 7.2% year-on-year in January, as it was flat in the building sector, while it declined in the industrial and transport sectors.**
 - Industrial energy use dropped at a faster rate of 10.0% on a year-on-year basis, as it declined in most of the sectors including large energy consuming businesses amid an overall slowdown in the manufacturing industry.
 - Transport energy use fell by 11.7% year-on-year, as gas stations increased its inventory in the previous month ahead of the reduction of fuel tax cut rates, scheduled for January, and consequently, refiners sold less amount of oil to gas stations and dealerships.
 - Energy use in buildings went up by 0.2%, even though it declined in the residential sector due to decreased number of heating degree days (-1.2%), higher energy prices and less time spent at home during holidays, as it was offset by the growth in commercial energy use, which was attributed to stronger service production.

► Energy consumption

	2021	2022p				2023p	
		M1	M1		M11	M12	M1
TPED (Mtoe)	303.3	28.1	29.7	301.9	23.8	28.7	27.6
	(5.2)	(3.0)	(5.4)	(-0.4)	(-5.4)	(-2.0)	(-6.9)
TFC (Mtoe)	215.8	20.3	21.6	213.5	16.8	20.4	20.1
	(5.9)	(2.9)	(6.6)	(-1.1)	(-6.0)	(-3.8)	(-7.2)
- Feedstock exclude	141.3	14.4	14.9	141.4	11.1	14.3	14.1
	(4.4)	(9.3)	(3.1)	(0.0)	(-6.2)	(0.4)	(-5.3)

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 went down by 7.3% year-on-year in January, as it continued to decline in the industrial sector, while it started to decline in the power generation sector.

- Coal use continued to decline in the iron & steel sector, marking the 12th consecutive month of decline, which was caused by a slowdown in downstream industries, which are major source of iron & steel demand.
- Coal use for power generation decreased on a year-on-year basis after a slight increase in the previous month, as nuclear generation, which plunged in the previous month (-7.9%), declined at much slower pace, and solar PV generation rebounded from a downward trend.

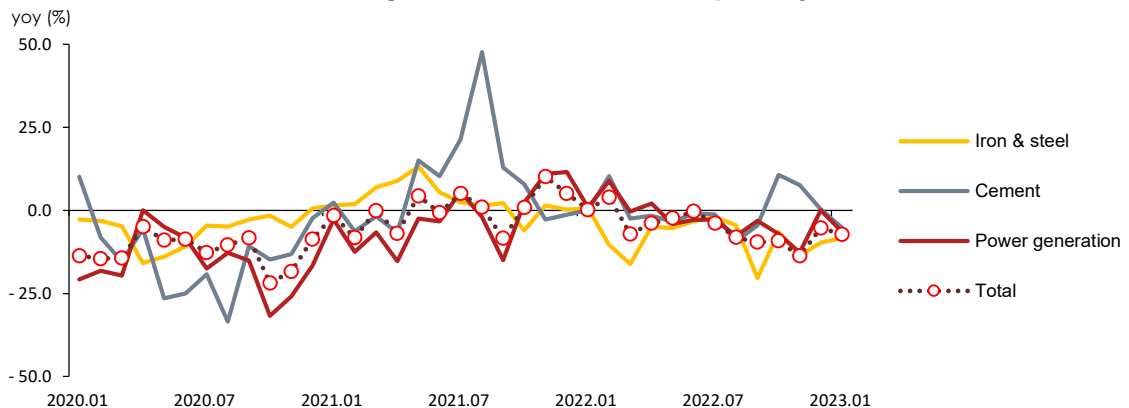
► Coal consumption

	2021	2022p						2023p
		M1	M1		M11	M12	M1	
Coal (Mton)	119.9	10.8	10.9	113.9	8.7	10.3	10.1	
	(-0.0)	(-1.5)	(0.2)	(-5.0)	(-13.7)	(-5.3)	(-7.3)	
Industry	50.5	4.3	4.3	46.3	3.7	3.8	3.9	
	(3.8)	(0.3)	(-0.7)	(-8.3)	(-15.3)	(-12.8)	(-8.5)	
-Coking-coal	25.5	2.2	2.2	23.3	1.8	2.0	2.0	
	(3.0)	(0.9)	(1.2)	(-8.8)	(-13.5)	(-9.5)	(-8.8)	
Buildings	0.4	0.1	0.0	0.4	0.1	0.1	0.0	
	(-11.8)	(-4.0)	(-8.9)	(-5.1)	(-4.7)	(-14.8)	(-6.0)	
Power generation	68.9	6.4	6.5	67.1	4.9	6.4	6.1	
	(-2.5)	(-2.7)	(0.9)	(-2.6)	(-12.7)	(0.0)	(-6.5)	

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 fell sharply in January by around 10% in all end-use sectors, and the total final use dropped by 12.1% compared to the same month last year.
 - Industrial petroleum use went down by 12.2% year-on-year due to a drop in petroleum use as feedstock amid sluggish petrochemical business.
 - Transport petroleum use fell by 12.0% year-on-year, as stockpiling demand for gasoline and actual demand for diesel decreased in the road transport sector.
 - Petroleum use in buildings dropped by 12.4% year-on-year, as petroleum use for heating decreased in all sectors including the residential sector amid worries about growing cost burden for heating.

► Petroleum product consumption by end-use sectors

	2021		2022p				2023p
		M1	M1		M11	M12	M1
TFC (Mbbbl)	809.1	65.9	75.9	795.6	63.1	73.2	66.7
	(7.6)	(-5.2)	(15.2)	(-1.7)	(-4.1)	(-6.4)	(-12.1)
Industry	505.8	39.9	47.1	493.8	39.1	42.1	41.4
	(9.4)	(-11.7)	(18.1)	(-2.4)	(-3.8)	(-12.1)	(-12.2)
- Naphtha	369.9	29.2	33.8	356.0	28.0	30.7	30.7
	(10.8)	(-14.1)	(15.8)	(-3.8)	(-5.7)	(-13.6)	(-9.3)
Transport	259.0	19.7	22.6	257.7	20.1	25.1	19.9
	(5.6)	(3.8)	(14.6)	(-0.5)	(-5.6)	(1.3)	(-12.0)
Buildings	44.2	6.3	6.2	44.1	3.9	6.1	5.4
	(-1.1)	(18.1)	(-1.8)	(-0.3)	(0.4)	(9.1)	(-12.4)
Power generation (Mbbbl)	4.19	0.48	0.96	4.99	0.29	0.30	0.35
	(9.4)	(16.8)	(101.8)	(19.2)	(-24.4)	(-6.7)	(-63.6)

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

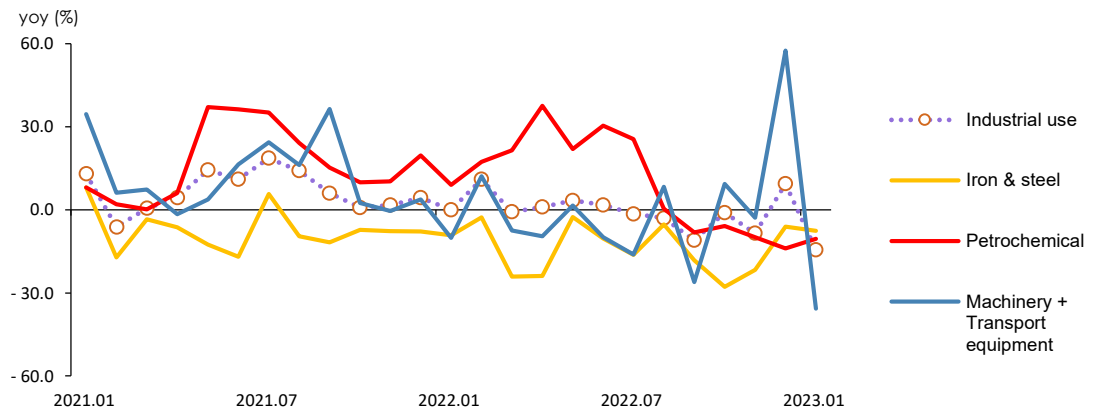
- **Natural gas use declined by 3.3% year-on-year in January, as its final use decreased, though it increased in the power generation sector.**
 - Gas use for power generation has increased for two consecutive months, despite the growth in unit fuel cost of gas-fired generation (63.6%), as baseload generation decreased (-2.5%), and renewable & other energy generation grew at slower pace, while electricity use grew by 3.1%.
- **The final use of gas fell by 5.3%, as it declined in both of the industrial and building sectors due to the economic slowdown and temperature effect.**
 - Amid the economic downturn, gas use continued to decline in the iron & steel and petrochemical sectors, and it declined in the transport equipment sector due to a surge in the previous month, while it was flat on a year-on-year basis in the machinery sector. Consequently, industrial gas use plunged by over 14%.
 - Gas use in buildings decreased, as it dropped in the residential sector (-2.3%) due to increased city gas rate for residential customers (Oct. 2022) and decreased number of heating degree days (-1.2%), although it grew (0.9%) in the commercial sector along with stronger service production.

► Natural gas and city gas consumption

	2021		2022p				2023p
		M1	M1		M11	M12	M1
Natural gas (Mton)	45.9	5.8	5.4	45.3	3.6	5.7	5.2
	(10.6)	(18.1)	(-6.6)	(-1.1)	(-9.7)	(12.9)	(-3.3)
Power generation	23.2	2.4	2.1	22.5	1.8	2.4	2.2
	(16.4)	(13.7)	(-12.9)	(-3.3)	(-3.3)	(17.4)	(3.8)
Final consumption (Bm³)	24.9	3.7	3.7	25.8	2.0	3.4	3.5
	(3.4)	(16.1)	(-0.5)	(3.6)	(-7.5)	(8.0)	(-5.3)
Industry	9.8	1.0	1.0	9.8	0.8	1.1	0.8
	(6.4)	(13.0)	(-0.0)	(0.3)	(-8.5)	(9.4)	(-14.5)
Buildings	14.1	2.6	2.6	15.0	1.2	2.2	2.6
	(2.0)	(18.4)	(-0.7)	(6.4)	(-7.1)	(7.9)	(-1.8)

Note: p means provisional, () is year-on-year growth rates (%). Final consumption is the sum of Natural gas and City gas consumption
Source: Korea Energy Economics Institute

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



8. Electricity

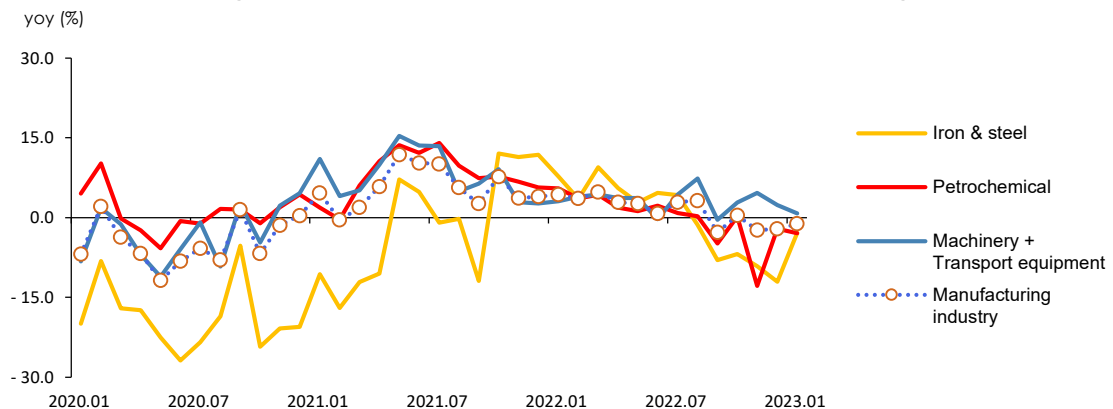
- Electricity use posted a year-on-year growth of 3.1% in January, led by a surge in the building sector, although it declined in the industrial sector.
 - Industrial electricity use has been down for three consecutive months since November 2022, led by the petrochemical and iron & steel sectors due to the economic slowdown and damages caused by a typhoon, while it increased in the machinery and transport equipment sectors.
 - Electricity use in buildings went up by 7.1% year-on-year as a result of stronger service production, even though the number of heating degree days decreased.

► Electricity consumption by end-use sectors

	2021		2022p				2023p
		M1	M1		M11	M12	M1
Electricity (TWh)	521.0	47.8	48.7	535.3	41.5	45.8	50.2
	(4.8)	(5.5)	(2.0)	(2.7)	(-0.8)	(-0.6)	(3.1)
Industry	269.6	23.5	24.5	274.1	21.8	23.1	24.3
	(5.8)	(5.4)	(4.2)	(1.7)	(-2.0)	(-2.0)	(-1.0)
Transport	3.7	0.3	0.3	4.0	0.3	0.4	0.4
	(11.7)	(8.4)	(5.8)	(8.7)	(9.1)	(3.2)	(11.9)
Buildings	247.8	23.9	23.9	257.2	19.3	22.3	25.6
	(3.6)	(5.6)	(-0.2)	(3.8)	(0.5)	(0.9)	(7.1)
Residential	77.6	6.9	6.9	78.6	5.9	6.3	7.0
	(4.7)	(10.8)	(-1.2)	(1.3)	(-1.1)	(1.3)	(1.9)
Commercial	139.5	13.9	13.8	147.0	10.9	13.0	15.3
	(2.5)	(2.3)	(-0.3)	(5.4)	(1.2)	(-0.4)	(10.3)

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

► The growth rate of electricity consumption in manufacturing industry

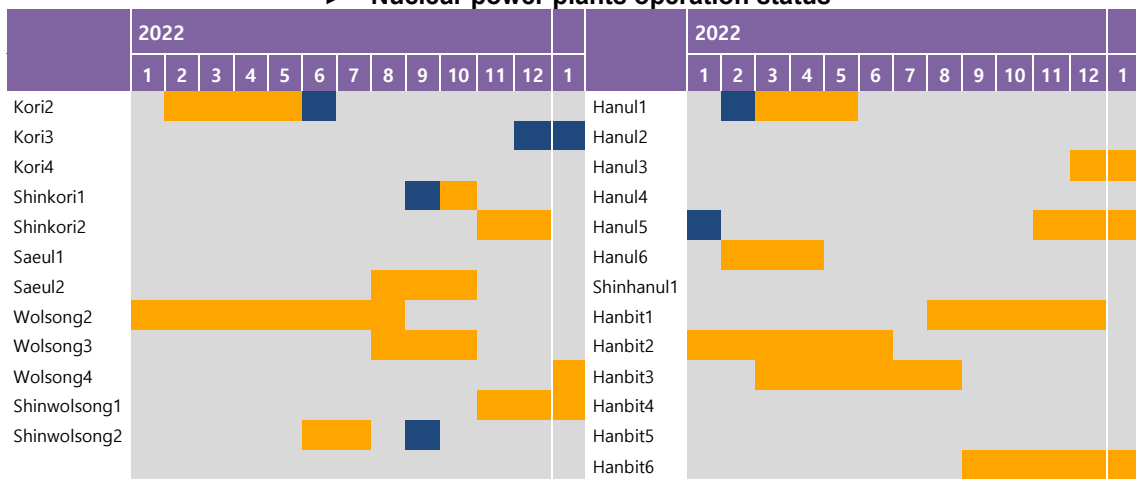


9. Nuclear

□ The total nuclear generation fell by 2.8% year-on-year in January, as its capacity factor decreased due to the growth in daily average of preventive maintenance.

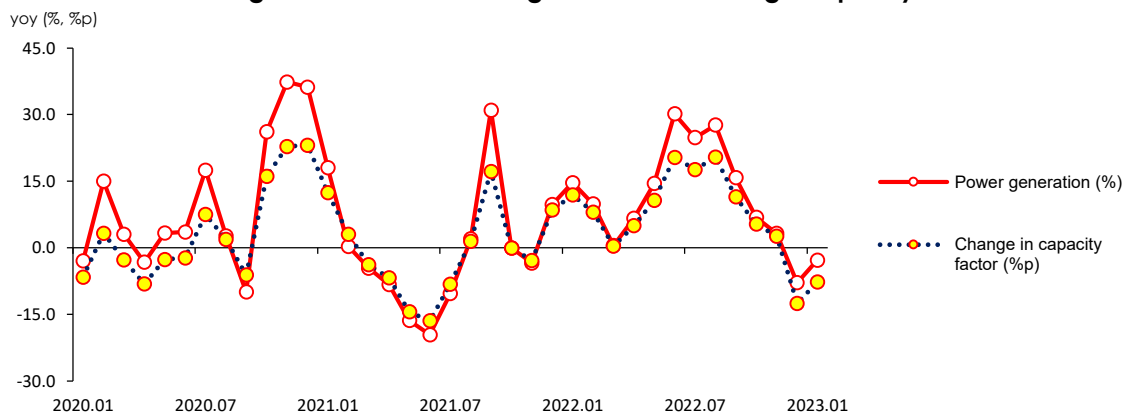
- Scheduled and unscheduled reactor shutdown cases rose by two reactors from the same month last year, and accordingly, the daily average of preventive maintenance grew by 4.5GW.
- Shinhanul unit 1 reactor entered into the test operation stage from June 2022 and started commercial operation on December 7, adding new installed capacity for the first time since the commissioning of Shinkori unit 4 (1.4GW, Aug. 30, 2019), with the total installed capacity reaching 24.7GW.
- Nuclear energy's share of the total power generation decreased by 0.5%p year-on-year to 28.9%.

► Nuclear power plants operation status



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

► The growth rate of nuclear generation & average capacity factor

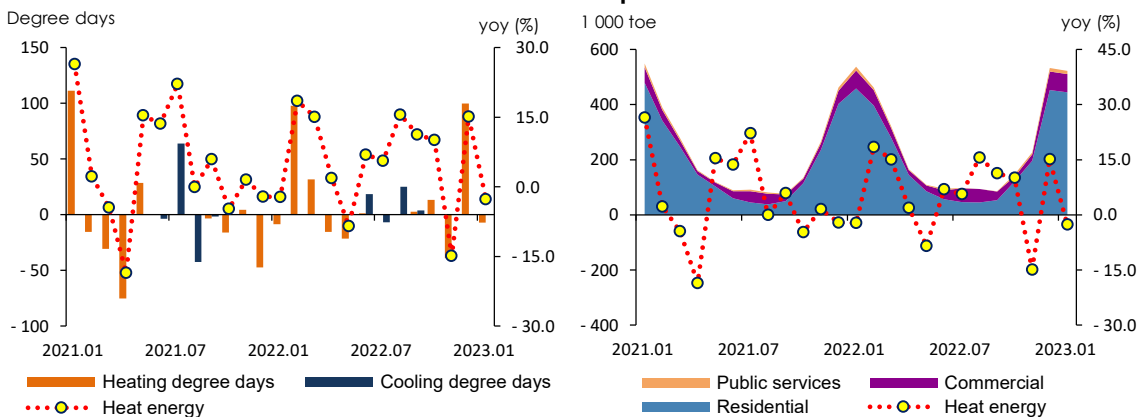


Note: Capacity factor = Ratio of actual power generated to possible power generation when utilizing 100% of available facility. Facility capacity values are based on end-of-the-month data

10. Heat and Renewable energy

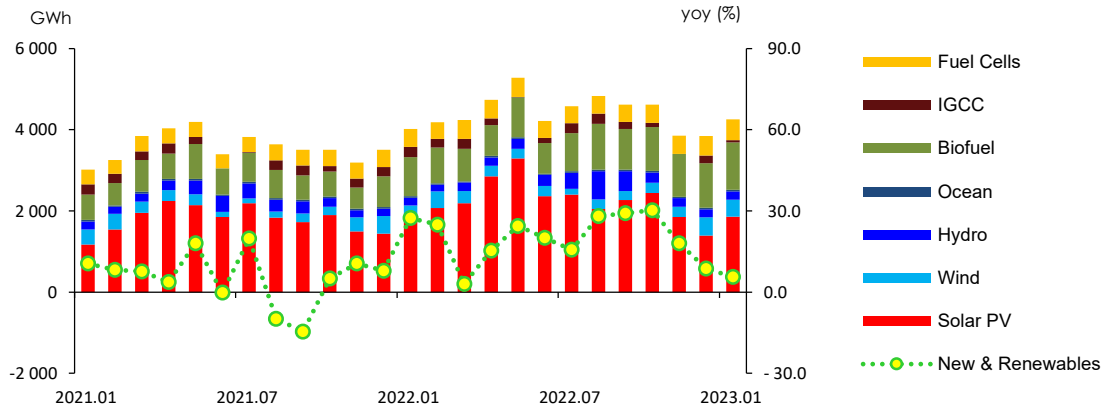
- **Heat energy use dropped by 2.7% year-on-year in January, with the residential sector leading the downward trend along with the decreased number of heating degree days.**
 - The total heat energy use decreased, even though it grew by 0.7% year-on-year in the commercial sector due to growing service production, as it dropped by 3.1% year-on-year in the residential sector amid the decreased number of heating degree days (-1.2%).
- **Renewable & other energy use decreased by 10.1% year-on-year in January, as renewable & other energy generation grew more slowly, and their final use declined.**
 - Renewable & other energy generation² increased, with solar PV, bioenergy and wind energy leading the growth (5.6%), though it grew at slower pace.
 - The final use of renewable & other energy fell by 8.4% year-on-year, as it declined in the end-use sectors (industry and transport) except the building sector.

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



² 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'. In the current Energy Balance report, renewable & other energy and hydropower (including pumped storage) data are collected in separate categories, and therefore, hydropower is not included in the renewable & other energy category.

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



11. Industry

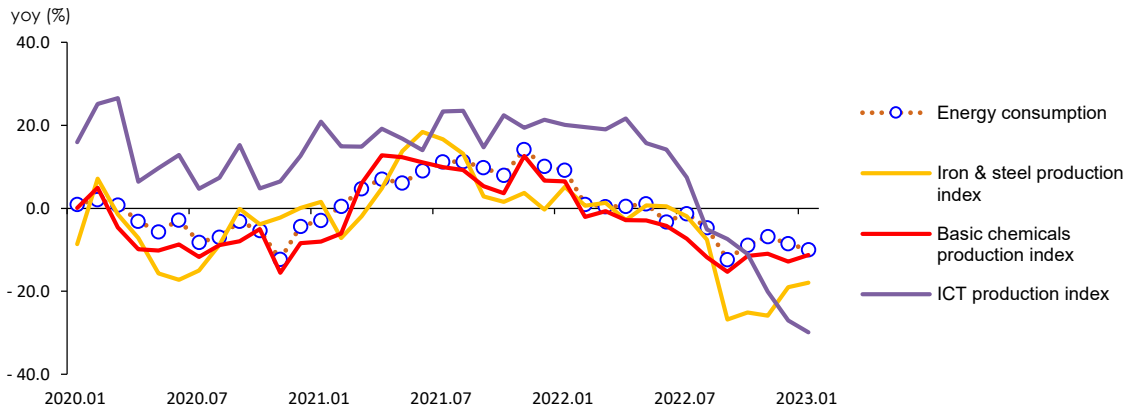
- Industrial energy use went down by 10.0% year-on-year in January, as the output decreased in most of the sectors due to the economic downturn.
 - Industrial energy use dropped faster, as it declined in the machinery and transport equipment sectors as well after an upward trend in the previous month.

► Industrial energy consumption

	2021	2022p		2023p	
		M1	M1	M11	M12
Industry (Mtoe)	133.0	11.1	12.1	129.2	10.3
	(7.3)	(-2.9)	(9.2)	(-2.9)	(-6.8)
Petrochemical	67.0	5.4	6.2	65.5	5.0
	(11.0)	(-9.8)	(15.8)	(-2.3)	(-7.0)
- Naphtha	45.3	3.6	4.1	43.6	3.4
	(10.8)	(-14.1)	(15.8)	(-3.8)	(-5.7)
Iron & Steel	27.9	2.4	2.4	25.9	2.0
	(1.8)	(1.1)	(0.7)	(-7.4)	(-13.4)
- Coking coal	17.8	1.5	1.5	16.4	1.3
	(3.0)	(0.9)	(2.1)	(-8.0)	(-12.7)
Machinery + Transport Equipment	12.5	1.2	1.2	13.0	1.1
	(6.0)	(13.9)	(0.7)	(3.9)	(4.4)
Share of feedstock (%)	55.9	52.7	55.7	55.7	55.4
					54.4
					54.8

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 11.7% year-on-year in January, as it decreased in all end-use sectors and especially plunged in the road transport sector.**

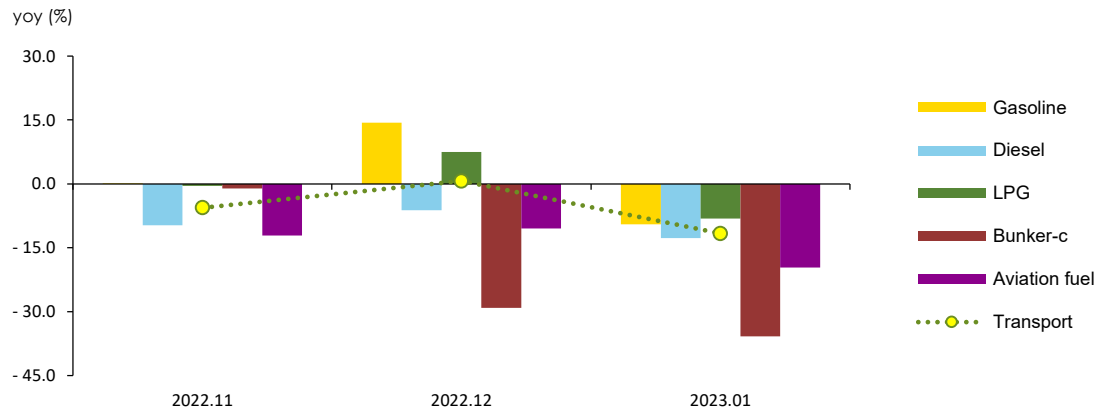
- Energy use dropped by 10.8% year-on-year in the road transport sector, as gasoline stockpiling demand fell sharply following the reduction of fuel tax cuts.
- Energy use decreased by 19.5% year-on-year in the domestic aviation sector, as the number of domestic flights decreased steadily.

► The growth rate of petroleum consumption in the transport sector

	2021		2022p				2023p
		M1	M1		M11	M12	M1
Transport (Mtoe)	36.64	2.79	3.18	36.43	2.84	3.51	2.81
	(5.4)	(4.3)	(14.1)	(-0.6)	(-5.6)	(0.7)	(-11.7)
Road	34.20	2.59	2.92	33.96	2.66	3.33	2.60
	(2.2)	(3.4)	(12.7)	(-0.7)	(-5.3)	(1.5)	(-10.8)
Domestic navigation	0.43	0.03	0.05	0.50	0.03	0.03	0.03
	(27.2)	(2.6)	(76.9)	(16.7)	(-2.0)	(-22.0)	(-35.9)
Domestic aviation	1.68	0.13	0.18	1.67	0.12	0.12	0.14
	(168.3)	(28.2)	(32.4)	(-0.3)	(-12.1)	(-10.3)	(-19.5)
Rail	0.33	0.03	0.03	0.30	0.02	0.03	0.03
	(-0.3)	(-0.2)	(-8.8)	(-9.9)	(-7.5)	(-13.6)	(-4.0)

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 grew by mere 0.2% year-on-year in January, as lower heating demand limited the pace of growth in energy use in the commercial sector.**

- In the residential sector, energy use fell by 2.6%, as heating demand decreased amid warmer weather than the same month last year.
- In the commercial sector, energy use has been up for 13 consecutive months along with the recovery of the service production, which was led by the food & accommodation sector.
- As for the contribution of energy source to the growth in buildings' energy use (0.2%), electricity contributed 2.3%p, followed by renewable & other energy (0.1%p), coal (0.0%p), heat (-0.2%p), city gas (-0.4%p) and petroleum products (-1.5%p).

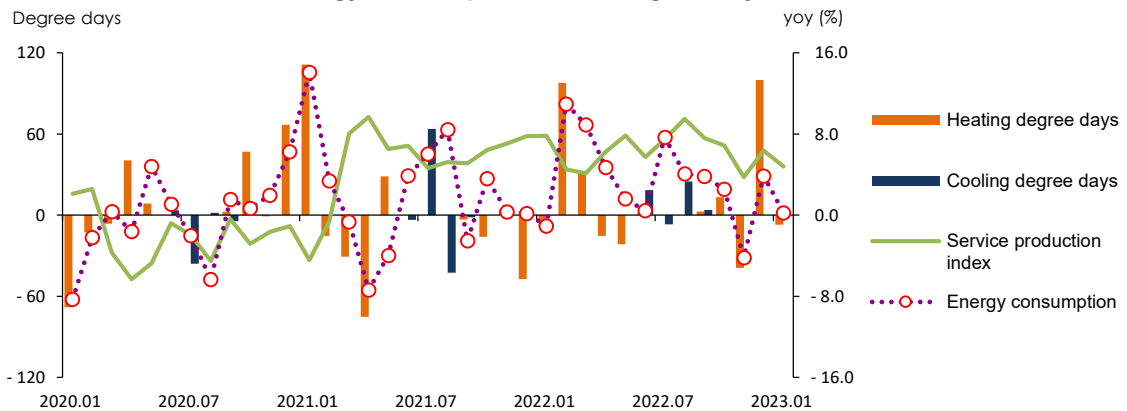
► Energy consumption in buildings

	2021		2022p				2023p
		M1	M1		M11	M12	M1
Buildings (Mtoe)	46.1	6.4	6.3	47.8	3.7	5.7	6.4
	(2.5)	(14.1)	(-1.1)	(3.7)	(-4.2)	(3.9)	(0.2)
Residential	22.9	3.8	3.7	23.4	1.9	3.3	3.7
	(2.6)	(21.7)	(-2.3)	(2.1)	(-8.6)	(4.8)	(-2.6)
Commercial	18.0	2.0	2.0	19.1	1.4	1.9	2.1
	(1.8)	(3.3)	(1.0)	(6.2)	(0.9)	(4.0)	(4.9)
Public services	5.2	0.6	0.6	5.3	0.4	0.5	0.6
	(4.0)	(7.9)	(0.4)	(2.0)	(0.2)	(-2.3)	(2.6)
Heating degree days	2 404.7	591.5	583.1	2 567.1	251.6	600.3	576.1
	(-1.8)	(23.2)	(-1.4)	(6.8)	(-13.4)	(20.0)	(-1.2)
Cooling degree days	101.3	-	-	141.9	-	-	-
	(18.9)	-	-	(40.1)	-	-	-
Service production index (2020=100)	105.2	97.2	104.8	112.0	113.4	126.8	109.8
	(5.2)	(-4.4)	(7.8)	(6.5)	(3.8)	(6.4)	(4.8)

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

□ In January, nuclear and coal-fired generation decreased, while renewable and gas-fired generation increased, and the total power generation slightly decreased.

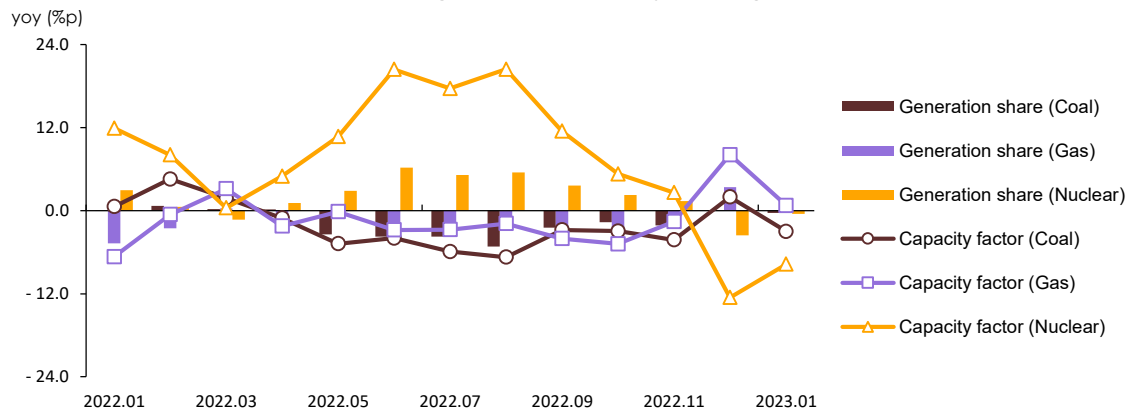
- Nuclear generation dropped by 2.8%, despite the increased installed capacity (Shinhanul unit 1, Dec. 7, 2022), as the number of reactors that were subject to the scheduled preventive maintenance rose by two reactors, though the pace of the decline was much slower.
- Coal-fired generation rebounded in December 2022, as nuclear generation declined sharply. In January, however, the rate of such decline was half that of the previous month, causing transmission constraints in the east coast areas, and consequently, coal-fired generation made downward slide.
- Renewable & other energy generation posted a year-on-year growth of 4.9%, despite a sharp drop in IGCC generation (-76.3%), as power generation from solar PV, bioenergy, wind energy, hydropower and fuel cell grew by 3.7%, 21.6%, 21.5%, 7.6% and 14.2% respectively.
- Gas-fired generation, which responds to peak load, grew by 1.5% yoy, as baseload generation including renewable & other energy dropped faster (-1.6%) than the total power generation.

► Power generation by energy sources

	2021		2022p				2023p
		M1	M1		M11	M12	M1
Power Generation (TWh)	576.7	53.1	54.8	594.4	46.2	55.6	54.1
	(4.5)	(6.5)	(3.2)	(3.1)	(-1.4)	(4.1)	(-1.2)
Coal	198.0	17.8	18.4	193.2	15.0	18.9	18.0
	(0.8)	(-3.8)	(3.2)	(-2.4)	(-7.6)	(3.9)	(-2.2)
Oil	2.4	0.3	0.5	2.0	0.1	0.2	0.2
	(4.4)	(-4.4)	(58.8)	(-16.5)	(-39.7)	(9.0)	(-58.0)
Gas	168.3	17.3	15.3	163.6	12.7	16.9	15.5
	(15.4)	(9.4)	(-11.7)	(-2.8)	(-3.5)	(17.2)	(1.5)
Nuclear	158.0	14.0	16.1	176.1	14.0	15.2	15.7
	(-1.4)	(18.0)	(14.7)	(11.4)	(3.2)	(-7.9)	(-2.8)
Renewables	50.1	3.7	4.6	59.6	4.4	4.4	4.8
	(5.5)	(9.9)	(25.1)	(18.9)	(18.4)	(7.4)	(4.9)
Baseload	356.0	31.8	34.5	369.3	29.0	34.1	33.6
	(-0.2)	(4.7)	(8.2)	(3.7)	(-2.6)	(-1.7)	(-2.5)

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

	2020	2021			2022				2023
			M11	M12	M1		M11	M12	M1
GDP (trillion won)	1 839.5 (-0.7)	1 915.8 (4.1)	-	505.6 (4.2)	-	1 964.8 (2.6)	-	512.2 (1.3)	-
Private consumption	851.0 (-4.8)	882.5 (3.7)	-	228.4 (6.2)	-	920.7 (4.3)	-	236.2 (3.4)	-
Facilities investment	166.6 (7.2)	181.6 (9.0)	-	45.9 (4.2)	-	180.7 (-0.5)	-	49.2 (7.0)	-
Construction investment	269.3 (1.5)	265.0 (-1.6)	-	71.8 (-1.6)	-	255.6 (-3.5)	-	69.6 (-3.1)	-
Consumer price index (2020=100)	100.0	102.5	103.9	104.0	104.7	107.7	109.1	109.3	110.1
USD to KRW exchange rate (won)	1 180.3	1 144.0	1 182.9	1 183.7	1 194.0	1 291.4	1 364.1	1 296.2	1 247.3
Benchmark rate (%)	0.7	0.6	1.0	1.0	1.3	2.1	3.3	3.3	3.5
Coincident composite index (2020=100)	100.0	104.1	105.6	106.5	107.0	108.3	108.9	108.4	108.3
Mining & manufacturing production index (2020=100)	100.0	108.2	113.0	121.5	110.4	109.7	106.8	108.7	96.0
Manufacturing operation ratio index (2020=100)	100.0	105.2	110.5	116.8	106.4	105.2	103.0	102.9	91.8
Average temperature	13.0	13.3	8.3	1.9	- 0.8	12.9	9.6	- 1.4	- 0.6
- year-on-year difference	- 0.4	0.3	- 0.1	1.5	0.3	- 0.4	1.3	- 3.2	0.2
Heating degree days	2 448.0 (3.3)	2 404.7 (-1.8)	290.6 (1.5)	500.4 (-8.6)	583.1 (-1.4)	2 567.1 (6.8)	251.6 (-13.4)	600.3 (20.0)	576.1 (-1.2)
Cooling degree days	85.2 (-29.2)	101.3 (18.9)	-	-	-	141.9 (40.1)	-	-	-
Energy intensity	0.16 (-2.8)	0.16 (1.0)	-	0.16 (2.6)	-	0.15 (-2.9)	-	0.15 (-5.1)	-
Per capita consumption									
Oil (bbl)	0.0 (-4.2)	0.0 (7.3)	0.0 (8.7)	0.0 (20.6)	0.0 (15.4)	0.0 (-1.7)	0.0 (-3.0)	0.0 (-5.0)	0.0 (-10.9)
Electricity (MWh)	0.0 (-2.2)	0.0 (5.0)	0.0 (4.2)	0.0 (4.9)	0.0 (2.2)	0.0 (3.0)	0.0 (-0.6)	0.0 (-0.3)	0.0 (3.2)
City gas (1 000 m3)	- (-2.1)	- (3.5)	- (2.0)	- (-1.2)	- (-0.8)	- (4.1)	- (-7.2)	- (5.7)	- (-3.1)
Total energy (toe)	0.0 (-3.6)	0.0 (5.3)	- (6.2)	0.0 (8.0)	0.0 (5.7)	0.0 (-0.2)	- (-5.2)	0.0 (-1.8)	0.0 (-6.8)

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

	2020	2021			2022				2023
			M11	M12	M1		M11	M12	
Industrial production index									
All industry	100.0 (-1.1)	105.5 (5.5)	109.1 (6.3)	122.3 (8.0)	104.5 (6.5)	110.1 (4.4)	110.4 (1.2)	123.0 (0.6)	103.1 (-1.3)
Mining & manufacturing	100.0 (-0.3)	108.2 (8.2)	113.0 (7.0)	121.5 (8.7)	110.4 (5.7)	109.7 (1.4)	106.8 (-5.5)	108.7 (-10.5)	96.0 (-13.0)
Semiconductor	100.0 (22.7)	126.8 (26.8)	140.0 (28.0)	153.1 (28.3)	141.1 (34.8)	136.5 (7.7)	108.3 (-22.6)	114.7 (-25.1)	93.3 (-33.9)
Iron & steel	100.0 (-6.3)	105.2 (5.2)	107.0 (3.7)	106.3 (-0.3)	110.0 (5.2)	96.3 (-8.4)	79.3 (-25.9)	86.1 (-19.0)	90.3 (-17.9)
Cement	100.0 (-7.5)	103.2 (3.1)	113.8 (1.0)	112.4 (5.1)	86.1 (12.3)	100.2 (-2.9)	105.7 (-7.1)	93.5 (-16.8)	77.5 (-10.0)
Basic compound	100.0 (-7.1)	105.9 (5.9)	97.9 (12.7)	111.1 (6.7)	111.4 (6.5)	99.1 (-6.4)	87.2 (-10.9)	96.8 (-12.9)	98.9 (-11.2)
Transport equipment	100.0 (-9.5)	106.3 (6.3)	112.4 (-2.1)	118.4 (9.9)	101.8 (-6.9)	116.0 (9.1)	136.4 (21.4)	131.9 (11.4)	112.7 (10.7)
Electric & electronic	100.0 (-1.0)	107.7 (7.7)	113.7 (5.0)	122.4 (6.3)	103.8 (1.3)	110.8 (2.9)	111.5 (-1.9)	117.6 (-3.9)	104.3 (0.5)
Service	100.0 (-2.0)	105.2 (5.2)	109.3 (7.1)	119.2 (7.8)	104.8 (7.8)	112.0 (6.5)	113.4 (3.8)	126.8 (6.4)	109.8 (4.8)
Wholesale and retail	100.0 (-2.6)	105.3 (5.3)	110.0 (5.9)	112.0 (4.1)	104.9 (3.6)	107.1 (1.7)	109.1 (-0.8)	112.3 (0.3)	106.0 (1.0)
Food & Accommodation	100.0 (-18.4)	101.9 (1.9)	115.6 (14.1)	115.2 (35.1)	105.3 (35.9)	119.1 (16.9)	120.1 (3.9)	130.0 (12.8)	113.8 (8.1)
Production output									
Iron & steel - Pig iron	45 359.6 (-4.5)	46 440.5 (2.4)	3 897.3 (0.8)	3 958.0 (-3.8)	3 872.3 (-5.9)	42 658.2 (-8.1)	3 231.9 (-17.1)	3 568.4 (-9.8)	3 737.1 (-3.5)
Iron & steel - Crude steel	67 078.8 (-6.1)	70 418.0 (5.0)	5 834.0 (1.2)	5 935.3 (0.4)	6 070.7 (0.5)	65 855.8 (-6.5)	4 811.1 (-17.5)	5 238.3 (-11.7)	5 644.4 (-7.0)
Petrochemical - Basic petrochemicals	30 542.7 (-4.4)	34 434.5 (12.7)	2 833.3 (30.4)	3 115.8 (29.3)	3 129.5 (20.5)	32 854.1 (-4.6)	2 484.2 (-12.3)	2 618.8 (-16.0)	2 775.5 (-11.3)
Petrochemical - Intermediate raw material	15 369.0 (-6.1)	15 764.6 (2.6)	1 246.3 (13.2)	1 322.2 (2.2)	1 272.3 (-5.0)	13 852.5 (-12.1)	1 077.1 (-13.6)	1 097.2 (-17.0)	1 182.2 (-7.1)
Petrochemical - 3 major products	21 268.9 (-1.7)	23 224.7 (9.2)	1 886.2 (14.0)	2 177.5 (21.6)	2 164.6 (15.9)	22 129.4 (-4.7)	1 520.4 (-19.4)	1 754.8 (-19.4)	1 852.4 (-14.4)
The number of cars	3 506.8 (-11.2)	3 462.4 (-1.3)	303.0 (-6.6)	319.1 (7.5)	271.1 (-13.7)	3 756.5 (8.5)	379.8 (25.4)	353.4 (10.8)	306.7 (13.2)

Note: p means provisional

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

International Energy Prices

	2020	2021			2022				2023
			M11	M12	M1		M11	M12	M1
Crude oil (USD/bbl)									
WTI	39.4 (-30.9)	67.9 (72.4)	78.7 (90.2)	71.7 (52.3)	83.0 (59.3)	94.2 (38.7)	84.4 (7.3)	76.5 (6.7)	78.2 (-5.8)
Dubai	42.2 (-33.6)	69.3 (64.1)	80.3 (84.9)	73.2 (46.9)	83.5 (52.3)	96.4 (39.1)	86.3 (7.4)	77.2 (5.5)	80.4 (-3.7)
Brent	43.2 (-32.7)	70.8 (63.8)	80.8 (83.8)	74.8 (49.0)	85.6 (54.7)	98.9 (39.7)	90.9 (12.4)	81.3 (8.7)	83.9 (-1.9)
Unit value of import (C&F)	44.8 (-31.7)	70.2 (56.9)	82.7 (93.7)	79.5 (70.2)	82.2 (53.0)	102.3 (45.6)	94.8 (14.7)	89.5 (12.7)	86.1 (4.7)
LNG									
Henry Hub (USD/MMBTU)	2.1 (-15.9)	3.7 (74.6)	5.1 (78.3)	3.9 (49.5)	4.3 (60.7)	6.5 (75.2)	6.4 (25.6)	5.8 (49.3)	3.4 (-19.6)
TTF (USD/MMBTU)	3.2 (-32.4)	16.0 (396.1)	27.7 (472.9)	37.7 (546.7)	28.2 (288.6)	40.1 (150.0)	35.9 (29.5)	36.7 (-2.6)	19.8 (-30.0)
JKM (USD/MMBTU)	4.2 (-25.1)	17.9 (324.7)	33.6 (394.7)	37.8 (300.0)	28.5 (114.0)	33.9 (89.5)	28.4 (-15.6)	32.3 (-14.5)	24.3 (-14.7)
Unit value of import (USD/ton, CIF)	390.2 (-22.8)	550.8 (41.2)	805.4 (158.1)	892.6 (149.0)	1 138.1 (175.1)	1 053.5 (91.3)	1 259.0 (56.3)	1 255.2 (40.6)	1 295.6 (13.8)
Coal (USD/ton)									
Thermal coal (Newcastle)	60.3 (-22.8)	136.0 (125.8)	153.7 (145.1)	164.6 (110.4)	209.6 (146.9)	356.3 (161.9)	348.6 (126.7)	400.9 (143.5)	362.3 (72.8)
Unit value of import (CIF)	77.7 (-22.9)	115.1 (48.1)	176.4 (148.6)	187.5 (159.3)	185.0 (139.9)	226.3 (96.7)	204.0 (15.6)	204.6 (9.1)	195.7 (5.8)
Petroleum product (USD/bbl)									
Gasoline	46.7 (-35.7)	80.3 (72.2)	94.9 (103.1)	87.9 (64.3)	98.1 (63.2)	115.2 (43.4)	98.5 (3.7)	89.4 (1.7)	99.0 (1.0)
Kerosene	44.7 (-42.1)	75.1 (67.9)	89.2 (95.2)	83.5 (55.0)	95.7 (64.9)	126.7 (68.6)	121.2 (35.9)	110.5 (32.3)	115.0 (20.2)
Diesel	49.4 (-36.8)	77.6 (57.2)	91.6 (92.5)	85.9 (54.9)	99.2 (65.3)	135.3 (74.3)	127.8 (39.6)	114.0 (32.7)	116.2 (17.1)
Bunker-C	39.2 (-31.9)	64.4 (64.3)	71.1 (62.9)	65.8 (38.8)	76.1 (47.8)	82.3 (27.8)	65.5 (-7.9)	59.6 (-9.5)	61.4 (-19.4)
Propane	397.1 (-8.6)	647.9 (63.2)	870.0 (102.3)	795.0 (76.7)	740.0 (34.5)	737.1 (13.8)	610.0 (-29.9)	650.0 (-18.2)	590.0 (-20.3)
Butane	403.8 (-8.6)	629.6 (55.9)	830.0 (88.6)	750.0 (63.0)	710.0 (34.0)	734.2 (16.6)	610.0 (-26.5)	650.0 (-13.3)	605.0 (-14.8)
Naphtha	40.5 (-28.9)	70.6 (74.6)	84.0 (107.1)	77.6 (63.1)	84.4 (51.8)	83.1 (17.7)	73.8 (-12.2)	65.7 (-15.4)	72.4 (-14.3)

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

	2020	2021			2022				2023
			M11	M12	M1		M11	M12	M1
Petroleum product									
Gasoline (won/liter)	1 381.6 (-6.1)	1 590.5 (15.1)	1 737.5 (31.7)	1 646.4 (20.4)	1 635.2 (13.4)	1 812.4 (14.0)	1 650.3 (-5.0)	1 563.8 (-5.0)	1 562.9 (-4.4)
Diesel (won/liter)	1 189.8 (-11.2)	1 391.3 (16.9)	1 549.7 (38.4)	1 468.9 (25.7)	1 453.5 (17.0)	1 841.8 (32.4)	1 879.2 (21.3)	1 783.3 (21.4)	1 675.4 (15.3)
Bunker-C (won/liter)	573.6 (-22.9)	731.7 (27.6)	867.4 (66.8)	859.0 (65.6)	840.4 (54.1)	1 115.2 (52.4)	1 142.2 (31.7)	986.7 (14.9)	883.8 (5.2)
Propane (won/kg)	1 850.7 (-1.0)	2 092.6 (13.1)	2 312.3 (26.9)	2 410.1 (29.2)	2 395.0 (28.2)	2 479.6 (18.5)	2 455.4 (6.2)	2 449.7 (1.6)	2 440.0 (1.9)
Butane (won/liter)	791.1 (-1.9)	931.8 (17.8)	1 053.8 (36.7)	1 087.5 (36.5)	1 071.8 (34.5)	1 081.7 (16.1)	1 032.2 (-2.0)	1 021.4 (-6.1)	1 019.7 (-4.9)
City gas(won/MJ)									
Residential	15.1 (-3.6)	14.2 (-5.7)	14.2 -	14.2 -	14.2 -	16.6 (16.7)	19.7 (38.4)	19.7 (38.4)	19.7 (38.4)
General(1)	14.9 (-4.7)	13.9 (-6.5)	13.8 -	14.1 (0.6)	14.1 (0.6)	16.3 (17.3)	19.3 (39.7)	19.5 (38.6)	19.5 (38.6)
Commercial	15.1 (-6.4)	17.2 (14.2)	21.4 (68.9)	23.6 (75.0)	25.4 (81.4)	28.7 (66.6)	35.3 (65.3)	36.2 (53.8)	34.3 (35.0)
Industry	12.6 (-8.4)	14.4 (14.2)	18.2 (84.2)	21.3 (86.5)	23.1 (93.4)	25.9 (79.9)	32.4 (77.9)	34.1 (60.1)	32.1 (39.0)
Heat(won/Mcal)									
Residential	66.2 (0.7)	65.2 (-1.4)	65.2 -	65.2 -	65.2 -	74.1 (13.7)	89.9 (37.8)	89.9 (37.8)	89.9 (37.8)
Commercial	85.9 (0.7)	84.7 (-1.4)	84.7 -	84.7 -	84.7 -	96.3 (13.7)	116.7 (37.8)	116.7 (37.8)	116.7 (37.8)
Public	75.1 (0.7)	74.0 (-1.4)	74.0 -	74.0 -	74.0 -	84.1 (13.7)	101.9 (37.8)	101.9 (37.8)	101.9 (37.8)
Electricity(won/kWh)									
Residential	147.3 -	142.3 (-3.4)	142.3 (-3.4)	142.3 (-3.4)	142.3 -	147.8 (3.9)	154.6 (8.6)	154.6 (8.6)	166.0 (16.7)
General	84.4 -	79.4 (-5.9)	87.3 (-5.4)	87.3 (-5.4)	87.3 -	84.9 (7.0)	99.6 (14.1)	99.6 (14.1)	111.0 (27.1)
Industry	96.0 -	91.0 (-5.2)	103.5 (-4.6)	103.5 (-4.6)	103.5 -	98.8 (8.6)	125.0 (20.8)	125.0 (20.8)	136.4 (31.8)

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)

	2020	2021		2022p			2023p		
			M11	M12	M1		M11	M12	M1
Coal (Mton)	119.9 (-12.3)	119.9 (-0.0)	10.1 (10.1)	10.9 (5.1)	10.9 (0.2)	113.9 (-5.0)	8.7 (-13.7)	10.3 (-5.3)	10.1 (-7.3)
- Coking coal excluded	95.2 (-13.9)	94.4 (-0.8)	8.0 (13.0)	8.7 (6.7)	8.7 (-0.1)	90.6 (-4.0)	6.9 (-13.8)	8.3 (-4.2)	8.1 (-6.9)
Oil (Mbbl)	775.7 (-4.0)	830.7 (7.1)	67.4 (8.5)	79.9 (20.4)	78.2 (15.1)	815.0 (-1.9)	65.2 (-3.2)	75.7 (-5.2)	69.6 (-11.0)
LNG (Mton)	41.5 (1.2)	45.9 (10.6)	4.0 (4.2)	5.1 (-5.6)	5.4 (-6.6)	45.3 (-1.1)	3.6 (-9.7)	5.7 (12.9)	5.2 (-3.3)
Hydro (TWh)	3.9 (39.0)	3.1 (-21.2)	0.2 (-12.4)	0.2 (-6.7)	0.2 (-1.6)	3.5 (15.9)	0.2 (19.6)	0.2 (9.4)	0.2 (8.3)
Nuclear (TWh)	160.2 (9.8)	158.0 (-1.4)	13.6 (-3.4)	16.5 (9.8)	16.1 (14.7)	176.1 (11.4)	14.0 (3.2)	15.2 (-7.9)	15.7 (-2.8)
Others (Mtoe)	12.6 (9.4)	14.4 (13.8)	1.1 (6.8)	1.3 (9.4)	1.3 (16.3)	15.9 (10.8)	1.2 (5.4)	1.3 (-2.9)	1.2 (-10.7)
TPED (Mtoe)	288.4 (-3.4)	303.3 (5.2)	25.1 (6.0)	29.3 (7.8)	29.7 (5.4)	301.9 (-0.4)	23.8 (-5.4)	28.7 (-2.0)	27.6 (-6.9)

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

Share of TPED by Sources

(unit: %)

	2020	2021		2022p			2023p		
			M11	M12	M1		M11	M12	M1
Coal	25.2	24.0	24.3	22.5	22.2	22.8	22.2	21.7	22.1
- Coking coal excluded	19.3	18.1	18.5	17.2	17.0	17.4	16.8	16.8	17.1
Oil	39.3	40.1	39.5	39.4	38.0	39.5	40.5	38.2	36.8
LNG	18.8	19.8	20.6	22.6	23.9	19.6	19.7	26.1	24.8
Hydro	0.3	0.2	0.2	0.1	0.1	0.3	0.2	0.1	0.2
Nuclear	11.8	11.1	11.5	12.0	11.6	12.4	12.6	11.3	12.1
Others	4.4	4.7	4.5	4.5	4.5	5.3	5.0	4.4	4.4
TPED	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)

	2020	2021			2022p				2023p
			M11	M12	M1		M11	M12	M1
Industry	124.0 (-4.0)	133.0 (7.3)	11.0 (14.2)	12.2 (10.1)	12.1 (9.2)	129.2 (-2.9)	10.3 (-6.8)	11.2 (-8.5)	10.9 (-10.0)
Transport	34.7 (-6.6)	36.6 (5.4)	3.0 (-7.4)	3.5 (20.5)	3.2 (14.1)	36.4 (-0.6)	2.8 (-5.6)	3.5 (0.7)	2.8 (-11.7)
Residential	22.4 (4.1)	22.9 (2.6)	2.0 (0.5)	3.1 (-1.8)	3.7 (-2.3)	23.4 (2.1)	1.9 (-8.6)	3.3 (4.8)	3.7 (-2.6)
commercial	17.7 (-5.4)	18.0 (1.8)	1.4 (1.1)	1.9 (4.4)	2.0 (1.0)	19.1 (6.2)	1.4 (0.9)	1.9 (4.0)	2.1 (4.9)
Public	5.0 (-3.5)	5.2 (4.0)	0.4 (-3.0)	0.5 (-2.0)	0.6 (0.4)	5.3 (2.0)	0.4 (0.2)	0.5 (-2.3)	0.6 (2.6)
TFC	203.8 (-3.8)	215.8 (5.9)	17.9 (6.8)	21.2 (8.9)	21.6 (6.6)	213.5 (-1.1)	16.8 (-6.0)	20.4 (-3.8)	20.1 (-7.2)
Coal (Mton)	49.2 (-5.2)	51.0 (3.6)	4.5 (9.0)	4.5 (-2.9)	4.4 (-0.8)	46.8 (-8.3)	3.8 (-15.1)	3.9 (-12.9)	4.0 (-8.5)
Oil (Mbbbl)	752.3 (-5.5)	809.1 (7.6)	65.8 (10.5)	78.2 (19.3)	75.9 (15.2)	795.6 (-1.7)	63.1 (-4.1)	73.2 (-6.4)	66.7 (-12.1)
- Non-energy oil excluded	336.2 (-5.3)	350.6 (4.3)	29.1 (-9.0)	34.4 (10.2)	33.5 (9.4)	343.0 (-2.1)	27.4 (-6.1)	35.4 (2.9)	29.4 (-12.2)
Electricity (TWh)	497.3 (-2.0)	521.0 (4.8)	41.8 (4.0)	46.1 (4.7)	48.7 (2.0)	535.3 (2.7)	41.5 (-0.8)	45.8 (-0.6)	50.2 (3.1)
City gas (Bm ³)	22.0 (-2.0)	22.7 (3.3)	2.0 (1.9)	2.9 (-1.4)	3.5 (-1.1)	23.6 (3.9)	1.9 (-7.4)	3.1 (5.5)	3.4 (-3.2)
Heat-others (1 000 toe)	9.3 (3.1)	9.8 (6.3)	0.8 (2.9)	1.2 (2.6)	1.2 (2.6)	10.1 (2.2)	0.8 (-8.5)	1.1 (-1.9)	1.2 (-5.9)

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

Source: Korea Energy Economics Institute

Share of the Total Final Consumption by Sources

(unit: %)

	2020	2021			2022p				2023p
			M11	M12	M1		M11	M12	M1
Industry	60.9	61.6	61.5	57.6	56.0	60.5	61.0	54.8	54.4
Transport	17.1	17.0	16.8	16.4	14.7	17.1	16.9	17.2	14.0
Residential	11.0	10.6	11.4	14.7	17.3	11.0	11.1	16.1	18.2
Commercial	8.7	8.3	8.0	8.7	9.2	9.0	8.6	9.4	10.4
Public	2.4	2.4	2.3	2.5	2.7	2.5	2.4	2.5	3.0
TFC	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Coal	15.3	14.9	15.6	13.4	12.9	14.0	14.4	12.3	12.6
Oil	47.0	47.9	47.1	47.2	44.7	47.4	47.7	45.8	42.2
- Non-energy oil excluded	22.0	21.6	21.6	21.7	20.5	21.3	21.4	22.9	19.3
Electricity	21.0	20.8	20.1	18.7	19.4	21.6	21.2	19.3	21.5
City gas	12.1	11.9	12.5	15.3	17.3	12.3	12.2	17.0	17.9
Heat-others	4.5	4.6	4.7	5.5	5.7	4.7	4.6	5.6	5.8

Note: p means provisional

Source: Korea Energy Economics Institute

Statistics on Energy Production Facilities

	2020	2021			2022p				2023p
			M11	M12	M1		M11	M12	M1
Total capacity (GW)	129.2 (3.1)	134.0 (3.7)	133.9 (4.1)	134.0 (3.7)	133.1 (6.2)	138.0 (6.8)	136.3 (6.0)	138.0 (6.8)	138.8 (7.8)
Nuclear	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -	24.7 (6.0)	23.3 -	24.7 (6.0)	24.7 (6.0)
Bituminous coal	36.5 (0.1)	36.9 (1.3)	37.4 (2.7)	36.9 (1.3)	36.3 (-0.4)	37.3 (2.3)	37.3 (2.3)	37.3 (2.3)	37.2 (4.9)
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 (0.1)	41.2 (0.1)	41.2 (0.1)
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			2022p				2023p
			M11	M12	M1		M11	M12	M1
The number of household demanding city gas (mil)	20.1 (2.4)	20.5 (2.0)	20.4 (2.1)	20.5 (2.0)	20.6 (1.8)	20.9 (1.7)	20.9 (2.3)	20.9 (1.7)	20.9 (1.6)
Registered cars (mil)	24.4 (2.9)	24.9 (2.2)	24.9 (2.2)	24.9 (2.2)	25.0 (2.2)	25.5 (2.4)	25.5 (2.4)	25.5 (2.4)	25.6 (2.3)
- gasoline	11.4 (4.1)	11.8 (3.1)	11.7 (3.1)	11.8 (3.1)	11.8 (3.0)	12.1 (2.6)	12.0 (2.7)	12.1 (2.6)	12.1 (2.6)
- diesel	10.0 (0.3)	9.9 (-1.2)	9.9 (-1.2)	9.9 (-1.2)	9.9 (-1.3)	9.8 (-1.2)	9.8 (-1.1)	9.8 (-1.2)	9.8 (-1.2)
- LPG	2.0 (-1.3)	1.9 (-1.7)	1.9 (-1.8)	1.9 (-1.7)	1.9 (-1.6)	1.9 (-2.1)	1.9 (-2.0)	1.9 (-2.1)	1.9 (-2.2)
- hybrid	0.6 (33.1)	0.9 (34.0)	0.9 (35.4)	0.9 (34.0)	0.9 (33.0)	1.1 (28.5)	1.1 (28.8)	1.1 (28.5)	1.1 (28.7)

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

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