

KEEI MONTHLY KOREA ENERGY TRENDS

2024/02
KOREA ENERGY ECONOMICS INSTITUTE

COAL	-2.2%
PETROLEUM	1.0%
GAS	4.7%
NUCLEAR	12.2%
NEW & RENEWABLE	13.5%
NOVEMBER. 2023	

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

Disclaimer: The translations provided here are the result of an automatic translation of Korean Energy Trends for the convenience of international readers. They have been reviewed by our editors, but in case of any confusion in interpretation, the Korean version takes precedence.

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1. The Economy and the Industry

- **Industrial Production Index rose 5.5% y/y in November, driven by higher production in energy-intensive sectors, with the exception of some industries.**
 - The Semiconductor Production Index rose sharply to 42.8% year-on-year (YoY) due to improved operation and shipments (21.7% and 69.2%, respectively), a recovery in exports, led by memory semiconductors, and the base effect of a decline in production due to a slowdown in the industry in the same month last year.
 - Basic Chemicals Production Index rebounded as inventory index fell (-2.1%), utilization rate and shipment index rose.
 - Steel Production Index continued to rise for the third consecutive month due to the increased demand and base effect from the recovery in the machinery and shipbuilding industries.
 - The automobile production index stopped rising after rally since May 2023 and turned down (-2.4%) due to the base effect of increased production in the same month last year.

- **Services Production Index rose 2.3% year-over-year as output rose in many industries despite declines in some sectors.**
 - The production index for transportation and warehousing rose (6.0%), led by the warehousing and transportation-related services, while the production indices for arts, sports and leisure services and finance and insurance rose 5.8% and 3.9% year-on-year, respectively.
 - Meanwhile, the production indices for wholesale and retail trade and accommodation and food services, which have a large share of production in the service industry, fell for the fifth and seventh consecutive months, respectively, due to a slowdown in the economy and a contraction in private consumption in response to rising prices, reducing the increase in the overall service industry production index.

► Major economic and industrial indicators

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
GDP (trillion won)	1 968.8	1 455.1	-	1 470.5	501.0	-	-
	(2.6)	(3.0)	-	(1.1)	(1.4)	-	-
Total export (\$billion, customs clearance basis)	683.6	628.7	51.8	574.8	54.7	55.0	55.6
	(6.1)	(7.7)	(-14.2)	(-8.6)	(-4.4)	(4.9)	(7.4)
Industrial production index (2020=100)	109.7	109.8	106.8	104.6	109.0	106.6	112.7
	(1.4)	(2.7)	(-5.5)	(-4.8)	(3.0)	(0.8)	(5.5)
Semi-conductors	136.5	138.4	108.3	125.1	161.1	139.9	154.7
	(7.7)	(11.3)	(-22.6)	(-9.6)	(23.6)	(13.0)	(42.8)
Basic chemical products	99.1	99.3	87.2	94.5	96.2	89.1	90.6
	(-6.4)	(-5.8)	(-10.9)	(-4.8)	(4.9)	(-3.2)	(3.9)
Iron&Steel	96.3	97.2	79.3	98.7	91.9	98.8	93.6
	(-8.4)	(-7.5)	(-25.9)	(1.5)	(21.1)	(26.7)	(18.0)
Cars	116.0	114.5	136.4	127.0	115.0	125.0	133.1
	(9.1)	(8.8)	(21.4)	(10.9)	(-0.1)	(2.5)	(-2.4)
Service production index (2020=100)	112.0	110.7	113.4	114.1	115.6	114.5	116.0
	(6.5)	(6.5)	(3.8)	(3.1)	(2.1)	(0.9)	(2.3)
Wholesale & Retail	107.1	106.6	109.1	106.0	107.0	105.3	107.5
	(1.7)	(1.8)	(-0.8)	(-0.6)	(-0.3)	(-3.6)	(-1.5)
Food & Accommodation	119.1	118.1	120.1	119.0	117.9	120.8	116.0

(16.9) (17.3) (3.9) (0.8) (-1.2) (-5.3) (-3.4)

Note: Figures are based on the real price of 2020, P means provisional, () is year-on-year growth rates (%).

Source: Bank of Korea, Korea International Trade Association, Korea Statistical Information Service

2. Energy Prices

Global Energy Prices

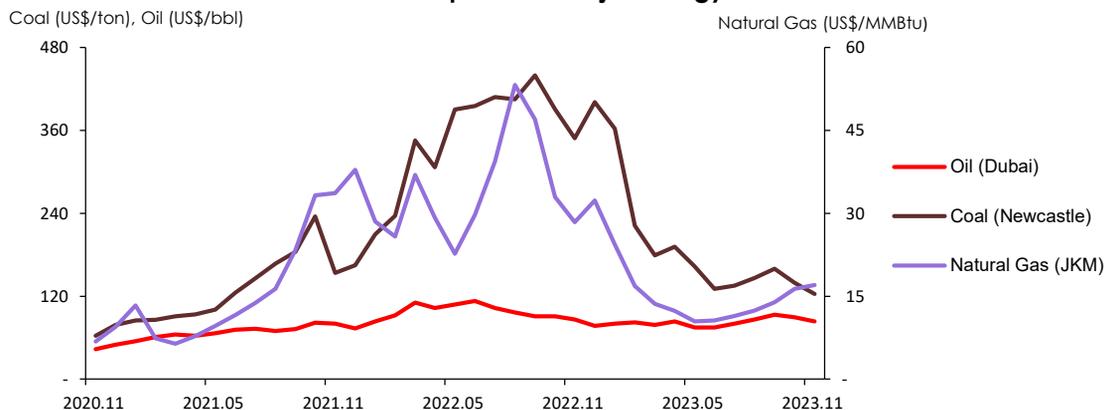
- **International oil prices fell 6.9% month-on-month in November on news of increased production from major producers and concerns about slowing crude demand in China.**
 - US crude oil production was reported at 13.1 million b/d in August, the highest since November 2019 (13.0 million b/d), while OPEC members' output increased for the third consecutive month from August to October despite Saudi Arabia's voluntary production cuts.
 - China's October Caixin Manufacturing Purchasing Managers' Index came in at 49.5, below market expectations (50.8), and October exports fell 6.4% y/y, below market expectations (-3.3%), raising concerns of a slowdown in China's economy and lower demand for crude oil.
 - International thermal coal prices fell on lower oil prices and concerns about a slowdown in China following weak economic data.
 - International natural gas prices fell at the Henry Hub and TTF, while JKM unwound the previous month's surge.

► Global energy prices

	2021	2022			2023			
			M9	M10	M11	M9	M10	M11
Crude oil (US\$/bbl)	69.3 (64.2)	96.4 (39.1)	90.9 (-5.9)	91.2 (0.2)	86.3 (-5.4)	93.3 (7.9)	89.8 (-3.8)	83.6 (-6.9)
Coal (US\$/ton)	136.4 (126.5)	357.1 (161.8)	439.4 (8.5)	390.4 (-11.1)	348.6 (-10.7)	159.5 (8.8)	139.5 (-12.6)	123.2 (-11.7)
Natural gas (US\$/MMBtu)								
TTF	16.1 (397.9)	40.2 (149.6)	57.9 (-16.9)	38.4 (-33.7)	35.9 (-6.5)	11.4 (2.1)	14.6 (27.2)	14.5 (-0.7)
JKM	17.9 (325.7)	33.9 (89.2)	47.0 (-11.7)	33.0 (-29.8)	28.4 (-13.9)	13.9 (12.0)	16.3 (17.1)	17.0 (4.4)

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



Domestic energy prices

□ **Gasoline and diesel gas station prices in November turned downward for the first time in five months since June due to the influence of international price declines.**

- Prices of gasoline (92 RON) and diesel (0.001% sulfur content) in the Singapore spot market fell 10.3% and 6.3% m-o-m in October, the first decline in five months since May, and continued to decline in November, falling 1.5% and 9.4% m-o-m, respectively.
- Retail prices of propane and butane increased by 2.1% and 3.3% month-on-month, respectively, due to supply price hikes by LPG importers.
- The relative price (propane/city gas) of industrial propane to city gas was 1.31, up 13.5% month-over-month.

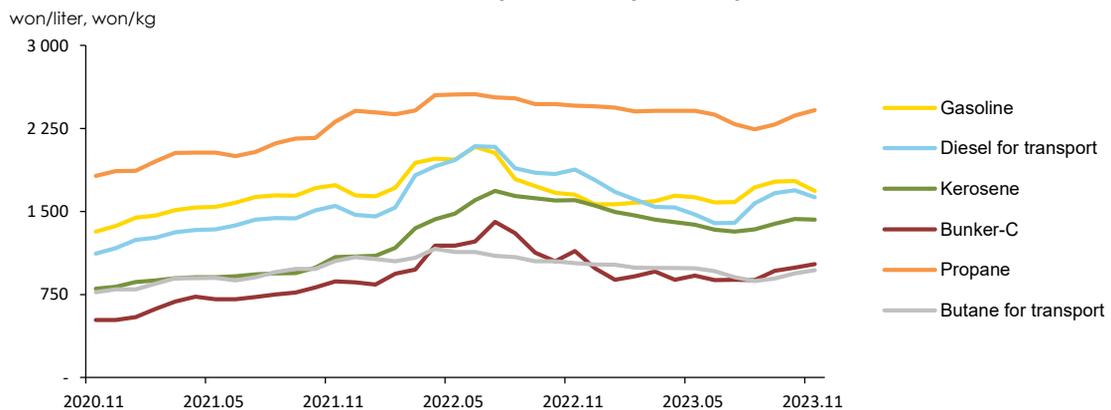
► Domestic petroleum product prices

	2021	2022			2023			
			M9	M10	M11	M9	M10	M11
Gasoline (won/liter)	1 591.2 (15.2)	1 812.7 (13.9)	1 730.0 (-3.5)	1 666.7 (-3.7)	1 650.3 (-1.0)	1 769.2 (3.1)	1 775.9 (0.4)	1 684.1 (-5.2)
Diesel for transport (won/liter)	1 392.0 (17.0)	1 843.4 (32.4)	1 850.2 (-2.1)	1 838.4 (-0.6)	1 879.2 (2.2)	1 666.5 (5.9)	1 690.3 (1.4)	1 628.2 (-3.7)
Bunker-C (won/liter)	732.2 (27.8)	1 116.1 (52.4)	1 128.6 (-13.5)	1 050.8 (-6.9)	1 142.2 (8.7)	963.7 (9.4)	992.6 (3.0)	1 024.1 (3.2)
Propane (won/kg)	2 093.4 (13.1)	2 480.1 (18.5)	2 471.2 (-2.0)	2 469.8 (-0.1)	2 455.4 (-0.6)	2 285.0 (1.9)	2 367.9 (3.6)	2 416.6 (2.1)
Butane for transport (won/liter)	932.3 (17.9)	1 081.8 (16.0)	1 051.4 (-3.4)	1 049.5 (-0.2)	1 032.2 (-1.6)	895.5 (2.9)	940.3 (5.0)	970.8 (3.3)

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



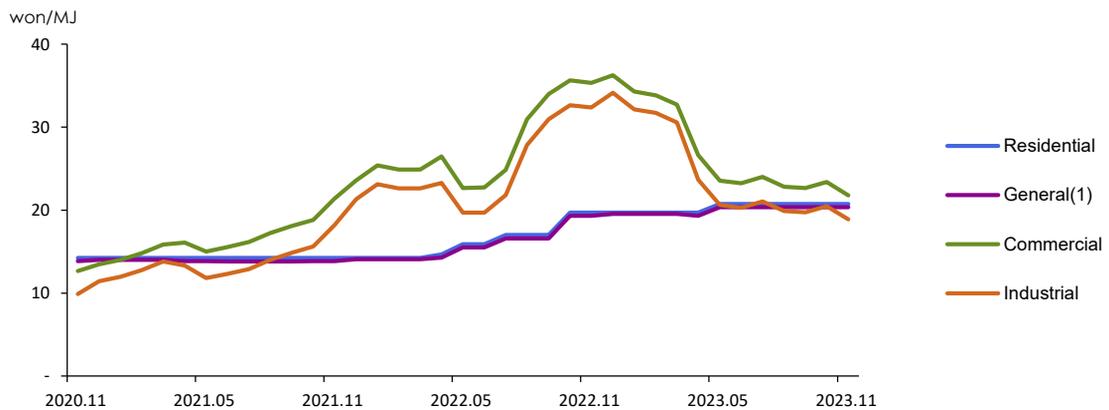
□ **November city gas rates were frozen for residential and general use, but dropped for commercial and industrial use.**

- Residential and general rates remain at the previous month's level of around 20.5 won per MJ with both feedstock and supply costs frozen.
- Commercial and industrial rates were 21.8 and 18.9 won per MJ, down 6.8% and 7.8%, respectively, month-over-month.

□ **November electricity rates were frozen for residential customers, while commercial and industrial customers saw large increases due to winter rates.**

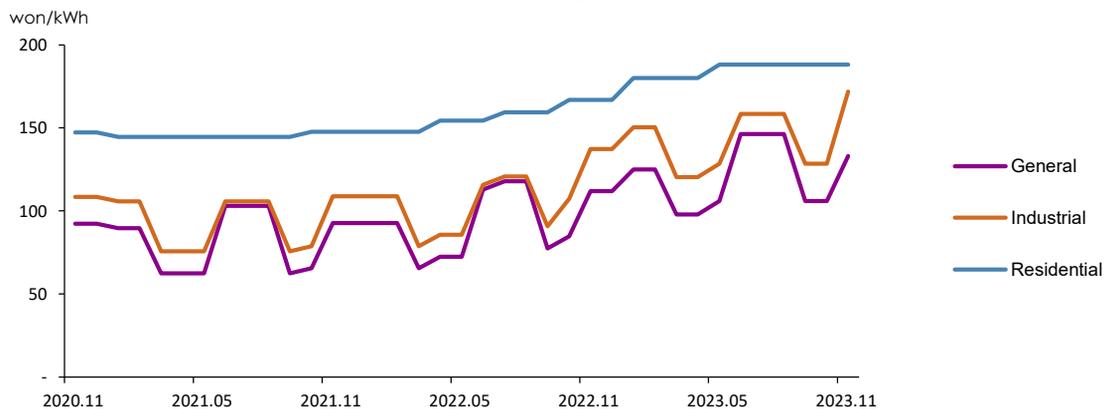
- Residential rates remain frozen for the sixth consecutive month after a 4.4% month-over-month increase in May, driven by an increase in energy charge(junryuk-ryang yogeum).
- General use rates increased 25.6 percent month-over-month due to a 27.1 won per kWh increase in energy charge due to the winter rates.
- Industrial rates are also subject to winter pricing, with a significant increase in energy charge, and the rate for industrial users with large capacity (contracted power of 300 kW or more) increased additionally by voltage.

▶ **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

□ **November energy imports remained flat year-over-year due to higher crude oil and petroleum products, but lower coal and natural gas.**

- Crude oil imports increased by 3.3% since February 2023 as the decline in the unit price of imports from most regions continued.
- Petroleum product imports increased 13.7% YoY, led by naphtha and B-C oil.
- Coal imports shifted to a decline (15.3%) as bituminous coal, the largest share of coal imports, declined due to lower consumption for domestic power generation. Anthracite coal also declined, unlike the previous month, due to sluggish domestic consumption for power generation.
- Natural gas imports declined 1.3% y/y, despite lower import prices, but the pace of decline slowed due to the base effect of last year's winter stockpile buildup.
- Energy imports and exports decreased due to lower export and import unit prices, with exports decreasing by a smaller amount (-6.1%) due to an increase in export volumes (8.0%), but imports decreased by a larger amount (-17.1%) compared to exports as import volumes were flat year-on-year.

► **Import and domestic production of energy**

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Import volume (Mtoe)	333.4 (2.8)	304.4 (3.0)	27.3 (-0.2)	293.9 (-3.4)	26.5 (-4.4)	26.4 (2.3)	27.3 (0.0)
Crude oil (Mbbbl)	1 031.3 (7.4)	943.7 (8.1)	82.9 (3.2)	915.9 (-2.9)	85.1 (0.6)	83.7 (5.2)	85.7 (3.3)
Petroleum product (Mbbbl)	367.1 (-6.4)	336.5 (-5.1)	31.5 (-0.1)	341.2 (1.4)	33.5 (25.3)	33.1 (6.1)	35.8 (13.7)
Coal (Mton)	125.6 (-0.4)	114.7 (-0.7)	10.6 (-5.1)	108.4 (-5.6)	9.8 (-7.9)	9.1 (11.4)	8.9 (-15.3)
LNG (Mton)	46.4 (1.0)	41.9 (-0.4)	3.8 (-2.1)	39.1 (-6.5)	2.9 (-30.8)	3.4 (-17.2)	3.7 (-1.3)
Import value (billion US\$, CIF)	222.8 (58.0)	204.2 (63.5)	17.7 (17.7)	160.7 (-21.3)	14.2 (-28.6)	14.5 (-19.1)	14.7 (-17.1)
Energy share of total import value (%)	30.4	30.4	30.1	27.2	27.9	27.2	28.3
Foreign energy dependence (%)	94.4	94.1	94.9	93.7	93.3	94.1	95.3
Export volume (Mtoe)	69.0 (11.2)	63.1 (11.7)	5.5 (2.4)	62.1 (-1.5)	5.8 (-1.1)	6.2 (10.2)	6.0 (8.0)
Export value (billion US\$, FOB)	63.1 (63.5)	58.4 (68.3)	4.8 (20.4)	47.7 (-18.3)	4.9 (-6.5)	5.2 (16.1)	4.5 (-6.1)
Domestic production							
Hydropower (TWh)	3.5 (15.9)	3.3 (16.3)	0.2 (19.7)	3.4 (2.8)	0.5 (-6.6)	0.3 (12.9)	0.2 (7.5)
Renewable energy (Mtoe)	15.9 (10.5)	14.6 (11.9)	1.2 (6.3)	15.5 (5.8)	1.4 (5.9)	1.3 (0.1)	1.4 (13.7)

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

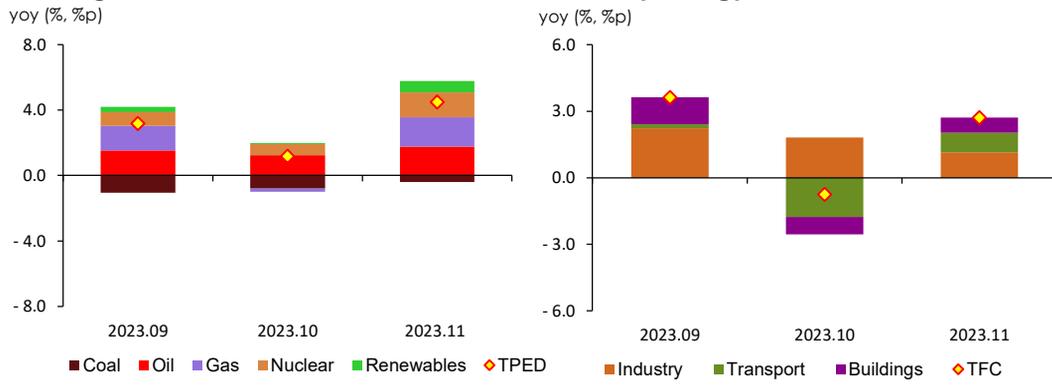
- **Total energy consumption increased 4.5% y/y in November, driven by oil and nuclear amid continued decline in coal.**
 - Coal consumption increased in the industrial sector due to the impact of increased steel production, but decreased in power generation due to the impact of lower coal generation due to transmission line constraints, resulting in an overall decrease of 1.7% y/y.
 - Petroleum consumption increased by 4.3% y-o-y despite a decline in consumption for feedstock in the industrial sector, due to a significant increase in final consumption in the road sector, offset by a decline in consumption due to the strike of the Hwamul yeondae (화물연대) to transport freight in the same month in 2022.
 - Gas consumption increased by 4.7% y/y, driven by continued growth in directly imported natural gas consumption for self-generation in the industrial sector, although gas consumption for power generation decreased due to higher base-load generation.
- **Energy final consumption increased by 2.7% y/y, with gains in all sectors, led by transportation, up 2.7% y/y.**
 - Industrial sector consumption grew by 1.9% y-o-y, with consumption rising in most energy intensive sectors, including petrochemicals, machinery, transportation equipment, and steel, which saw consumption rise as a base effect of the sharp drop in production following the damage caused by Typhoon Hinamno last year.
 - Transportation sector consumption increased by 5.3% y-o-y, driven by a 22% y-o-y increase in road sector consumption, reflecting a significant decrease in diesel consumption due to the strike of the Hwamul yeondae (화물연대) to transport freight in November, and an increase in demand for gasoline inventory due to lower international prices.

▶ o Energy consumption

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
TPED (Mtoe)	306.2	277.1	24.1	271.0	23.6	23.6	25.2
	(0.5)	(0.6)	(-4.6)	(-2.2)	(3.2)	(1.2)	(4.5)
TFC (Mtoe)	215.5	194.8	17.0	189.2	16.5	16.2	17.5
	(-0.9)	(-0.6)	(-5.6)	(-2.9)	(3.6)	(-0.7)	(2.7)
- Feedstock exclude	143.2	128.7	11.3	125.7	10.6	10.4	11.7
	(0.2)	(0.2)	(-5.8)	(-2.3)	(2.1)	(-4.5)	(3.3)

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 consumption fell 2.2% y/y in November, with gains in industry, led by steel, but declined in power generation.**

- Industrial sector coal consumption increased due to a base effect in steel, despite a decline in non-metallic minerals.
- Coal consumption for electricity generation decreased by 6.9%, despite an increase in installed capacity (approximately 0.9 GW y/y), due to strong growth in nuclear, renewable and other generation and constraints on transmission lines into the metropolitan area, which limited coal generation.

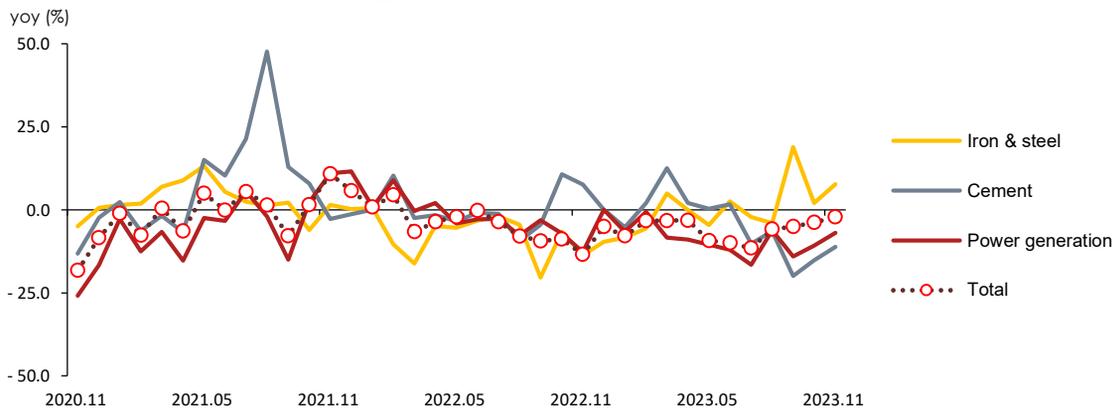
► Coal consumption

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Coal (Mton)	117.0	106.4	9.0	99.9	8.8	8.4	8.8
	(-4.7)	(-4.7)	(-13.4)	(-6.1)	(-5.1)	(-3.8)	(-2.2)
Industry	49.4	45.3	4.0	44.4	4.0	4.0	4.1
	(-7.4)	(-7.0)	(-14.5)	(-1.9)	(8.6)	(4.7)	(3.7)
Iron and Steel	32.5	29.7	2.5	29.9	2.8	2.7	2.7
	(-8.1)	(-7.9)	(-13.6)	(0.6)	(18.9)	(2.0)	(7.8)
- Coking-coal	23.6	21.6	1.8	21.7	2.0	2.0	2.0
	(-7.5)	(-7.5)	(-12.3)	(0.8)	(19.9)	(1.9)	(8.3)
Buildings	0.4	0.3	0.1	0.3	0.0	0.1	0.1
	(-5.3)	(-3.0)	(-4.7)	(-6.3)	(-45.5)	(10.0)	(1.2)
Power generation	67.1	60.8	4.9	55.1	4.8	4.3	4.6
	(-2.6)	(-2.9)	(-12.7)	(-9.3)	(-14.0)	(-10.8)	(-6.9)

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

- **Oil final consumption rose 1.0% in November, with declines in the industrial sector but gains in transportation and buildings.**
 - Industrial sector consumption decreased by 1.2% y/y due to lower consumption for feedstock as a result of lower domestic demand for petrochemicals.
 - Transportation sector consumption increased by 5.4% y/y, with diesel fuel consumption rebounding from a decline in November 2022.

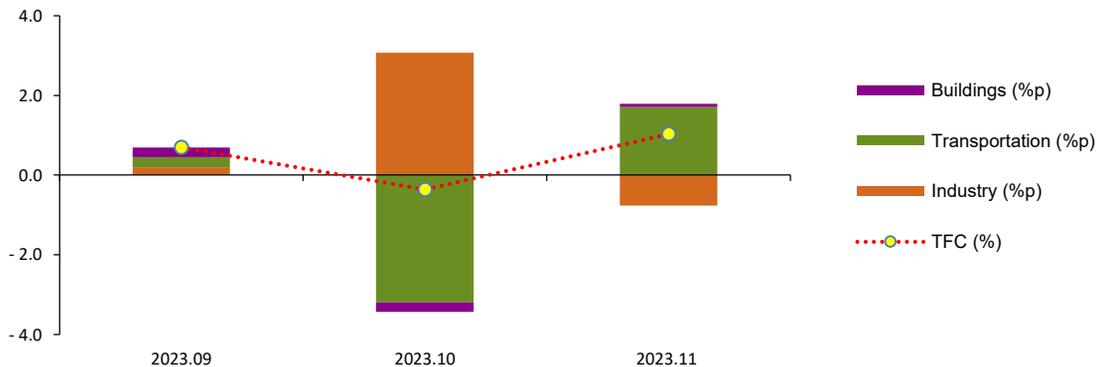
► Petroleum product consumption by end-use sectors

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
TFC (Mbbbl)	798.9	725.2	63.6	694.1	61.7	62.6	64.3
	(-1.3)	(-0.8)	(-3.4)	(-4.3)	(0.7)	(-0.4)	(1.0)
Industry	496.9	454.4	39.6	428.6	38.7	38.9	39.1
- Naphtha	(-1.8)	(-0.8)	(-2.6)	(-5.7)	(0.3)	(5.2)	(-1.2)
- Diesel	356.0	325.3	28.0	307.9	27.3	27.7	27.7
- Gasoline	(-3.8)	(-2.7)	(-5.7)	(-5.4)	(-2.0)	(7.7)	(-1.3)
Transport	258.0	232.9	20.1	228.7	20.3	20.3	21.2
- Gasoline	(-0.4)	(-0.6)	(-5.7)	(-1.8)	(0.8)	(-9.0)	(5.4)
Buildings	44.0	37.9	3.9	36.8	2.7	3.4	4.0
- Diesel	(-0.6)	(-1.9)	(0.8)	(-2.9)	(5.9)	(-4.2)	(1.3)
Power generation (Mbbbl)	5.02	4.70	0.31	2.79	0.17	0.30	0.16
	(20.0)	(21.6)	(-19.8)	(-40.6)	(-49.6)	(-11.9)	(-46.9)

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

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

yoy(%), %p)



7. Gas

□ **Gas consumption in November was up 4.7% y/y, driven by the industrial and buildings sectors, excluding power generation.**

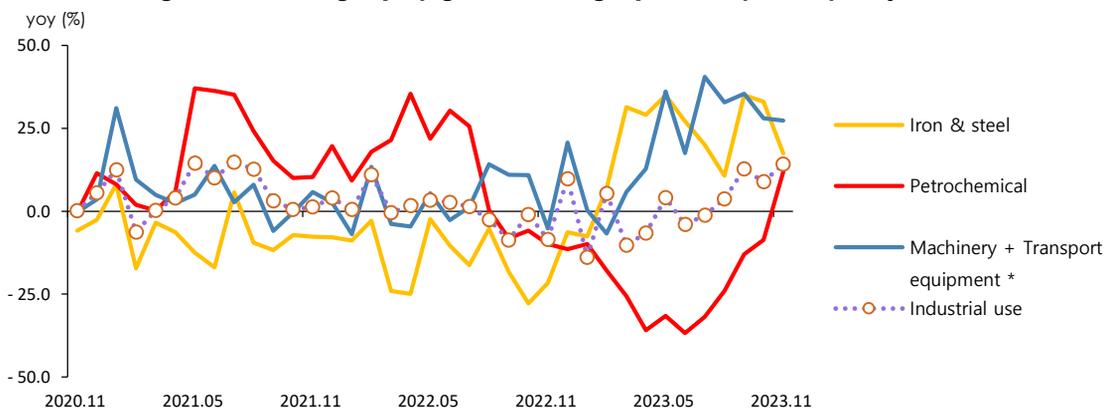
- Gas consumption for power generation decreased by around 5% year-on-year for the second consecutive month, driven by a 6.4% increase in base-load (nuclear+coal+renewables-others) generation, against a 3.4% increase in total generation.
- Gas consumption in the industrial sector increased by 14.3% y/y, with gas consumption rising in most industries.
- Gas consumption in commercial sector increased by 10.3%, driven by a 20.5% increase in heating degree days due to cold weather, while household gas consumption decreased slightly (-0.8%) due to a dampening of consumer sentiment following the phased increase in city gas tariffs.

► Natural gas and city gas consumption

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Gas(TPED) (Mtoe)	59.5	52.6	4.6	51.2	3.9	3.8	4.8
(Natural gas + City gas)	(-1.0)	(-2.3)	(-8.3)	(-2.5)	(10.1)	(0.0)	(4.7)
Power generation	30.0	26.8	2.3	25.9	2.3	2.0	2.2
	(-2.3)	(-4.1)	(-3.6)	(-3.4)	(9.8)	(-5.3)	(-4.9)
Industry	10.0	8.9	0.8	9.0	0.8	0.8	0.9
	(0.3)	(-0.7)	(-9.2)	(0.6)	(12.9)	(9.0)	(14.3)
Buildings	15.0	12.7	1.2	11.8	0.4	0.6	1.2
	(3.9)	(3.4)	(-9.9)	(-7.4)	(-5.7)	(-15.7)	(1.7)
Natural gas(TPED) (Mton)	45.6	39.8	3.6	38.9	2.9	3.0	3.9
	(-0.5)	(-2.2)	(-9.7)	(-2.4)	(9.8)	(-1.1)	(9.3)
City gas(TFC) (Bm³)	23.4	20.3	1.8	18.8	1.0	1.2	1.9
	(2.9)	(2.6)	(-8.6)	(-7.3)	(-4.3)	(-9.8)	(2.8)

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

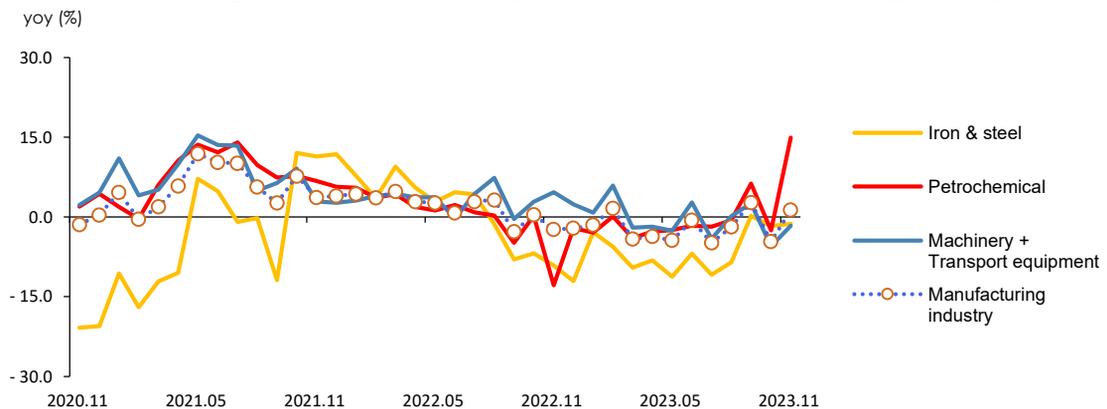
- **Electricity consumption rose 1.3% year-over-year in November, with gains across all sectors, including industrial, which rebounded from a decline in the same month last year.**
 - Industrial sector consumption rose 0.6% y/y, with gains in petrochemicals and transportation equipment and declines in steel and machinery.
 - Building sector consumption increased by 1.8% y/y, with both residential and commercial consumption rising, driven by an increase in heating degree days (20.5%) and an increase in the service sector production index (2.3%).

► Electricity consumption by end-use sectors

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Electricity (TWh)	535.3	489.5	41.5	489.4	47.1	40.8	42.0
	(2.9)	(3.2)	(-0.6)	(-0.0)	(6.2)	(-1.3)	(1.3)
Industry	274.1	250.9	21.8	246.0	22.6	21.0	22.0
	(1.7)	(2.0)	(-2.0)	(-2.0)	(2.9)	(-4.4)	(0.6)
Transport	4.0	3.7	0.3	4.3	0.4	0.4	0.4
	(8.7)	(9.3)	(9.1)	(17.3)	(22.1)	(18.6)	(18.5)
Buildings	257.2	234.9	19.3	239.0	24.1	19.4	19.6
	(4.1)	(4.4)	(0.9)	(1.8)	(9.3)	(2.0)	(1.8)
Residential	78.6	72.3	5.9	73.5	8.1	6.1	6.0
	(1.3)	(1.3)	(-1.1)	(1.7)	(12.6)	(4.2)	(1.0)
Commercial	147.0	134.0	10.9	136.2	13.2	10.9	11.1
	(5.9)	(6.5)	(1.9)	(1.6)	(7.1)	(0.9)	(2.0)

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

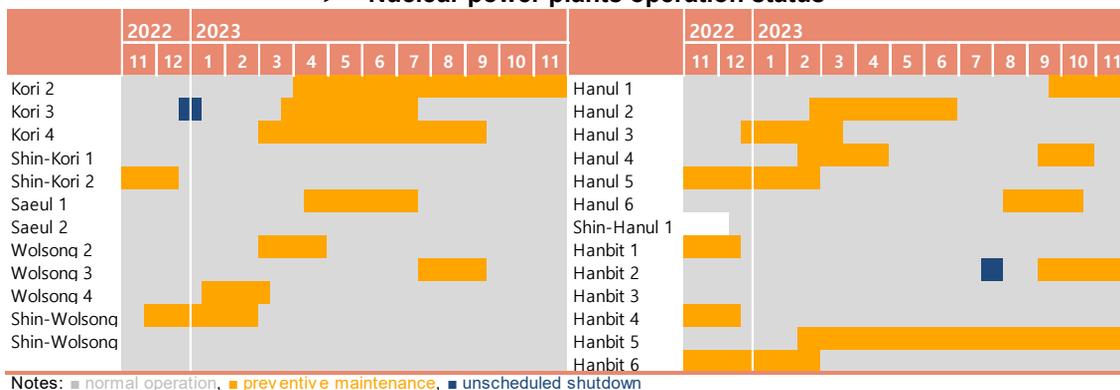
► The growth rate of electricity consumption in manufacturing industry



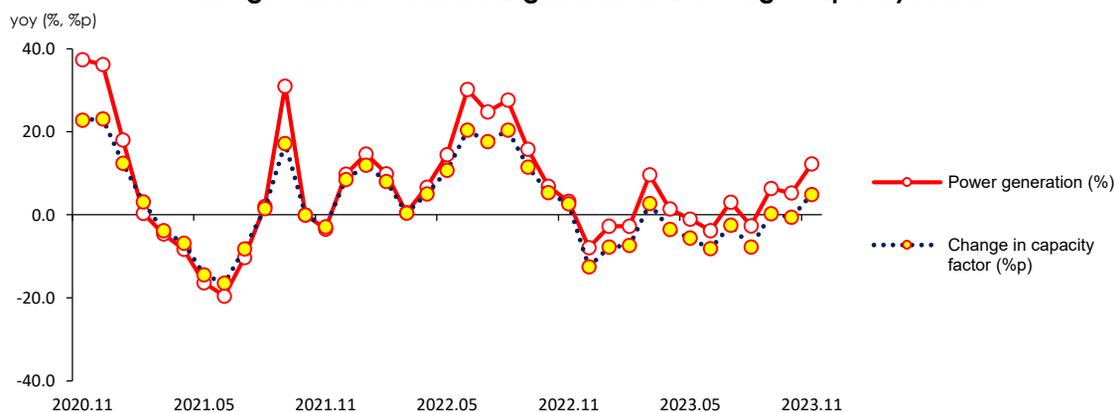
9. Nuclear

- **Nuclear power generation in November increased 12.2% y/y due to higher capacity operation as average daily preventive maintenance decreased.**
 - The number of planned and unplanned outages decreased by 2 units year-on-year to 4, and average daily preventive maintenance decreased by 1.4 GW, resulting in a 4.9 percentage point year-on-year increase in capacity operation to 88.6%.
 - Shin-Hanul Unit 1, which was officially operational on December 7, 2022, overstated capacity operation in the same month of the previous year due to its test run.
 - The share of nuclear power in total electricity generation increased by 2.6 percentage points year-on-year to 32.9 percent.

► Nuclear power plants operation status



► The growth rate of nuclear generation & average capacity factor

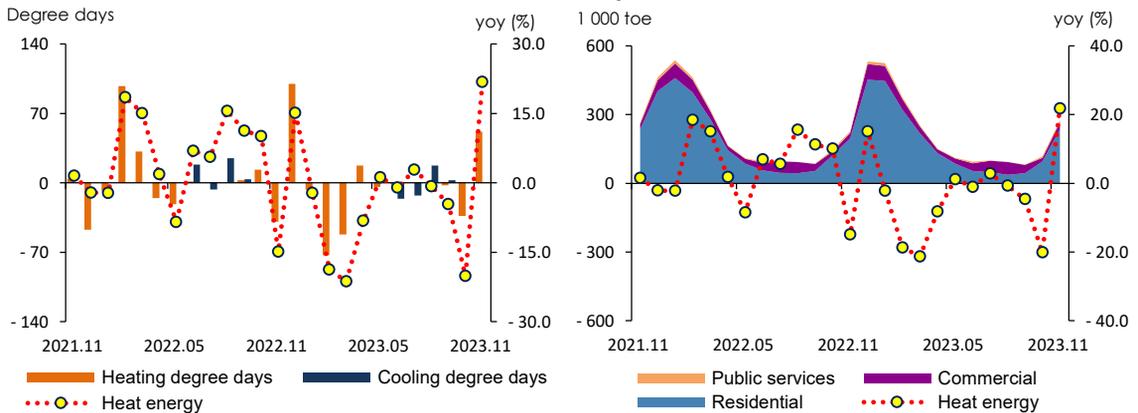


Note: Capacity factor = Ratio of actual power generated to possible power generation when utilizing 100% of available facility. Facility capacity values are based on end-of-the-month data.

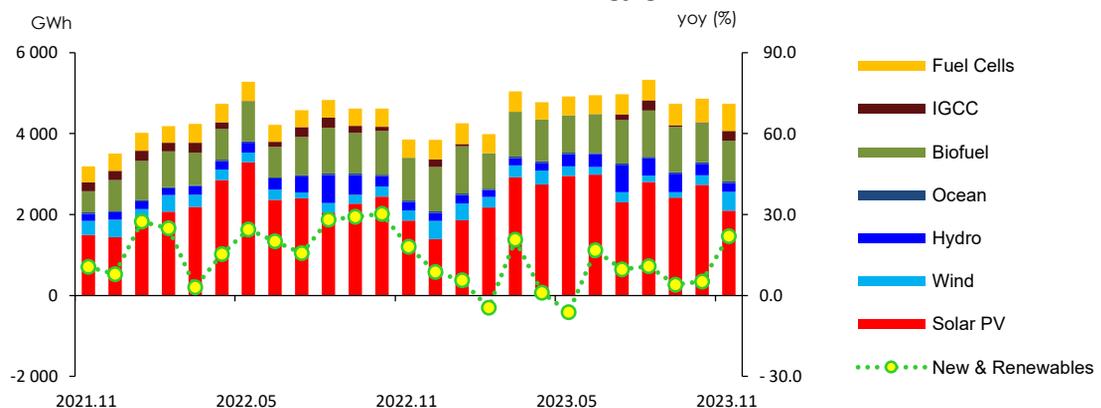
10. Heat and Renewable energy

- **November heat energy consumption surged across all building sectors due to colder weather, up 21.8% year-over-year.**
 - Heat energy consumption surged 19.5%, 39.3%, and 27.5% year-over-year in the residential, commercial, and public sectors, respectively, despite tariff increases (13.0%) and due to more heating degree days (20.5%).
- **Renewable and other energy consumption increased 13.5% y/y, driven by growth in power generation and final consumption.**
 - Renewable and other generation increased 22.0% year-over-year, led by solar, IGCC, fuel cells and wind.
 - Renewable-other final consumption was up 3.7% y/y, driven by gains in the industrial and buildings sectors, excluding transportation.

► 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

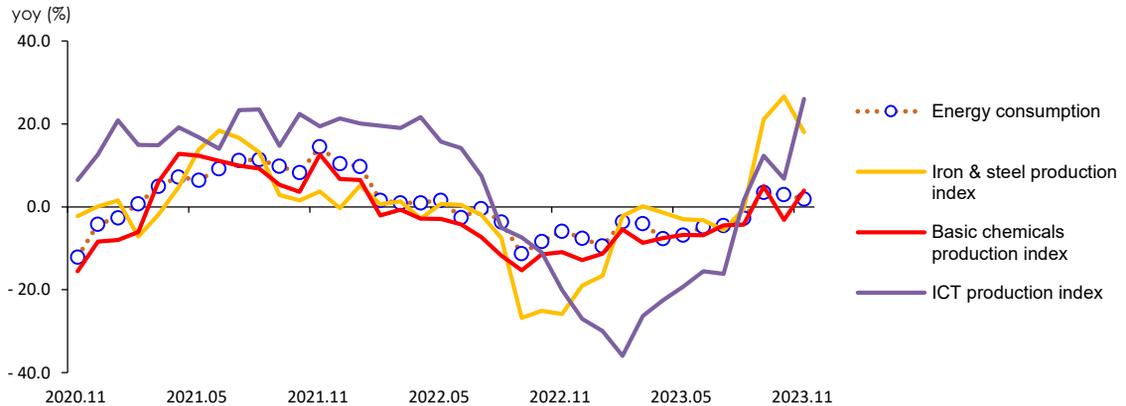
- Industrial sector energy consumption increased 1.9% year-over-year in November, with gains in all major energy-intensive sectors.
 - Energy consumption in the industrial sector increased for the first time since May 2022 for the third consecutive month, as steel consumption rebounded due to base effects and the semiconductor industry picked up.

▶ Industrial energy consumption

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Industry (Mtoe)	131.7	120.3	10.5	116.2	10.5	10.4	10.7
	(-2.2)	(-1.6)	(-5.9)	(-3.4)	(3.5)	(2.9)	(1.9)
Petrochemical	67.6	61.8	5.2	57.9	5.2	5.3	5.3
- Naphtha	(-1.3)	(-0.3)	(-5.5)	(-6.3)	(0.8)	(6.1)	(1.0)
	43.6	39.8	3.4	37.7	3.3	3.4	3.4
Iron & Steel	(-3.9)	(-2.9)	(-5.8)	(-5.4)	(-2.0)	(7.7)	(-1.3)
	25.9	23.7	2.0	24.0	2.2	2.2	2.2
- Coking coal	(-7.3)	(-7.1)	(-13.3)	(1.4)	(18.4)	(3.5)	(7.6)
	16.6	15.2	1.3	15.3	1.4	1.4	1.4
Machinery + Transport Equipment	(-6.7)	(-6.7)	(-11.6)	(0.8)	(19.9)	(1.9)	(8.3)
	12.9	11.6	1.1	11.9	1.1	1.0	1.1
	(4.1)	(3.0)	(3.9)	(2.3)	(7.2)	(0.7)	(4.8)
Share of feedstock (%)	54.8	54.9	54.3	54.7	55.5	55.7	54.2

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

▶ Industrial energy consumption & production index



12. Transport

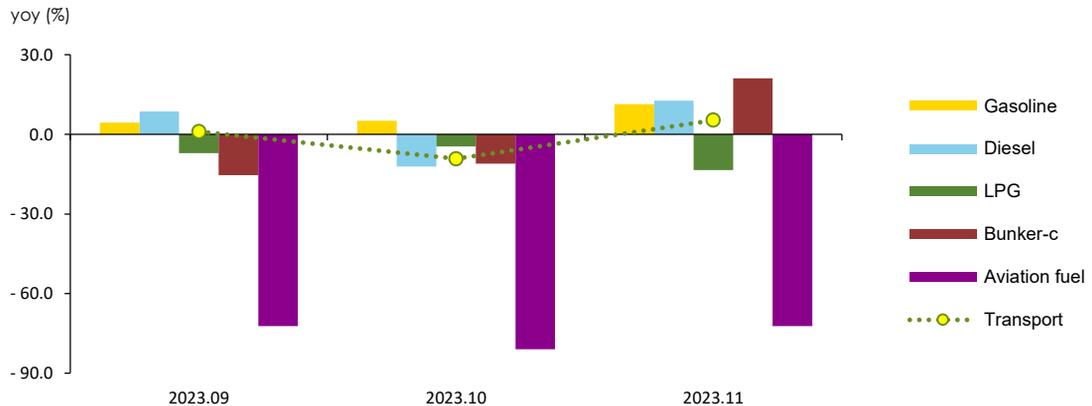
- Energy consumption in the transportation sector increased 5.3% y/y in November, driven by lower diesel consumption in the road sector in the same month of 2022.
 - Road sector consumption grew by 8.9% y-o-y, with a base effect of lower consumption due to the strike of Hwamul yeondae(화물연대) in November 2022.
 - Aviation sector consumption decreased 71.9% y-o-y, impacted by a 6.5% y-o-y decrease in domestic flights. Meanwhile, consumption in the aviation sector has been declining since June due to a change in the criteria for compiling statistics by the Working Group that collects jet fuel statistics.

► The growth rate of petroleum consumption in the transport sector

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Transport (Mtoe)	36.29	32.79	2.82	32.23	2.87	2.85	2.97
	(-0.9)	(-1.1)	(-6.1)	(-1.7)	(1.0)	(-9.2)	(5.3)
Road	33.86	30.53	2.64	30.69	2.76	2.76	2.88
	(-1.0)	(-1.2)	(-5.8)	(0.5)	(5.2)	(-5.5)	(8.9)
Domestic navigation	0.46	0.43	0.03	0.42	0.04	0.03	0.04
	(8.5)	(11.7)	(-5.3)	(-3.4)	(-12.0)	(-12.0)	(12.1)
Domestic aviation	1.67	1.55	0.12	0.86	0.04	0.03	0.03
	(-0.3)	(0.6)	(-12.0)	(-44.8)	(-72.0)	(-80.7)	(-71.9)
Rail	0.30	0.27	0.02	0.27	0.03	0.02	0.02
	(-9.9)	(-9.5)	(-7.6)	(-1.4)	(3.3)	(-1.8)	(0.9)

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

- **Building sector consumption rose 3.1% y/y in November, driven by higher heating demand due to temperature effects.**
 - Building sector consumption is driven by heating demand spikes due to cooler early winter weather. Heat energy, kerosene, and city gas consumption mainly increased.
 - In the household sector, city gas consumption decreased by 0.8% year-on-year, likely due to a relatively large impact of last winter's heating bill disruption, which has impacted consumer sentiment, on individually heated households.
 - Commercial sector spending rose 4.1% year-over-year as services continued to improve.

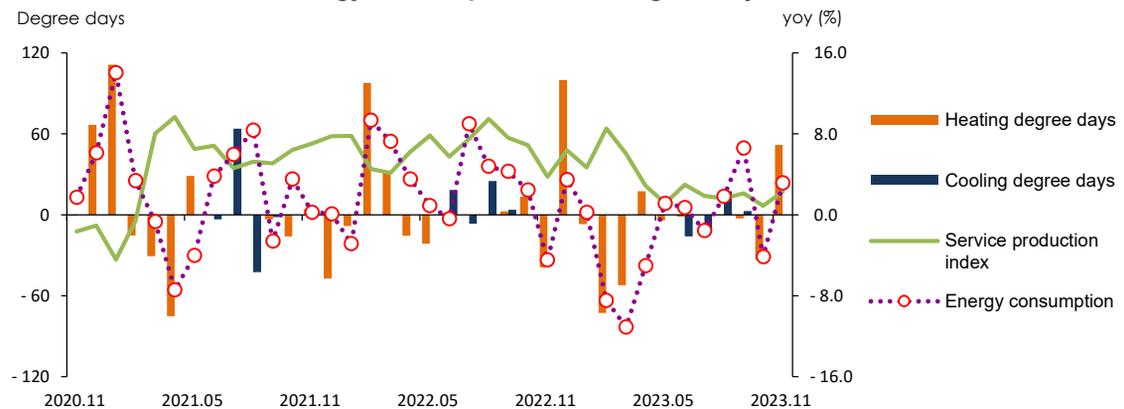
► Energy consumption in buildings

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Buildings (Mtoe)	47.4	41.7	3.7	40.8	3.1	3.0	3.8
	(3.0)	(2.9)	(-4.5)	(-2.2)	(6.6)	(-4.2)	(3.1)
Residential	23.2	20.0	1.9	18.8	1.1	1.2	1.9
	(1.2)	(0.8)	(-8.9)	(-5.7)	(2.8)	(-9.4)	(3.5)
Commercial	18.9	17.0	1.4	17.2	1.6	1.3	1.5
	(5.4)	(5.6)	(-0.4)	(1.1)	(6.7)	(-0.4)	(4.1)
Public services	5.3	4.8	0.4	4.8	0.5	0.4	0.4
	(2.3)	(2.8)	(3.5)	(0.8)	(16.5)	(0.9)	(-1.5)
Heating degree days	2 567.1	1 966.8	251.6	1 862.9	-	101.6	303.3
	(6.8)	(3.3)	(-13.4)	(-5.3)	(-100.0)	(-24.6)	(20.5)
Cooling degree days	141.9	141.9	-	133.6	6.6	-	-
	(40.1)	(40.1)	-	(-5.8)	(73.7)	-	-
Service production index (2020=100)	112.0	110.7	113.4	114.1	115.6	114.5	116.0
	(6.5)	(6.5)	(3.8)	(3.1)	(2.1)	(0.9)	(2.3)

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

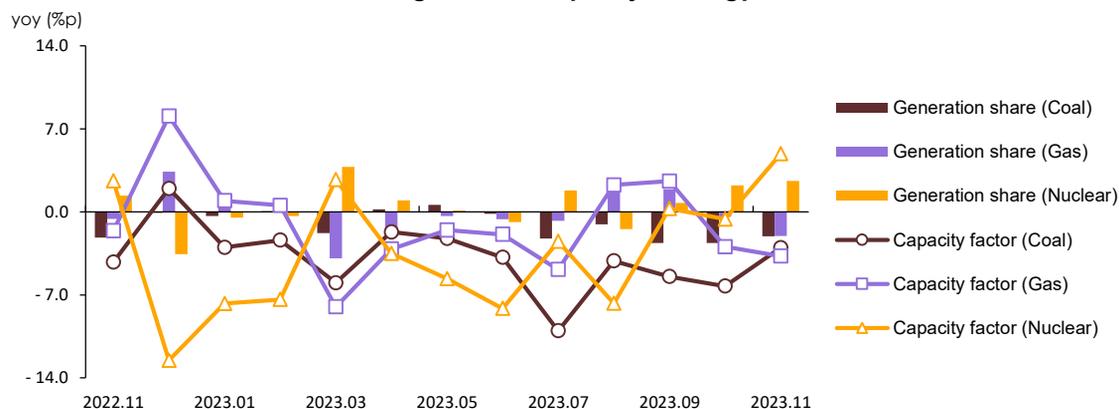
- **November electricity generation increased by 3.4% year-on-year (y-o-y), despite lower coal and gas generation, due to higher nuclear, renewables-other generation.**
 - Nuclear power generation increased by 12.2% YoY due to the entry of Shin-Hanul Unit 1 (1.4GW, Dec. 7, 2022) and decrease in preventive maintenance.
 - Renewables and other generation increased 20.8%, led by solar (13.1%), fuel cells (49.5%), and wind (82.9%).
 - Coal generation decreased 3.2% due to increased nuclear, renewable generation, which dominates the generation rankings in the face of transmission constraints into the metropolitan area.
 - Gas generation down 4.3% y/y as baseload generation grows faster than total generation.

► Power generation by energy sources

	2022p			2023p			
		M1~11	M11	M1~11	M9	M10	M11
Power Generation (TWh)	594.4	538.8	46.2	535.8	48.1	45.0	47.8
	(3.1)	(3.0)	(-1.4)	(-0.6)	(3.8)	(-1.7)	(3.4)
Coal	193.2	174.3	15.0	167.5	14.9	13.1	14.5
	(-2.4)	(-3.0)	(-7.6)	(-3.9)	(-4.2)	(-9.8)	(-3.2)
Oil	2.0	1.8	0.1	1.4	0.1	0.1	0.1
	(-16.5)	(-18.3)	(-39.7)	(-23.1)	(-21.5)	(-20.5)	(-37.0)
Gas	163.6	146.7	12.7	143.9	12.8	11.2	12.2
	(-2.8)	(-4.7)	(-3.5)	(-1.9)	(11.9)	(-3.4)	(-4.3)
Nuclear	176.1	160.8	14.0	164.2	15.0	15.1	15.7
	(11.4)	(13.7)	(3.2)	(2.1)	(6.4)	(5.2)	(12.2)
Renewables	59.6	55.2	4.4	58.8	5.3	5.5	5.3
	(18.9)	(19.9)	(18.4)	(6.6)	(4.0)	(5.9)	(20.8)
Baseload	428.9	390.3	33.4	390.6	35.2	33.7	35.5
	(5.6)	(6.3)	(-0.3)	(0.1)	(1.3)	(-1.1)	(6.4)

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				
		M1~11	M9	M10	M11	M1~11	M9	M10	M11	
GDP (trillion won)	1 918.7 (4.3)	1 968.8 (2.6)	1 455.1 (3.0)	494.2 (3.2)	-	-	1 470.5 (1.1)	501.0 (1.4)	-	-
Private consumption	881.4 (3.6)	917.8 (4.1)	682.1 (4.4)	232.8 (5.2)	-	-	696.4 (2.1)	233.4 (0.2)	-	-
Facilities investment	182.1 (9.3)	180.5 (-0.9)	131.4 (-3.4)	44.3 (4.4)	-	-	134.2 (2.1)	42.5 (-4.2)	-	-
Construction investment	265.0 (-1.6)	257.6 (-2.8)	187.1 (-3.2)	64.5 (-2.0)	-	-	191.8 (2.5)	66.9 (3.8)	-	-
Consumer price index (2020=100)	102.5	107.7	107.6	108.8	109.2	109.1	111.5	112.8	113.3	112.7
USD to KRW exchange rate (won)	1 144.0	1 291.4	1 291.0	1 391.6	1 426.7	1 364.1	1 305.8	1 329.5	1 350.7	1 310.4
Benchmark rate (%)	0.6	2.1	2.0	2.5	3.0	3.3	3.5	3.5	3.5	3.5
Coincident composite index (2020=100)	103.7	108.2	108.2	109.2	109.4	108.9	109.8	110.0	110.1	110.2
Mining & manufacturing production index (2020=100)	108.2	109.7	109.8	105.8	105.8	106.8	104.6	109.0	106.6	112.7
Manufacturing operation ratio index (2020=100)	105.2	105.2	105.4	100.8	101.8	103.0	100.0	101.3	100.5	104.7
Average temperature	13.3	12.9	14.2	21.0	14.0	9.6	14.7	22.6	14.7	7.9
- year-on-year difference	0.3	- 0.4	- 0.1	- 0.4	- 1.2	1.3	0.5	1.6	0.8	- 1.7
Heating degree days	2 404.7 (-1.8)	2 567.1 (6.8)	1 966.8 (3.3)	2.6	134.8 (11.0)	251.6 (-13.4)	1 862.9 (-5.3)	-	101.6 (-24.6)	303.3 (20.5)
Cooling degree days	101.3 (18.9)	141.9 (40.1)	141.9 (40.1)	3.8	-	-	133.6 (-5.8)	6.6 (73.7)	-	-
Energy intensity	0.16 (0.9)	0.16 (-2.0)	0.16 (-1.3)	0.15 (-3.0)	-	-	0.15 (-4.3)	0.15 (-3.1)	-	-
Per capita consumption										
Oil (bbl)	0.0 (7.3)	0.0 (-1.8)	0.0 (-1.5)	0.0 (-12.4)	0.0 (-5.8)	0.0 (-3.0)	0.0 (-3.9)	0.0 (2.6)	0.0 (0.3)	0.0 (1.8)
Electricity (MWh)	0.0 (4.9)	0.0 (3.0)	0.0 (3.3)	0.0 (1.6)	0.0 (1.5)	0.0 (-0.5)	0.0 (-0.1)	0.0 (6.1)	0.0 (-1.4)	0.0 (1.2)
City gas (1 000 m ³)	- (3.5)	- (3.1)	- (2.7)	- (1.9)	- (-0.8)	- (-8.5)	- (-7.4)	- (-4.4)	- (-9.9)	- (2.7)
Total energy (toe)	0.0 (5.4)	0.0 (0.6)	0.0 (0.8)	- (-4.9)	- (-3.3)	- (-4.5)	0.0 (-2.3)	- (3.1)	- (1.1)	- (4.4)

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				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industrial production index										
All industry	105.3 (5.3)	110.1 (4.5)	108.9 (4.9)	109.1 (4.5)	109.2 (3.8)	110.4 (1.3)	109.7 (0.7)	112.0 (2.7)	110.2 (0.9)	113.5 (2.8)
Mining & manufacturing	108.2 (8.2)	109.7 (1.4)	109.8 (2.7)	105.8 (0.1)	105.8 (-2.7)	106.8 (-5.5)	104.6 (-4.8)	109.0 (3.0)	106.6 (0.8)	112.7 (5.5)
Semiconductor	126.8 (26.8)	136.5 (7.7)	138.4 (11.3)	130.3 (-6.6)	123.8 (-11.1)	108.3 (-22.6)	125.1 (-9.6)	161.1 (23.6)	139.9 (13.0)	154.7 (42.8)
Iron & steel	105.2 (5.2)	96.3 (-8.4)	97.2 (-7.5)	75.9 (-26.8)	78.0 (-25.1)	79.3 (-25.9)	98.7 (1.5)	91.9 (21.1)	98.8 (26.7)	93.6 (18.0)
Cement	103.2 (3.1)	100.2 (-2.9)	100.8 (-1.5)	96.7 (2.3)	112.1 (3.1)	105.7 (-7.1)	93.0 (-7.7)	87.2 (-9.8)	94.3 (-15.9)	99.9 (-5.5)
Basic compound	105.9 (5.9)	99.1 (-6.4)	99.3 (-5.8)	91.7 (-15.3)	92.0 (-11.5)	87.2 (-10.9)	94.5 (-4.8)	96.2 (4.9)	89.1 (-3.2)	90.6 (3.9)
Transport equipment	106.3 (6.3)	116.0 (9.1)	114.5 (8.8)	115.1 (28.3)	121.9 (20.3)	136.4 (21.4)	127.0 (10.9)	115.0 (-0.1)	125.0 (2.5)	133.1 (-2.4)
Electric & electronic	107.7 (7.7)	110.8 (2.9)	110.2 (3.6)	112.7 (9.3)	110.8 (2.9)	111.5 (-1.9)	107.2 (-2.7)	108.4 (-3.8)	104.5 (-5.7)	107.6 (-3.5)
Service	105.2 (5.2)	112.0 (6.5)	110.7 (6.5)	113.2 (7.6)	113.5 (6.9)	113.4 (3.8)	114.1 (3.1)	115.6 (2.1)	114.5 (0.9)	116.0 (2.3)
Wholesale and retail	105.3 (5.3)	107.1 (1.7)	106.6 (1.8)	107.3 (1.6)	109.2 (1.1)	109.1 (-0.8)	106.0 (-0.6)	107.0 (-0.3)	105.3 (-3.6)	107.5 (-1.5)
Food & Accommodation	101.9 (1.9)	119.1 (16.9)	118.1 (17.3)	119.3 (16.8)	127.6 (12.7)	120.1 (3.9)	119.0 (0.8)	117.9 (-1.2)	120.8 (-5.3)	116.0 (-3.4)
Production output										
Iron & steel - Pig iron	46 440.5 (2.4)	42 658.2 (-8.1)	39 089.8 (-8.0)	3 169.0 (-17.0)	3 417.4 (-9.0)	3 231.9 (-17.1)	41 431.5 (6.0)	3 861.3 (21.8)	3 824.4 (11.9)	3 852.4 (19.2)
Iron & steel - Crude steel	70 418.0 (5.0)	65 846.2 (-6.5)	60 613.9 (-6.0)	4 614.6 (-15.2)	5 151.1 (-10.9)	4 807.4 (-17.6)	61 301.0 (1.1)	5 451.4 (18.1)	5 491.9 (6.6)	5 383.4 (12.0)
Petrochemical - Basic petrochemicals	34 434.5 (12.7)	32 854.1 (-4.6)	30 235.3 (-3.5)	2 552.9 (-15.5)	2 395.1 (-18.5)	2 484.2 (-12.3)	28 330.1 (-6.3)	2 641.6 (3.5)	2 697.5 (12.6)	2 611.7 (5.1)
Petrochemical - Intermediate raw material	15 764.6 (2.6)	13 852.5 (-12.1)	12 755.4 (-11.7)	1 116.8 (-20.0)	1 041.5 (-16.7)	1 077.1 (-13.6)	11 822.7 (-7.3)	1 014.4 (-9.2)	1 088.6 (4.5)	995.9 (-7.5)
Petrochemical - 3 major products	23 224.7 (9.2)	22 129.4 (-4.7)	20 374.6 (-3.2)	1 697.8 (-14.6)	1 542.5 (-18.1)	1 520.4 (-19.4)	19 680.7 (-3.4)	1 878.5 (10.6)	1 866.4 (21.0)	1 703.8 (12.1)
The number of cars	3 462.4 (-1.3)	3 756.5 (8.5)	3 403.1 (8.3)	307.7 (34.1)	327.5 (24.2)	379.8 (25.4)	3 872.7 (13.8)	301.8 (-1.9)	341.0 (4.1)	370.1 (-2.5)

Note: p means provisional.

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

International Energy Prices

	2021	2022				2023				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Crude oil (USD/bbl)										
WTI	67.9 (72.4)	94.2 (38.7)	95.8 (41.8)	83.8 (17.1)	87.0 (7.2)	84.4 (7.3)	78.1 (-18.5)	89.4 (6.7)	85.5 (-1.8)	77.4 (-8.3)
Dubai	69.3 (64.1)	96.4 (39.1)	98.1 (42.4)	90.9 (25.2)	91.2 (11.7)	86.3 (7.4)	82.5 (-15.9)	93.3 (2.5)	89.7 (-1.5)	83.6 (-3.1)
Brent	70.8 (63.8)	98.9 (39.7)	100.5 (42.7)	90.6 (21.0)	93.6 (11.8)	90.9 (12.4)	82.7 (-17.7)	92.6 (2.2)	88.7 (-5.2)	82.0 (-9.7)
Unit value of import (C&F)	70.2 (56.9)	102.3 (45.6)	103.4 (49.0)	104.7 (41.8)	100.9 (27.7)	94.8 (14.7)	86.0 (-16.9)	90.3 (-13.8)	94.8 (-6.1)	92.0 (-2.9)
LNG										
Henry Hub (USD/MMBTU)	3.7 (74.6)	6.5 (75.2)	6.6 (77.6)	7.8 (51.7)	6.1 (9.2)	6.4 (25.6)	2.7 (-59.4)	2.7 (-65.3)	3.1 (-48.2)	3.1 (-52.5)
TTF (USD/MMBTU)	16.0 (396.1)	40.1 (150.0)	40.4 (187.2)	57.9 (156.1)	38.4 (24.4)	35.9 (29.5)	13.2 (-67.4)	11.4 (-80.2)	14.6 (-62.1)	14.5 (-59.7)
JKM (USD/MMBTU)	17.9 (324.7)	33.9 (89.5)	34.0 (111.9)	47.0 (101.2)	33.0 (-0.8)	28.4 (-15.6)	14.5 (-57.4)	13.9 (-70.4)	16.3 (-50.6)	17.0 (-40.0)
Unit value of import (USD/ton, CIF)	550.8 (41.2)	1 053.5 (91.3)	1 035.2 (99.2)	1 470.4 (157.5)	1 247.3 (86.5)	1 259.0 (56.3)	783.0 (-24.4)	678.2 (-53.9)	628.5 (-49.6)	643.1 (-48.9)
Coal (USD/ton)										
Thermal coal (Newcastle)	136.0 (125.8)	356.3 (161.9)	352.3 (164.0)	439.4 (138.7)	390.4 (65.8)	348.6 (126.7)	177.6 (-49.6)	159.5 (-63.7)	139.5 (-64.3)	123.2 (-64.7)
Unit value of import (CIF)	115.1 (48.1)	226.3 (96.7)	228.3 (110.4)	203.1 (60.9)	230.1 (61.8)	204.0 (15.6)	172.0 (-24.7)	139.6 (-31.3)	151.6 (-34.1)	145.1 (-28.9)
Petroleum product (USD/bbl)										
Gasoline	80.3 (72.2)	115.2 (43.4)	117.5 (47.6)	97.8 (16.4)	94.9 (-3.8)	98.5 (3.7)	99.5 (-15.4)	110.3 (12.7)	98.9 (4.2)	98.0 (-0.5)
Kerosene	75.1 (67.9)	126.7 (68.6)	128.1 (72.4)	120.9 (51.3)	123.4 (32.6)	121.2 (35.9)	104.9 (-18.1)	122.9 (1.7)	113.6 (-8.0)	106.5 (-12.1)
Diesel	77.6 (57.2)	135.3 (74.3)	137.3 (78.6)	129.1 (55.7)	137.3 (43.7)	127.8 (39.6)	107.0 (-22.0)	125.4 (-2.9)	117.5 (-14.4)	106.5 (-16.7)
Bunker-C	64.4 (64.3)	82.3 (27.8)	84.4 (31.3)	66.2 (-9.9)	62.2 (-19.8)	65.5 (-7.9)	72.0 (-14.6)	84.0 (26.8)	76.3 (22.6)	72.5 (10.7)
Propane	647.9 (63.2)	737.1 (13.8)	745.0 (17.4)	650.0 (-2.3)	590.0 (-26.3)	610.0 (-29.9)	571.8 (-23.2)	550.0 (-15.4)	600.0 (1.7)	610.0 -
Butane	629.6 (55.9)	734.2 (16.6)	741.8 (19.9)	630.0 (-5.3)	560.0 (-29.6)	610.0 (-26.5)	573.2 (-22.7)	560.0 (-11.1)	615.0 (9.8)	620.0 (1.6)
Naphtha	70.6 (74.6)	83.1 (17.7)	84.7 (21.0)	67.1 (-10.6)	71.4 (-15.3)	73.8 (-12.2)	68.8 (-18.7)	74.1 (10.6)	70.3 (-1.5)	69.4 (-6.0)

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				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Petroleum product										
Gasoline (won/liter)	1 590.5 (15.1)	1 812.4 (14.0)	1 835.0 (15.7)	1 730.0 (5.3)	1 666.7 (-2.7)	1 650.3 (-5.0)	1 646.9 (-10.3)	1 769.2 (2.3)	1 775.9 (6.6)	1 684.1 (2.0)
Diesel (won/liter)	1 391.3 (16.9)	1 841.8 (32.4)	1 847.2 (33.4)	1 850.2 (28.7)	1 838.4 (21.8)	1 879.2 (21.3)	1 561.7 (-15.5)	1 666.5 (-9.9)	1 690.3 (-8.1)	1 628.2 (-13.4)
Bunker-C (won/liter)	731.7 (27.6)	1 115.2 (52.4)	1 126.9 (56.5)	1 128.6 (46.9)	1 050.8 (29.2)	1 142.2 (31.7)	925.7 (-17.9)	963.7 (-14.6)	992.6 (-5.5)	1 024.1 (-10.3)
Propane (won/kg)	2 092.6 (13.1)	2 479.6 (18.5)	2 482.3 (20.3)	2 471.2 (14.4)	2 469.8 (14.2)	2 455.4 (6.2)	2 367.9 (-4.6)	2 285.0 (-7.5)	2 367.9 (-4.1)	2 416.6 (-1.6)
Butane (won/liter)	931.8 (17.8)	1 081.7 (16.1)	1 087.2 (18.5)	1 051.4 (7.2)	1 049.5 (7.0)	1 032.2 (-2.0)	956.4 (-12.0)	895.5 (-14.8)	940.3 (-10.4)	970.8 (-5.9)
City gas(won/MJ)										
Residential	14.2 (-5.7)	16.6 (16.7)	16.3 (14.7)	17.0 (19.5)	19.7 (38.4)	19.7 (38.4)	20.4 (24.8)	20.7 (22.0)	20.7 (5.3)	20.7 (5.3)
General(1)	13.9 (-6.5)	16.3 (17.3)	16.0 (15.3)	16.6 (20.2)	19.3 (39.7)	19.3 (39.7)	20.0 (25.3)	20.4 (22.6)	20.4 (5.4)	20.4 (5.4)
Commercial	17.2 (14.2)	28.7 (66.6)	28.0 (68.2)	34.0 (87.9)	35.6 (89.4)	35.3 (65.3)	26.3 (-6.1)	22.7 (-33.3)	23.4 (-34.3)	21.8 (-38.3)
Industry	14.4 (14.2)	25.9 (79.9)	25.2 (82.7)	30.9 (108.4)	32.6 (109.1)	32.4 (77.9)	23.5 (-6.4)	19.7 (-36.3)	20.5 (-37.2)	18.9 (-41.6)
Heat(won/Mcal)										
Residential	65.2 (-1.4)	74.1 (13.7)	72.7 (11.5)	74.5 (14.2)	89.9 (37.8)	89.9 (37.8)	95.6 (31.5)	101.6 (36.4)	101.6 (13.0)	101.6 (13.0)
Commercial	84.7 (-1.4)	96.3 (13.7)	94.4 (11.5)	96.7 (14.2)	116.7 (37.8)	116.7 (37.8)	124.1 (31.5)	131.9 (36.4)	131.9 (13.0)	131.9 (13.0)
Public	74.0 (-1.4)	84.1 (13.7)	82.5 (11.5)	84.5 (14.2)	101.9 (37.8)	101.9 (37.8)	108.4 (31.4)	115.2 (36.3)	115.2 (13.0)	115.2 (13.0)
Electricity(won/kWh)										
Residential	142.3 (-3.4)	147.8 (3.9)	147.2 (3.5)	147.2 (3.4)	154.6 (8.6)	154.6 (8.6)	171.1 (16.2)	174.0 (18.2)	174.0 (12.5)	174.0 (12.5)
General	79.4 (-5.9)	84.9 (7.0)	83.5 (6.2)	65.1 (8.1)	72.5 (20.4)	99.6 (14.1)	107.4 (28.6)	91.9 (41.2)	91.9 (26.8)	119.0 (19.5)
Industry	91.0 (-5.2)	98.8 (8.6)	96.4 (7.3)	78.4 (6.7)	95.0 (29.3)	125.0 (20.8)	129.1 (33.8)	114.4 (45.9)	114.4 (20.4)	157.9 (26.3)

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			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal (Mton)	122.8 (0.6)	117.0 (-4.7)	106.4 (-4.7)	9.3 (-9.3)	8.8 (-8.8)	9.0 (-13.4)	99.9 (-6.1)	8.8 (-5.1)	8.4 (-3.8)	8.8 (-2.2)
- Coking coal excluded	97.2 (-0.1)	93.4 (-4.0)	84.8 (-3.9)	7.5 (-6.4)	6.8 (-9.8)	7.1 (-13.7)	78.1 (-7.9)	6.7 (-10.7)	6.4 (-5.4)	6.8 (-4.9)
Oil (Mbbl)	830.7 (7.1)	814.5 (-1.9)	738.9 (-1.6)	61.9 (-12.5)	64.4 (-5.9)	65.2 (-3.2)	710.9 (-3.8)	63.6 (2.7)	64.6 (0.4)	66.4 (1.9)
LNG (Mton)	45.8 (10.4)	45.6 (-0.5)	39.8 (-2.2)	2.7 (-7.6)	3.0 (-8.3)	3.6 (-9.7)	38.9 (-2.4)	2.9 (9.8)	3.0 (-1.1)	3.9 (9.3)
Hydro (TWh)	3.1 (-21.2)	3.5 (15.9)	3.3 (16.3)	0.5 (63.8)	0.3 (17.4)	0.2 (19.7)	3.4 (2.8)	0.5 (-6.6)	0.3 (12.9)	0.2 (7.5)
Nuclear (TWh)	158.0 (-1.4)	176.1 (11.4)	160.8 (13.7)	14.1 (15.8)	14.4 (6.8)	14.0 (3.2)	164.2 (2.1)	15.0 (6.4)	15.1 (5.2)	15.7 (12.2)
Others (Mtoe)	14.4 (13.8)	15.9 (10.5)	14.6 (12.0)	1.3 (16.0)	1.3 (18.1)	1.2 (6.3)	15.5 (5.8)	1.4 (5.9)	1.3 (0.1)	1.4 (13.7)
TPED (Mtoe)	304.9 (5.2)	306.2 (0.5)	277.1 (0.6)	22.9 (-5.1)	23.4 (-3.4)	24.1 (-4.6)	271.0 (-2.2)	23.6 (3.2)	23.6 (1.2)	25.2 (4.5)

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

Source: Korea Energy Economics Institute

Share of TPED by Sources

(unit: %)

	2021	2022p					2023p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal	24.4	23.1	23.2	24.3	22.8	22.5	22.4	22.6	21.7	21.1
- Coking coal excluded	18.6	17.7	17.8	19.1	16.9	17.1	16.7	16.5	15.9	15.6
Oil	39.9	39.7	39.9	40.9	41.7	40.8	39.8	41.1	42.4	40.7
LNG	19.6	19.5	18.8	15.3	16.9	19.4	18.8	16.3	16.6	20.3
Hydro	0.2	0.2	0.3	0.5	0.2	0.2	0.3	0.4	0.3	0.2
Nuclear	11.0	12.2	12.4	13.1	13.1	12.4	12.9	13.5	13.6	13.3
Others	4.7	5.2	5.3	5.8	5.7	5.0	5.7	5.9	5.6	5.4
TPED	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: p means provisional.

Source: Korea Energy Economics Institute

Total Final Consumption (TFC)

(Unit: Mtoe)

	2021	2022p					2023p				
		M1~11	M9	M10	M11	M1~11	M9	M10	M11		
Industry	134.6 (7.5)	131.7 (-2.2)	120.3 (-1.6)	10.1 (-11.3)	10.1 (-8.3)	10.5 (-5.9)	116.2 (-3.4)	10.5 (3.5)	10.4 (2.9)	10.7 (1.9)	
Transport	36.6 (5.4)	36.3 (-0.9)	32.8 (-1.1)	2.8 (-8.0)	3.1 (8.2)	2.8 (-6.1)	32.2 (-1.7)	2.9 (1.0)	2.8 (-9.2)	3.0 (5.3)	
Residential	22.9 (2.6)	23.2 (1.2)	20.0 (0.8)	1.1 (0.6)	1.3 (0.0)	1.9 (-8.9)	18.8 (-5.7)	1.1 (2.8)	1.2 (-9.4)	1.9 (3.5)	
commercial	17.9 (1.7)	18.9 (5.4)	17.0 (5.6)	1.5 (7.1)	1.3 (3.0)	1.4 (-0.4)	17.2 (1.1)	1.6 (6.7)	1.3 (-0.4)	1.5 (4.1)	
Public	5.2 (4.0)	5.3 (2.3)	4.8 (2.8)	0.4 (4.8)	0.4 (9.3)	0.4 (3.5)	4.8 (0.8)	0.5 (16.5)	0.4 (0.9)	0.4 (-1.5)	
TFC	217.3 (6.0)	215.5 (-0.9)	194.8 (-0.6)	15.9 (-8.2)	16.3 (-3.6)	17.0 (-5.6)	189.2 (-2.9)	16.5 (3.6)	16.2 (-0.7)	17.5 (2.7)	
Coal (Mton)	53.8 (4.9)	49.9 (-7.4)	45.6 (-6.9)	3.7 (-17.2)	3.9 (-10.8)	4.0 (-14.3)	44.8 (-1.9)	4.0 (8.2)	4.1 (4.8)	4.2 (3.6)	
Oil (Mbbbl)	809.1 (7.6)	798.9 (-1.3)	725.2 (-0.8)	61.3 (-11.0)	62.9 (-5.4)	63.6 (-3.4)	694.1 (-4.3)	61.7 (0.7)	62.6 (-0.4)	64.3 (1.0)	
- Non-energy oil excluded	350.6 (4.3)	345.8 (-1.4)	310.0 (-2.0)	26.6 (-7.4)	29.8 (4.1)	27.8 (-4.6)	302.7 (-2.3)	26.1 (-1.6)	26.9 (-9.7)	28.8 (3.7)	
Electricity (TWh)	520.3 (4.7)	535.3 (2.9)	489.5 (3.2)	44.3 (1.4)	41.3 (1.3)	41.5 (-0.6)	489.4 (-0.0)	47.1 (6.2)	40.8 (-1.3)	42.0 (1.3)	
City gas (Bm ³)	22.7 (3.3)	23.4 (2.9)	20.3 (2.6)	1.1 (1.8)	1.3 (-0.9)	1.8 (-8.6)	18.8 (-7.3)	1.0 (-4.3)	1.2 (-9.8)	1.9 (2.8)	
Heat-others (1 000 toe)	9.8 (6.3)	10.0 (1.9)	8.9 (2.5)	0.7 (6.9)	0.7 (6.9)	0.8 (-7.3)	8.7 (-1.6)	0.7 (4.1)	0.7 (-5.1)	0.9 (8.9)	

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

Share of the Total Final Consumption by Sources

(unit: %)

	2021	2022p					2023p				
		M1~11	M9	M10	M11	M1~11	M9	M10	M11		
Industry	61.9	61.1	61.7	63.7	61.9	61.7	61.4	63.6	64.2	61.2	
Transport	16.9	16.8	16.8	17.9	19.2	16.6	17.0	17.4	17.6	17.0	
Residential	10.6	10.8	10.2	6.8	8.3	10.9	9.9	6.7	7.5	11.0	
Commercial	8.3	8.8	8.7	9.1	8.2	8.4	9.1	9.4	8.2	8.5	
Public	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.4	
TFC	100.0										
Coal	15.6	14.7	14.9	14.9	15.4	15.1	15.1	15.7	16.2	15.2	
Oil	47.5	47.2	47.3	49.0	49.3	47.5	46.6	47.5	49.1	46.9	
- Non-energy oil excluded	21.5	21.3	21.2	22.2	24.4	21.6	21.1	20.9	21.9	21.7	
Electricity	20.6	21.4	21.6	24.0	21.8	20.9	22.2	24.6	21.6	20.6	
City gas	11.7	12.1	11.6	7.8	9.2	11.9	11.4	7.9	9.0	12.3	
Heat-others	4.5	4.7	4.6	4.3	4.3	4.6	4.6	4.3	4.1	4.9	

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

Statistics on Energy Production Facilities

	2020	2021	2022	2023					
				M9	M10	M11			
Total capacity (GW)	129.2 (3.1)	134.0 (3.7)	138.0 (3.0)	134.8 (2.0)	136.0 (1.9)	136.3 (1.8)	143.5 (6.5)	143.8 (5.7)	144.1 (5.7)
Nuclear	23.3 -	23.3 -	24.7 (6.0)	23.3 -	23.3 -	23.3 -	24.7 (6.0)	24.7 (6.0)	24.7 (6.0)
Bituminous coal	36.5 (0.1)	36.9 (1.3)	37.3 (1.0)	36.3 (-0.4)	37.3 (-0.4)	37.3 (-0.4)	38.3 (5.6)	38.3 (2.6)	38.2 (2.5)
Gas	41.2 (4.1)	41.2 (0.1)	41.2 -	41.2 (0.1)	41.2 (0.1)	41.2 (0.1)	43.2 (4.8)	43.2 (4.8)	43.2 (4.8)
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					
				M9	M10	M11			
The number of household demanding city gas (mil)	20.1 (2.4)	20.5 (2.0)	20.9 (1.7)	20.7 (2.2)	20.7 (2.1)	20.9 (2.3)	20.9 (1.2)	20.9 (0.8)	21.0 (0.6)
Registered cars (mil)	24.4 (2.9)	24.9 (2.2)	25.5 (2.4)	25.4 (2.3)	25.4 (2.4)	25.5 (2.4)	25.8 (1.9)	25.9 (1.8)	25.9 (1.8)
- gasoline	11.4 (4.1)	11.8 (3.1)	12.1 (2.6)	12.0 (2.6)	12.0 (2.7)	12.0 (2.7)	12.3 (2.4)	12.3 (2.3)	12.3 (2.2)
- diesel	10.0 (0.3)	9.9 (-1.2)	9.8 (-1.2)	9.8 (-1.2)	9.8 (-1.1)	9.8 (-1.1)	9.6 (-2.3)	9.5 (-2.4)	9.5 (-2.6)
- LPG	2.0 (-1.3)	1.9 (-1.7)	1.9 (-2.1)	1.9 (-1.9)	1.9 (-1.9)	1.9 (-2.0)	1.8 (-3.6)	1.8 (-3.8)	1.8 (-3.9)
- hybrid	0.6 (33.1)	0.9 (34.0)	1.1 (28.5)	1.1 (30.2)	1.1 (29.1)	1.1 (28.8)	1.4 (30.3)	1.4 (31.0)	1.4 (31.9)

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

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