

# KEEI

## MONTHLY KOREA ENERGY TRENDS

2023/02

KOREA ENERGY ECONOMICS INSTITUTE

COAL	-13.3%
PETROLEUM	-4.6%
NATURAL GAS	-9.6%
NUCLEAR	3.2%
NEW & RENEWABLE	-1.3%
NOVEMBER. 2022	

This publication is derived from Energy Demand & Supply  
Statistics and Energy Price Statistics issued until November 2022



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# 1. The Economy and the Industry

## □ The mining & manufacturing production index went down by 3.4% year-on-year in November, as the production decreased in large energy consuming industries except a few sectors.

- The semiconductor production index dropped by 14.9% year-on-year, posting the fourth consecutive month of decline, owing to the lower exports (-29.9%, based on the export value), lower facility utilization rate (-24.3%, based on the index) and higher inventory level (20.9%) amid the economic slowdown.
- The production index of basic chemical materials dropped by 10.3% year-on-year, as the ethylene-naphtha spread further deteriorated (-50.7%) due to lower demand, and some petrochemical companies extended their routine maintenance periods.
- The iron & steel production index was down 23.8% year-on-year, as the production was still stagnant due to weak demand and aftereffect of Typhoon Hinnamnor that made a landfall in September, and as the shipment fell as a result of a strike launched by the Cargo Truckers Solidarity Union (11.24-12.9).
- Meanwhile, the automobile production index went up by 23.6% year-on-year, partly because the supply shortage of semiconductors was eased.

## □ The service production index has grown for 22 consecutive months, although the pace of growth has been slower due to the economic slump.

- The wholesale & retail production index was up 0.5% year-on-year, driven by stronger production in cars and parts sales business, although the growth rate was lower partly due to a drop in household expenditures (-19.4%, based on the consumer sentiment index) amid increasing prices.
- The food & accommodation production index rose by 6.8% year-on-year, as outdoor activities and travel demand increased following the termination of social distancing restrictions. The pace of growth, however, has been slowing since August, affected by higher interest rates and prices.

### ► Major economic and industrial indicators

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
GDP (trillion won)	1 915.8 (4.1)	1 410.2 (4.1)	- -	1 452.6 (3.0)	493.1 (3.1)	- -	- -
Total export (\$billion, customs clearance basis)	644.4 (25.7)	583.7 (26.6)	60.3 (31.9)	628.7 (7.7)	57.2 (2.3)	52.4 (-5.8)	51.8 (-14.2)
Industrial production index (2015=100)	114.3 (7.4)	113.2 (7.4)	119.3 (6.7)	115.8 (2.3)	111.8 (0.6)	113.5 (-1.1)	115.3 (-3.4)
Semi-conductors	298.6 (29.4)	293.6 (29.4)	331.0 (33.9)	333.3 (13.5)	318.4 (-3.6)	323.5 (-2.1)	281.7 (-14.9)
Basic chemical products	107.9 (6.7)	107.5 (6.5)	100.3 (14.5)	102.0 (-5.1)	95.6 (-13.6)	94.6 (-10.0)	90.0 (-10.3)
Iron&Steel	97.4 (5.8)	97.4 (6.4)	98.7 (3.0)	89.6 (-8.0)	69.1 (-27.5)	73.1 (-24.7)	75.2 (-23.8)
Cars	88.2 (4.5)	87.3 (4.2)	92.1 (-5.1)	95.7 (9.6)	97.0 (31.3)	101.8 (22.7)	113.8 (23.6)
Service production index (2015=100)	110.9 (4.3)	109.7 (4.2)	114.7 (5.4)	115.2 (4.9)	117.1 (6.0)	117.3 (4.9)	118.2 (3.1)
Wholesale & Retail	106.0	105.4	110.3	108.3	109.3	111.5	110.9

	(4.0)	(4.0)	(4.1)	(2.8)	(2.8)	(2.8)	(0.5)
Food & Accommodation	80.7	79.6	92.3	95.2	97.9	104.9	98.6
	(1.4)	(-1.4)	(14.4)	(19.5)	(21.5)	(16.9)	(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 International Trade Association(KITA), Korea Statistical Information Service

## 2. Energy Prices<sup>1</sup>

### Global Energy Prices

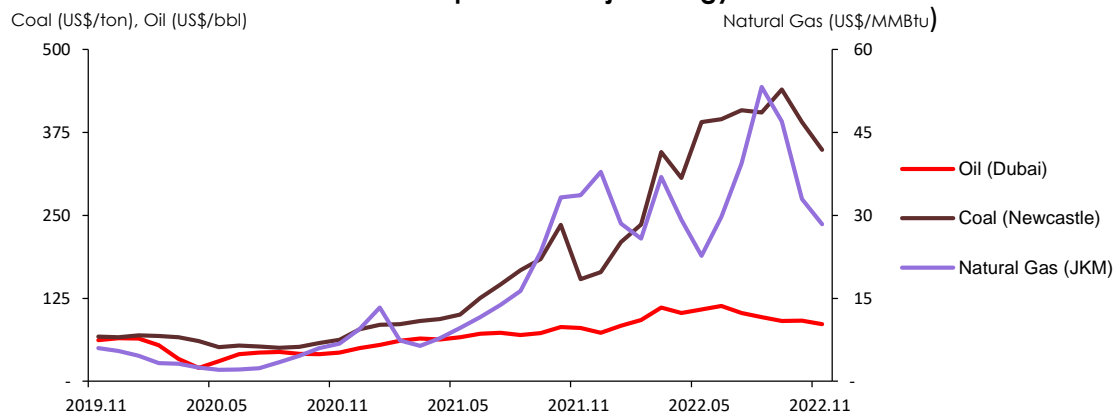
- In November, international oil prices fell due to growing concerns about an economic downturn caused by the US Federal Reserve's interest rate hikes and the resurgence of COVID-19 in China.
  - During the Federal Open Market Committee meeting on November 3, the Fed raised its benchmark interest rate by 75bp despite lower-than-expected CPI and core CPI data for October, leading to increased concerns about a global economic downturn.
  - In November, the number of COVID-19 confirmed cases amounted to around 20,000 a day in China, and major cities including Beijing imposed lockdown measures.
  - Global steam coal price fell by 10.7% from the previous month due to worries that the economy could further slow along with China's Zero COVID-19 policy.
  - Global natural gas price declined, which was attributed to a high level of inventory in Asia and Europe as well as stronger supply in the global market.

#### ► Global energy prices

	2020	2021				2022		
			M9	M10	M11	M9	M10	M11
Crude oil (US\$/bbl)	42.2	69.3	72.6	81.6	80.3	90.9	91.2	86.3
	(-33.6)	(64.2)	(4.5)	(12.4)	(-1.6)	(-5.9)	(0.2)	(-5.4)
Coal (US\$/ton)	60.2	136.4	184.1	235.4	153.7	439.4	390.4	348.6
	(-22.8)	(126.5)	(10.1)	(27.9)	(-34.7)	(8.5)	(-11.1)	(-10.7)
Natural gas (US\$/MMBtu)								
TTF	3.2	16.1	22.6	30.8	27.7	57.9	38.4	35.9
	(-32.3)	(397.9)	(46.5)	(36.4)	(-10.2)	(-16.9)	(-33.7)	(-6.5)
JKM	4.2	17.9	23.4	33.2	33.6	47.0	33.0	28.4
	(-24.9)	(325.7)	(42.8)	(42.3)	(1.2)	(-11.7)	(-29.8)	(-13.9)

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



<sup>1</sup> 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

□ In November, gasoline price maintained a downward slide, while diesel price rebounded, because its global price increased in the prior month.

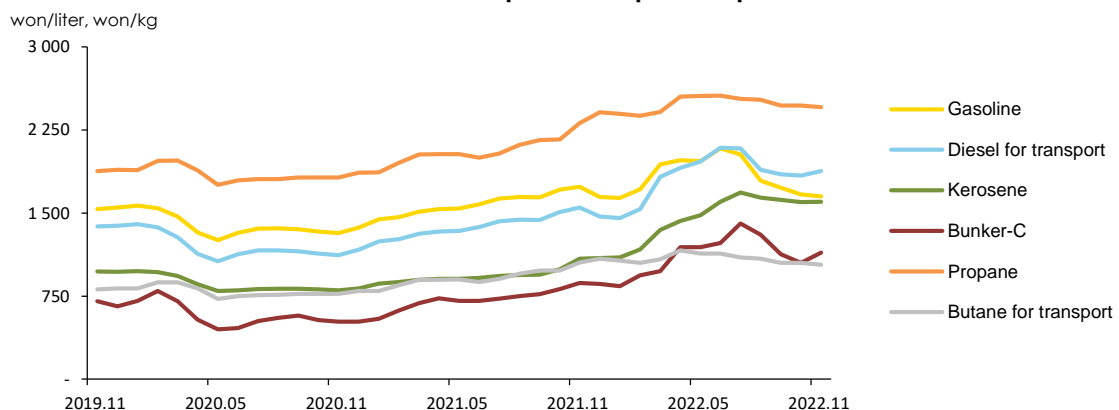
- The price of gasoline at gas stations has been down for five consecutive months in line with the downward trend in global prices, which started from the mid-June. Meanwhile, diesel price bounced back for the first time in five months, posting a 2.2% growth from the previous month, as global diesel price increased (6.3%) in October.
- The prices of propane and butane fell by 0.6% and 1.6% respectively than the prior month, as global LPG price decreased in October.
- The supply price of industrial propane in terms of retail price of city gas (propane/city gas) went down by 1.3% to 0.84 compared to the previous month, which was calculated based on the same amount of calorie.

### ► Domestic petroleum product prices

	2020	2021				2022		
			M9	M10	M11	M9	M10	M11
Gasoline (won/liter)	1 381.3 (-6.2)	1 591.2 (15.2)	1 642.7 (-0.2)	1 712.4 (4.2)	1 737.5 (1.5)	1 730.0 (-3.5)	1 666.7 (-3.7)	1 650.3 (-1.0)
Diesel for transport (won/liter)	1 189.5 (-11.3)	1 392.0 (17.0)	1 437.2 (-0.2)	1 509.3 (5.0)	1 549.7 (2.7)	1 850.2 (-2.1)	1 838.4 (-0.6)	1 879.2 (2.2)
Bunker-C (won/liter)	572.9 (-23.0)	732.2 (27.8)	768.2 (2.4)	813.4 (5.9)	867.4 (6.6)	1 128.6 (-13.5)	1 050.8 (-6.9)	1 142.2 (8.7)
Propane (won/kg)	1 850.3 (-1.0)	2 093.4 (13.1)	2 160.1 (2.2)	2 163.4 (0.2)	2 312.3 (6.9)	2 471.2 (-2.0)	2 469.8 (-0.1)	2 455.4 (-0.6)
Butane for transport (won/liter)	790.8 (-1.9)	932.3 (17.9)	980.5 (3.0)	981.2 (0.1)	1 053.8 (7.4)	1 051.4 (-3.4)	1 049.5 (-0.2)	1 032.2 (-1.6)

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

### ► Domestic petroleum product prices



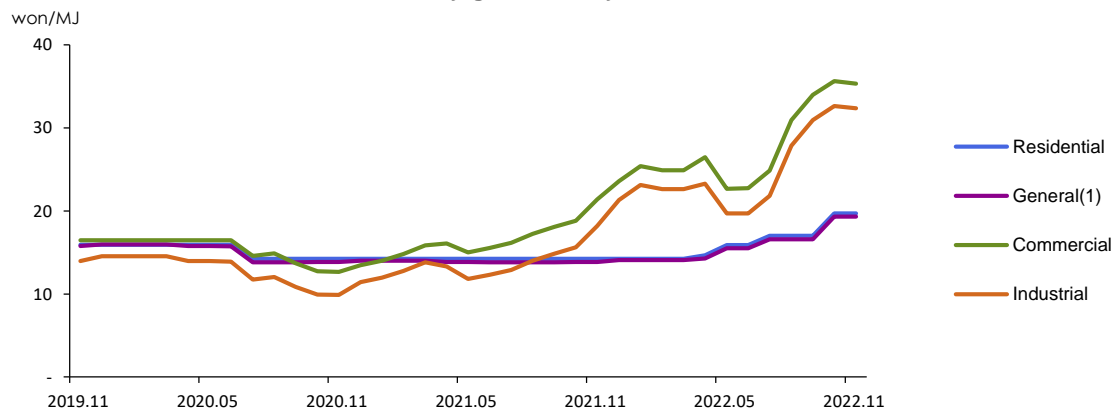
□ **City gas rates for residential and general customers were flat in November, while the rates for office heating and industrial customers slightly declined.**

- The material cost of city gas for residential and general customers went up by 20.9% (2.7 won/MJ) respectively in October from the previous month, and then, the rates were flat in November.
- The material cost of city gas for office heating and industrial customers fell by 0.9% from the previous month, as the import price of LNG declined.

□ **Electric rate for residential customers remained the same in November, while the rates for general and industrial customers surged, as they were adjusted for the winter season.**

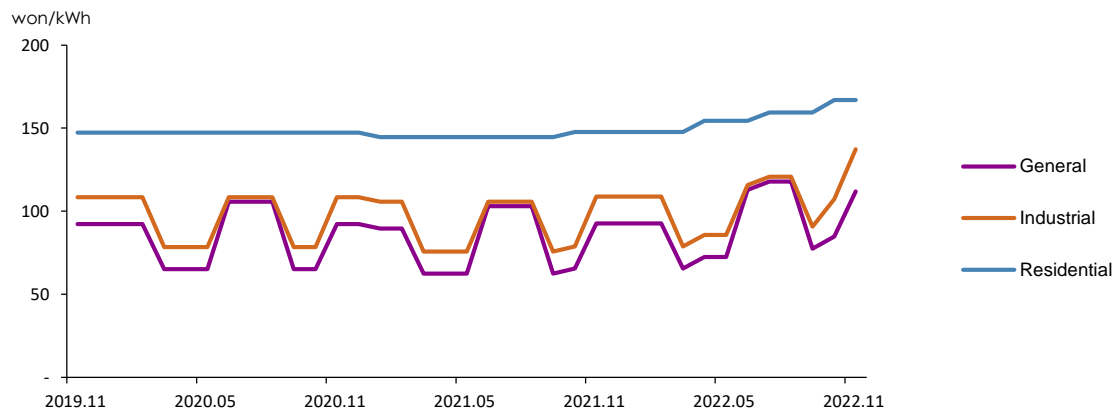
- Electric rates for general and industrial customer change by season, and they rose by around 30% each in November than the previous month through the rate adjustment for the winter season.
- Energy charge and Climate Change & Environmental Charge (cost of implementing RPS & ETS and reduced coal-fired generation) are expected to be raised by 11.4 won/kWh and 1.7 won/kWh from January 2023, reflecting generation fuel cost and the climate and environment-related cost.

► **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 2<sup>nd</sup> 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 decreased by 0.8% year-on-year in November, as the import of major energy sources declined except crude oil.**
  - The import volume of crude oil increased by 3.2% year-on-year, as its demand increased (4.8%) for the production of petroleum products in the midst of a slower growth in global oil prices.
  - The import volume of petroleum products slightly declined, despite the growth in naphtha and LPG imports, because this growth was offset by lower import of bunker-C oil.
  - The import volume of bituminous coal fell by 3.1% year-on-year due to continuously weak demand and a surge in global steam coal price (18.9%, based on spot price at Australia's New Castle port), although the pace of decline has been slower for three months in a row.
  - The import volume of gas dropped by 2.1% year-on-year, which is presumably affected by the end of gas stockpiling period for winter (Mar.-Oct.) and lower domestic gas use, even though global natural gas price decreased (-15.6%, based on JKM).
  - Energy has been accounting for around 30% of the total import value since July, while the export value of energy products (approximately \$5.2 billion (FOB), based on KITA data) dropped by 14.2% year-on-year as a result of lower demand from major importing nations amid the global economic slump.

#### ► Import and domestic production of energy

	2021p			2022p			
		M1~11	M11		M1~11	M9	M10
Import volume							
Crude oil (Mbbbl)	960.1 (-2.1)	873.2 (-2.5)	80.4 (15.6)	943.7 (8.1)	84.6 (7.6)	79.5 (-6.6)	82.9 (3.2)
Petroleum product (Mbbbl)	392.4 (13.0)	354.5 (11.1)	31.5 (32.7)	336.5 (-5.1)	26.7 (-23.3)	31.1 (-8.4)	31.5 (-0.1)
Bituminous coal (Mton)	119.6 (1.7)	109.5 (2.1)	10.4 (7.0)	109.6 (0.1)	10.2 (-17.5)	8.0 (-9.6)	10.1 (-3.1)
Anthracite (Mton)	6.5 (3.0)	6.0 (9.1)	0.7 (67.2)	5.1 (-15.8)	0.4 (-10.1)	0.2 (-63.1)	0.5 (-32.9)
LNG (Mton)	45.9 (14.9)	42.1 (17.8)	3.8 (7.4)	41.9 (-0.4)	4.2 (13.9)	4.1 (5.2)	3.8 (-2.1)
Import volume (Mtoe)	324.3 (3.9)	295.6 (4.0)	27.4 (15.0)	302.2 (2.2)	27.5 (-3.1)	25.7 (-6.2)	27.2 (-0.8)
Import value (billion US\$, CIF)	137.1 (58.5)	121.2 (53.9)	14.7 (151.0)	199.1 (64.2)	19.8 (60.6)	17.4 (30.7)	17.5 (19.4)
Energy share of total import value (%)	22.1	21.8	25.6	29.6	32.4	29.4	29.8
Foreign energy dependence (%)	94.6	94.5	95.5	94.3	93.8	94.4	94.9
Domestic production							
Hydropower (TWh)	3.1 (-21.2)	2.9 (-22.0)	0.2 (-12.4)	3.3 (16.3)	0.5 (63.8)	0.3 (17.4)	0.2 (19.7)
Anthracite (Mton)	0.9 (-11.9)	0.8 (-12.4)	0.1 (-7.0)	0.8 (-8.5)	0.1 (-1.6)	0.1 (-14.7)	0.1 (-13.8)
Renewable energy (Mtoe)	14.6 (15.3)	13.2 (15.8)	1.1 (8.4)	13.3 (0.4)	1.2 (4.0)	1.2 (9.0)	1.1 (-1.3)

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

## 4. Energy Consumption

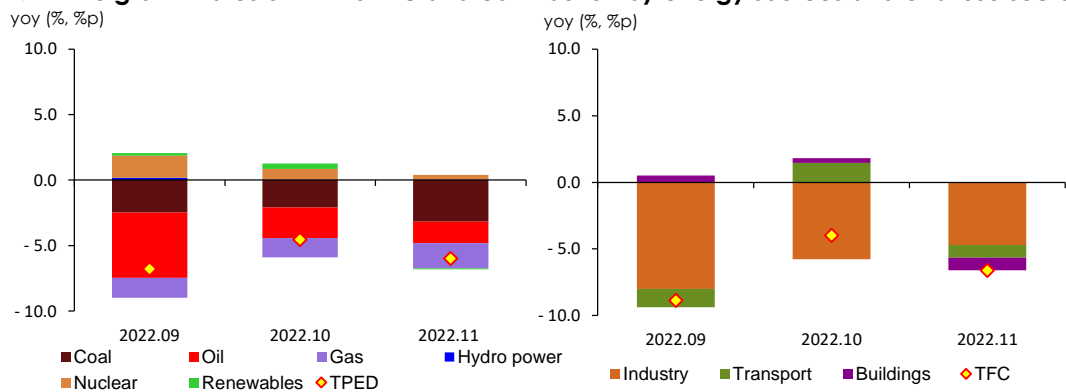
- **Total Primary Energy Demand (TPES) went down by 6.0% year-on-year in November, as the use of all energy sources declined except nuclear energy.**
  - Coal use fell by 13.3% year-on-year, as it decreased in the power generation sector due to lower power demand and expanded nuclear and renewable generation, and as its industrial use dropped faster as a result of the economic slowdown and damages to iron & steel factories, which was caused by Typhoon Hinnamnor in September.
  - Petroleum use was down 4.6% year-on-year, because it fell in the industrial sector due to sluggish petrochemical business and routine maintenance works, while it also declined in the transport sector as a result of a strike launched by the Cargo Truckers Solidarity Union (Nov.24-Dec.9).
  - Gas use fell by 9.6% year-on-year, as it declined in the building sector, affected by a sharp drop in the number of heating degree days (-13.4%) and a rise in city gas rates for residential and general customers in the prior month, and as it continued to decline in the industrial and power generation sectors, owing to the economic slowdown and higher fuel cost of gas-fired generation.
- **Total Final Consumption (TFC) posted a year-on-year drop of 6.6% in November, as energy use declined in all end-use sectors, especially in the residential sector.**
  - Industrial energy use fell by 7.6% year-on-year, as it declined in most of the subsectors, affected by a slow business in the overall manufacturing sector and a strike launched by the Cargo Truckers Solidarity Union, although it increased in the machinery, transport equipment and non-ferrous metals sectors.
  - Transport energy use decreased by 5.7% year-on-year, despite a slight increase in gasoline use amid growing mobility demand, as diesel use plunged following the Cargo Truckers Solidarity Union's strike, and domestic use of jet fuel also decreased due to rising overseas travel demand.
  - Energy use in buildings went down by 4.4% year-on-year, affected by a sharp drop in the number of heating degree days, a rise in city gas rates for residential and general customers in the previous month and the downward trend in the growth of service production.

### ► Energy consumption

	2021p	2022p					
		M1~11	M11	M1~11	M9	M10	M11
<b>TPED (Mtoe)</b>	<b>304.1</b>	<b>274.6</b>	<b>25.2</b>	<b>272.9</b>	<b>22.5</b>	<b>23.0</b>	<b>23.7</b>
	(5.5)	(5.1)	(6.6)	(-0.6)	(-6.8)	(-4.6)	(-6.0)
<b>TFC (Mtoe)</b>	<b>216.4</b>	<b>195.0</b>	<b>18.0</b>	<b>193.6</b>	<b>15.7</b>	<b>16.2</b>	<b>16.8</b>
	(6.2)	(5.9)	(7.6)	(-0.8)	(-8.9)	(-4.0)	(-6.6)
- Feedstock exclude	141.2	126.9	11.9	126.9	10.2	10.8	11.2
	(4.3)	(4.3)	(0.0)	-	(-4.3)	(0.5)	(-6.2)

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 13.3% year-on-year in November, as it dropped faster in both of the industrial and power generation sectors.
  - Coal use increased in the cement sector but decreased faster in the primary metals sector (iron & steel) as a result of sluggish demand for iron & steel and logistical disruptions. Consequently, the total industrial coal use continued a downward slide that began in July.
  - Coal use for power generation has been down since May, owing to lower power demand (-0.8%) and growing nuclear and renewable generation, even though the cap on coal-fired power generation was put on hold.

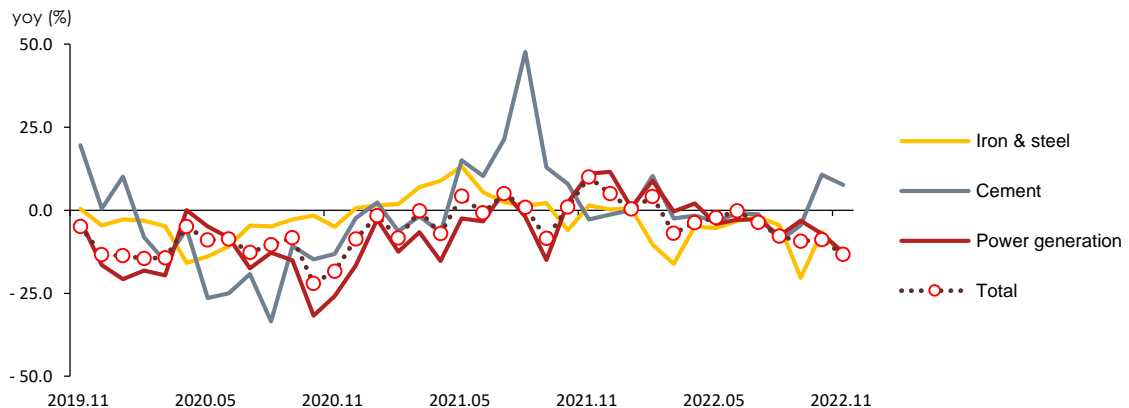
### ► Coal consumption

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>Coal (Mton)</b>	<b>119.8</b>	<b>108.9</b>	<b>10.1</b>	<b>103.7</b>	<b>9.0</b>	<b>8.5</b>	<b>8.8</b>
	(-0.1)	(-0.6)	(10.0)	(-4.8)	(-9.3)	(-8.9)	(-13.3)
Industry	50.4	46.0	4.4	42.6	3.5	3.6	3.8
	(3.6)	(4.3)	(8.9)	(-7.4)	(-17.7)	(-11.1)	(-14.3)
-Coking-coal	25.5	23.3	2.1	21.3	1.7	1.9	1.8
	(3.0)	(3.4)	(0.4)	(-8.7)	(-21.5)	(-6.6)	(-13.5)
Buildings	0.4	0.3	0.1	0.3	0.0	0.1	0.1
	(-12.0)	(-13.1)	-	(-16.9)	(3.1)	(-7.9)	(-4.7)
Power generation	68.9	62.6	5.6	60.8	5.5	4.8	4.9
	(-2.5)	(-3.8)	(11.0)	(-2.9)	(-3.2)	(-7.1)	(-12.7)

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

□ Petroleum use dropped by 5.7% year-on-year in November, as it decreased evenly in most of the end-use sectors.

- Industrial petroleum use fell by 6.2% year-on-year, as petrochemical use plunged due to slower business and routine maintenance works.
- Transport petroleum use went down by 5.7% year-on-year, despite stronger mobility demand, partly because the Cargo Truckers Solidarity Union went on a strike.
- Petroleum use in buildings was up 0.3%, led by growing LPG use in the commercial sector, although the use of kerosene for heating declined amid the decreased number of heating degree days.

### ► Petroleum product consumption by end-use sectors

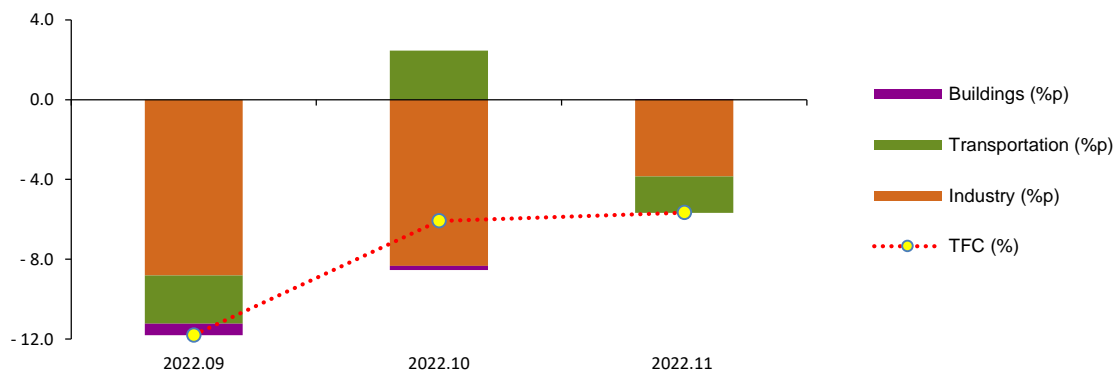
	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>TFC (Mbbbl)</b>	<b>815.3</b>	<b>736.1</b>	<b>66.9</b>	<b>727.8</b>	<b>61.1</b>	<b>62.6</b>	<b>63.1</b>
	(8.4)	(7.2)	(12.3)	(-1.1)	(-11.8)	(-6.1)	(-5.7)
Industry	512.0	463.2	41.7	457.4	38.5	36.8	39.1
	(10.8)	(9.5)	(30.1)	(-1.2)	(-13.7)	(-13.1)	(-6.2)
- Naphtha	375.6	339.3	30.7	328.7	27.8	25.7	28.0
	(12.5)	(10.8)	(47.7)	(-3.1)	(-15.7)	(-16.3)	(-8.8)
Transport	259.0	234.3	21.3	232.1	20.1	22.3	20.1
	(5.6)	(4.2)	(-7.9)	(-0.9)	(-7.7)	(8.0)	(-5.7)
Buildings	44.2	38.7	3.9	38.3	2.5	3.6	3.9
	(-1.1)	(-0.5)	(-11.5)	(-0.9)	(-13.4)	(-3.8)	(0.3)
<b>Power generation (Mbbbl)</b>	<b>4.19</b>	<b>3.87</b>	<b>0.38</b>	<b>4.71</b>	<b>0.32</b>	<b>0.31</b>	<b>0.29</b>
	(9.4)	(16.9)	(-37.2)	(21.9)	(-29.9)	(-28.8)	(-24.4)

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

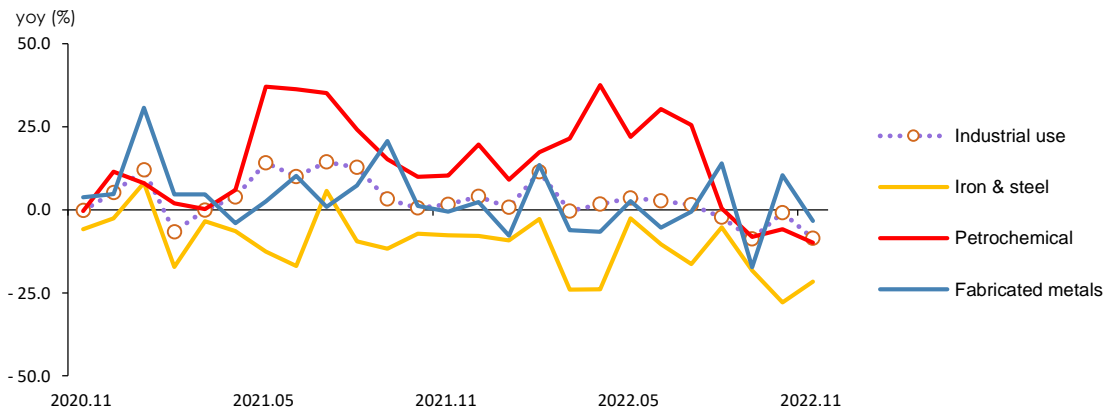
- **Natural gas use declined by 9.6% year-on-year in November, because it declined in the power generation and end-use sectors.**
  - Gas use for power generation continued a downward slide, as power use fell by around 1%, and the unit fuel cost of gas-fired generation increased (100.2%) along with growing power generation from other energy sources (nuclear ↑ 3.2%, renewable & other energy ↑ 18.2%).
- **The final use of gas dropped by 7.5% year-on-year in November with the industrial and building sectors leading the downward trend, which was affected by the economic slowdown and temperature conditions.**
  - Industrial gas use continued a downward slide for the fourth consecutive month, as it fell in the petrochemical sector due to the extended maintenance period amid sluggish business conditions, and as it also fell in the primary metals sector because of weak steel demand and disrupted production in the aftermath of Typhoon Hinnamnor that landed in September.
  - Gas use in buildings fell by 7.1%, as it grew more slowly in the commercial & public sectors as a result of slower growth in service production, while it dropped by almost 10% in the residential sector, affected by a sharp drop in the number of heating degree days (-13.4%) and a rise in city gas rates in the previous month.

### ► Natural gas and city gas consumption

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>Natural gas (Mton)</b>	<b>45.9</b>	<b>40.8</b>	<b>4.0</b>	<b>39.6</b>	<b>2.6</b>	<b>3.0</b>	<b>3.6</b>
	(10.6)	(13.0)	(4.1)	(-2.9)	(-9.7)	(-8.4)	(-9.6)
Power generation	23.2	21.2	1.8	20.1	1.5	1.6	1.8
	(16.4)	(20.2)	(5.2)	(-5.3)	(-10.5)	(-11.8)	(-3.3)
<b>Final consumption (Bm<sup>3</sup>)</b>	<b>24.8</b>	<b>21.6</b>	<b>2.2</b>	<b>22.3</b>	<b>1.2</b>	<b>1.5</b>	<b>2.0</b>
	(3.0)	(3.5)	(1.9)	(3.3)	(-0.2)	(3.2)	(-7.5)
Industry	9.7	8.7	0.8	8.7	0.7	0.7	0.8
	(5.4)	(5.5)	(1.6)	(0.1)	(-8.8)	(-0.9)	(-8.6)
Buildings	14.1	12.0	1.3	12.7	0.5	0.7	1.2
	(2.0)	(2.6)	(2.4)	(6.1)	(14.4)	(8.3)	(-7.1)

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 decreased by 0.8% year-on-year in November, led by the industrial sector in the midst of a slowdown in the overall economy.**

- In the industrial sector, electricity use went down by 2.0% year-on-year, despite a decent growth in the machinery and transport equipment sectors, as it dropped by around 10% in the petrochemical and iron & steel sectors partly because of the economic slump.
- Electricity use in buildings was flat compared to the same month last year, as it declined in the residential sector, offsetting the growth in power use in the commercial sector.

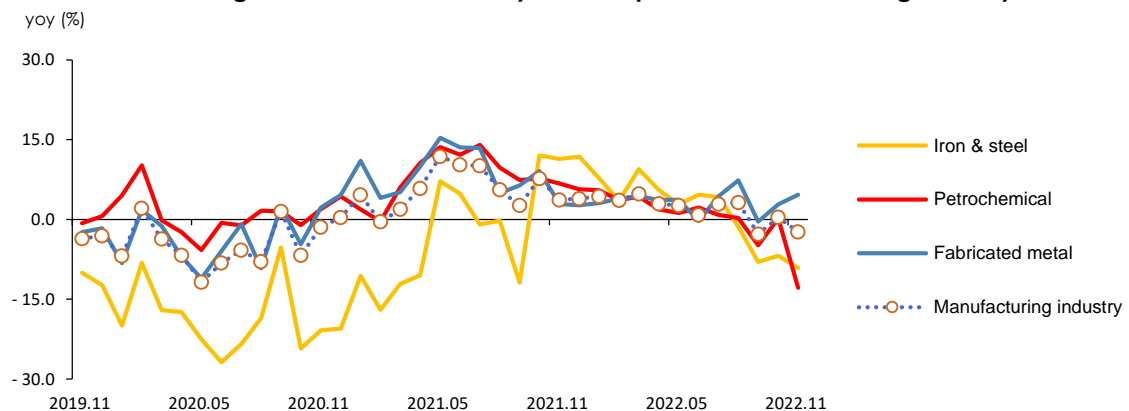
### ► Electricity consumption by end-use sectors

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>Electricity (TWh)</b>	<b>521.0</b>	<b>474.9</b>	<b>41.8</b>	<b>489.5</b>	<b>44.3</b>	<b>41.3</b>	<b>41.5</b>
	(4.8)	(4.8)	(4.0)	(3.1)	(1.3)	(1.2)	(-0.8)
Industry	269.6	246.0	22.3	250.9	22.0	22.0	21.8
	(5.8)	(6.0)	(4.2)	(2.0)	(-2.8)	(0.3)	(-2.0)
Transport	3.7	3.3	0.3	3.6	0.3	0.3	0.3
	(16.3)	(16.5)	(23.5)	(9.1)	(12.9)	(8.6)	(6.3)
Buildings	247.8	225.6	19.2	234.9	22.0	19.0	19.3
	(3.5)	(3.3)	(3.6)	(4.1)	(5.5)	(2.1)	(0.5)
Residential	77.6	71.3	6.0	72.3	7.2	5.9	5.9
	(4.7)	(5.1)	(2.9)	(1.3)	(3.6)	(-0.7)	(-1.1)
Commercial	139.5	126.5	10.8	134.0	12.3	10.8	10.9
	(2.5)	(1.9)	(4.4)	(6.0)	(7.2)	(3.9)	(1.4)

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

Source: Korea Energy Economics Institute

### ► The growth rate of electricity consumption in manufacturing industry

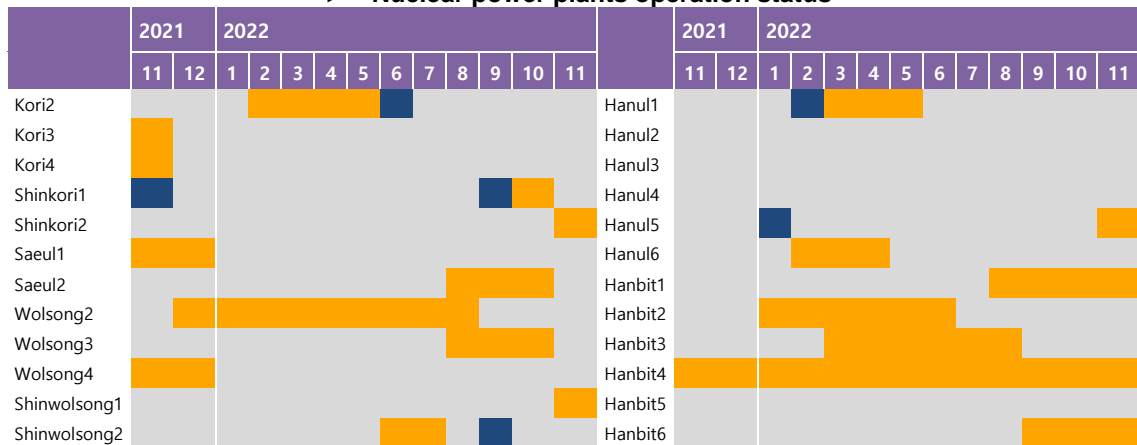




## 9. Nuclear

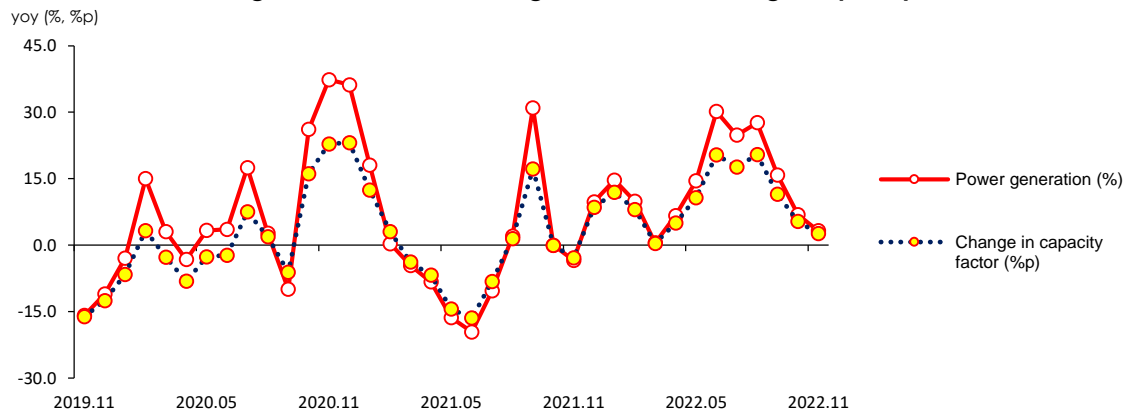
- The total nuclear generation grew by 3.2% year-on-year in November as a result of the test operation of Shin Hanul unit1 and a drop in daily average preventive maintenance.
  - The number of reactors that were subject to the planned preventive maintenance grew by one, while the number of unplanned shutdown cases dropped by one, and accordingly, the nuclear capacity factor rose by 3%p year-on-year to 84%, which was lower than the low-to-mid 90% recorded in August.
  - Nuclear energy's share of the total power generation went up by around 1%p year-on-year to 30.3%.

► Nuclear power plants operation status



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

► The growth rate of nuclear generation & average capacity factor

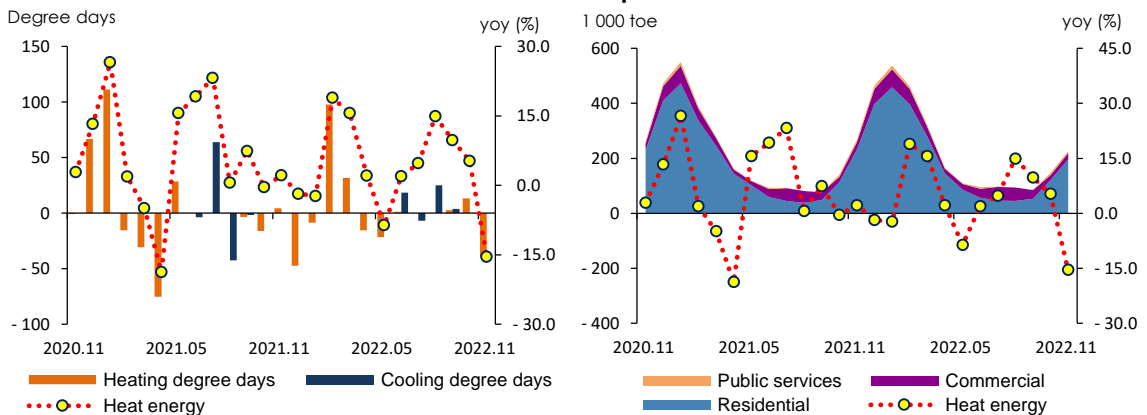


Note: Capacity factor = Ratio of actual power generated to possible power generation when utilizing 100% of available facility. Facility capacity values are based on end-of-the-month data

## 10. Heat and Renewable energy

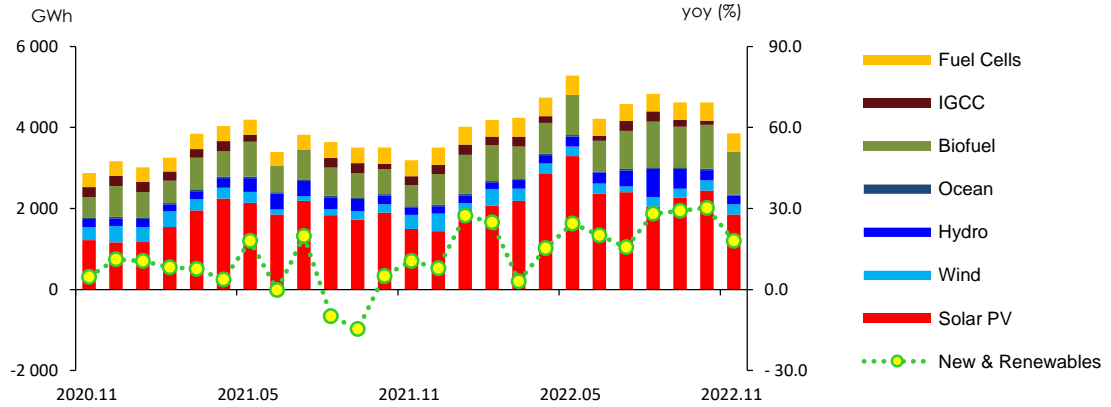
- **Heat energy use dropped by 15.4% year-on-year in November, which was attributed to the decreased number of heating degree days and slower growth in service production.**
  - Heat energy use shifted to a downward trend, as it fell by 15.5% year-on-year in the residential sector due to a drop in the number of heating degree days (-13.4%), and it dropped by 13.5% year-on-year in the commercial sector amid slower growth in service production, while heat energy price surged (37.8%) in all end-use sectors (office heating, residential).
- **Renewable & other energy use declined by 1.3% year-on-year in November, and the decline was seen mostly in the end-use sectors.**
  - Renewable & other energy generation<sup>2</sup> posted a year-on-year growth of 18.1%, led by solar PV, bioenergy and hydropower.
  - The final use of renewable & other energy fell by 6.8% year-on-year, as it declined in the end-use sectors (industry and building) except the transport sector.

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



<sup>2</sup> 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

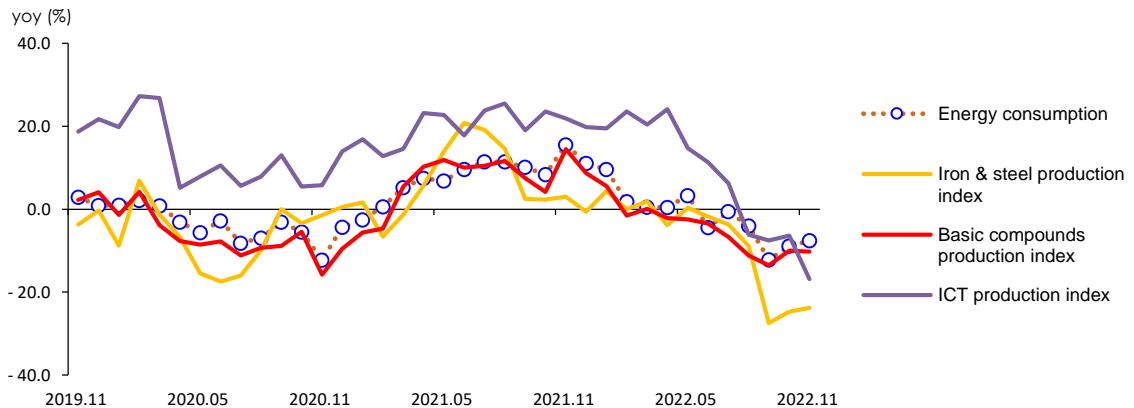
- Industrial energy use went down by 7.6% year-on-year in November, as the production declined in most of the subsectors, affected by the stagnant economy.
  - The total industrial energy use continuously declined, even though it increased in the machinery and transport equipment sectors, because it declined in most of the subsectors including petrochemical and primary metals due to sluggish manufacturing industry.

### ► Industrial energy consumption

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>Industry (Mtoe)</b>	<b>133.6</b>	<b>121.3</b>	<b>11.1</b>	<b>118.8</b>	<b>9.9</b>	<b>9.9</b>	<b>10.3</b>
	(7.8)	(7.5)	(15.5)	(-2.1)	(-12.2)	(-8.9)	(-7.6)
Petrochemical	67.3	60.9	5.5	60.2	5.0	4.8	5.0
	(11.4)	(10.2)	(33.6)	(-1.1)	(-13.4)	(-12.4)	(-8.8)
- Naphtha	46.0	41.6	3.8	40.3	3.4	3.2	3.4
	(12.5)	(10.8)	(47.7)	(-3.1)	(-15.7)	(-16.3)	(-8.8)
Iron & Steel	27.9	25.5	2.3	23.6	1.9	2.1	2.0
	(1.8)	(1.9)	(1.5)	(-7.3)	(-18.8)	(-7.6)	(-13.4)
- Coking coal	17.8	16.3	1.5	15.0	1.2	1.3	1.3
	(3.0)	(3.4)	(0.4)	(-7.9)	(-20.9)	(-5.8)	(-12.7)
Machinery + Transport Equipment	12.7	11.5	1.0	11.8	1.0	1.1	1.1
	(7.6)	(8.1)	(2.4)	(2.9)	(-2.3)	(4.2)	(3.5)
Share of feedstock (%)	56.2	56.1	55.2	56.0	54.7	54.5	55.2

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

### ► Industrial energy consumption & production index



## 12. Transport

### □ Transport energy use fell by 5.7% year-on-year in November, as it declined in all end-use sectors.

- In the road transport sector, energy use fell by 5.4% year-on-year following a strike launched by the Cargo Truckers Solidarity Union, although mobility demand picked up.
- In the domestic aviation sector, energy use dropped by 12.1% year-on-year, as the number of domestic flights declined, while that of the international flights increased amid growing overseas travel demand.

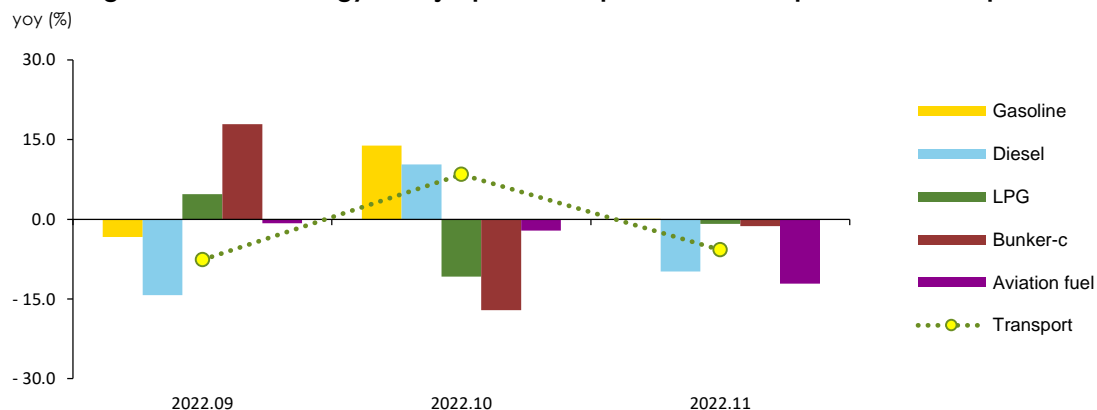
### ► The growth rate of petroleum consumption in the transport sector

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>Transport (Mtoe)</b>	<b>36.64</b>	<b>33.15</b>	<b>3.01</b>	<b>32.84</b>	<b>2.85</b>	<b>3.14</b>	<b>2.83</b>
	(5.5)	(4.1)	(-7.4)	(-0.9)	(-7.6)	(8.4)	(-5.7)
Road	34.20	30.92	2.80	30.56	2.64	2.93	2.65
	(2.2)	(0.9)	(-10.8)	(-1.2)	(-8.3)	(9.6)	(-5.4)
Domestic navigation	0.43	0.39	0.03	0.46	0.04	0.04	0.03
	(27.2)	(26.3)	(14.9)	(19.2)	(19.0)	(-11.8)	(-2.2)
Domestic aviation	1.68	1.54	0.14	1.55	0.14	0.15	0.12
	(168.3)	(161.8)	(206.2)	(0.6)	(-0.7)	(-2.1)	(-12.1)
Rail	0.33	0.30	0.03	0.27	0.02	0.02	0.02
	(3.2)	(3.7)	(2.8)	(-9.8)	(-6.5)	(-14.4)	(-10.4)

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 was down 4.4% year-on-year in November, as it fell sharply in the residential sector, though it grew in the commercial sector

- In the residential sector, energy use decreased, especially city gas, heat energy and kerosene, as heating demand declined amid mild weather.
- In the commercial sector, energy use has grown for 11 consecutive months, led by the food & accommodation sector along with the recovery of service production. The pace of growth, however, has been slower in line with the trend of the service production index that has been growing more slowly since August.

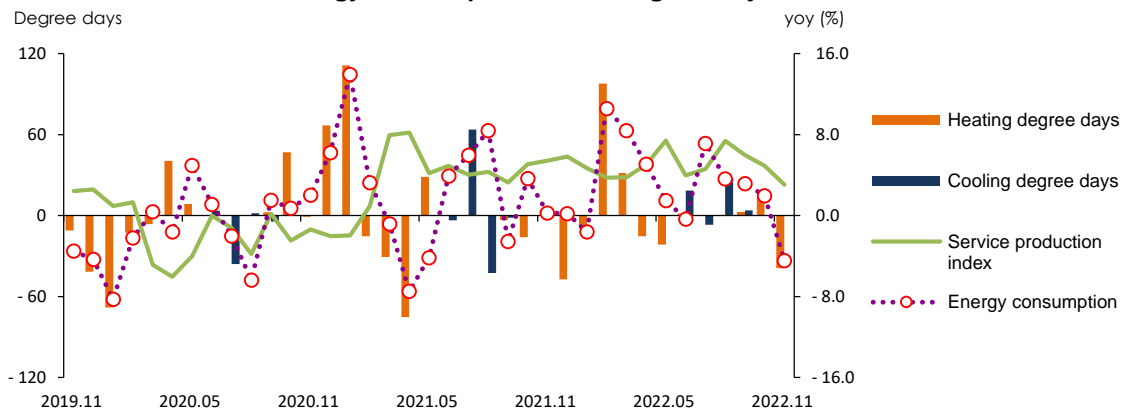
#### ► Energy consumption in buildings

	2021p	2022p					
		M1~11	M11	M1~11	M9	M10	M11
<b>Buildings (Mtoe)</b>	<b>46.1</b>	<b>40.6</b>	<b>3.9</b>	<b>41.9</b>	<b>2.9</b>	<b>3.1</b>	<b>3.7</b>
	(2.4)	(2.7)	(0.3)	(3.2)	(3.2)	(2.0)	(-4.4)
Residential	22.9	19.8	2.0	20.1	1.1	1.3	1.9
	(2.4)	(3.1)	(0.2)	(1.5)	(0.0)	(-0.2)	(-8.6)
Commercial	18.0	16.2	1.4	17.2	1.5	1.4	1.5
	(2.0)	(1.7)	(1.1)	(6.4)	(7.3)	(4.5)	(0.8)
Public others	5.2	4.7	0.4	4.6	0.4	0.4	0.4
	(4.0)	(4.6)	(-2.4)	(-0.2)	(-2.8)	(0.6)	(-2.4)
Heating degree days	2 404.7	1 904.3	290.6	1 966.8	2.6	134.8	251.6
	(-1.8)	(0.2)	(1.5)	(3.3)	-	(11.0)	(-13.4)
Cooling degree days	101.3	101.3	-	141.9	3.8	-	-
	(18.9)	(18.9)	-	(40.1)	-	-	-
Service production index (2015=100)	110.9	109.7	114.7	115.2	117.1	117.3	118.2
	(4.3)	(4.2)	(5.4)	(4.9)	(6.0)	(4.9)	(3.1)

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

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

#### ► Energy consumption in buildings & major indicators



## 14. Power Generation

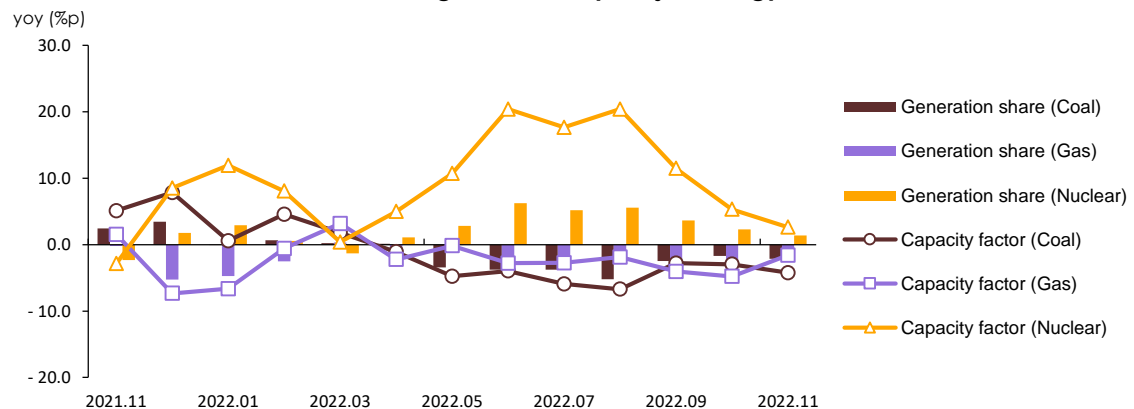
- The total power generation and fuel input dropped by 1.4% and 4.7% respectively in November on a year-on-year basis due to falling electricity demand.
  - Nuclear and renewable & other energy generation steadily increased, while coal and gas-fired generation continuously declined.
  - In the power generation mix, the share of nuclear and renewable & other energy rose by 1.4%p and 1.6%p to 30.3% and 9.4% respectively, while that of coal and gas fell by 2.2%p and 0.6%p to 32.4% and 27.5% respectively.

### ► Power generation by energy sources

	2021p			2022p			
		M1~11	M11	M1~11	M9	M10	M11
<b>Power Generation (TWh)</b>	<b>576.7</b>	<b>523.4</b>	<b>46.9</b>	<b>538.8</b>	<b>46.3</b>	<b>45.7</b>	<b>46.2</b>
	(4.5)	(4.6)	(4.3)	(3.0)	(2.0)	(-0.9)	(-1.4)
Coal	198.0	179.8	16.2	174.3	15.6	14.5	15.0
	(0.8)	(-0.4)	(12.3)	(-3.0)	(-5.0)	(-5.9)	(-7.6)
Oil	2.4	2.2	0.2	1.8	0.1	0.1	0.1
	(4.4)	(13.4)	(-42.2)	(-18.3)	(-56.6)	(-49.2)	(-39.7)
Gas	168.3	153.9	13.2	146.7	11.4	11.5	12.7
	(15.4)	(19.1)	(3.6)	(-4.7)	(-9.4)	(-11.2)	(-3.5)
Nuclear	158.0	141.5	13.6	160.8	14.1	14.4	14.0
	(-1.4)	(-2.5)	(-3.4)	(13.7)	(15.8)	(6.8)	(3.2)
Renewables	50.1	46.0	3.7	55.2	5.1	5.2	4.4
	(5.5)	(5.3)	(11.0)	(19.9)	(28.1)	(28.8)	(18.2)
Baseload	356.0	321.2	29.8	335.1	29.7	28.9	29.0
	(-0.2)	(-1.3)	(4.5)	(4.3)	(3.9)	(0.1)	(-2.6)

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			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
GDP (trillion won)	1 839.5 (-0.7)	1 915.8 (4.1)	1 410.2 (4.1)	478.2 (4.0)	- (-)	- (-)	1 452.6 (3.0)	493.1 (3.1)	- (-)	- (-)
Private consumption	851.0 (-4.8)	882.5 (3.7)	654.1 (2.9)	221.3 (3.4)	- (-)	- (-)	684.5 (4.7)	233.9 (5.7)	- (-)	- (-)
Facilities investment	166.6 (7.2)	181.6 (9.0)	135.7 (10.8)	42.4 (4.2)	- (-)	- (-)	131.5 (-3.1)	44.1 (4.1)	- (-)	- (-)
Construction investment	269.3 (1.5)	265.0 (-1.6)	193.2 (-1.6)	65.8 (-1.5)	- (-)	- (-)	186.1 (-3.7)	64.4 (-2.1)	- (-)	- (-)
Consumer price index (2015=100)	100.0	102.5	102.4	103.2	103.4	103.9	107.6	108.9	109.2	109.1
USD to KRW exchange rate (won)	1 180.3	1 144.0	1 140.3	1 169.5	1 182.8	1 182.9	1 291.0	1 391.6	1 426.7	1 364.1
Benchmark rate (%)	0.7	0.6	0.6	0.8	0.8	1.0	2.0	2.5	3.0	3.3
Coincident composite index (2015=100)	112.5	116.9	116.7	117.8	118.1	118.5	121.9	123.4	123.7	123.2
Mining & manufacturing production index (2015=100)	106.4	114.3	113.2	111.1	114.8	119.3	115.8	111.8	113.5	115.3
Manufacturing operation ratio index (2015=100)	95.3	99.8	99.0	96.6	99.9	104.5	101.0	97.8	99.5	101.4
Average temperature	13.0	13.3	14.4	21.3	15.1	8.3	14.2	21.0	14.0	9.6
- year-on-year difference	- 0.4	0.3	0.2	1.2	1.5	- 0.1	- 0.1	- 0.4	- 1.2	1.3
Heating degree days	2 448.0 (3.3)	2 404.7 (-1.8)	1 904.3 (0.2)	- (-100.0)	121.4 (-11.6)	290.6 (1.5)	1 966.8 (3.3)	2.6 (-)	134.8 (11.0)	251.6 (-13.4)
Cooling degree days	85.2 (-29.2)	101.3 (18.9)	101.3 (18.9)	- (-100.0)	- (-)	- (-)	141.9 (40.1)	3.8 (-)	- (-)	- (-)
Energy intensity	0.16 (-2.8)	0.16 (1.3)	0.16 (0.7)	0.16 (3.0)	- (-)	- (-)	0.16 (-2.5)	0.15 (-4.7)	- (-)	- (-)
Per capita consumption										
Oil (bbl)	0.0 (-4.2)	0.0 (7.9)	0.0 (6.6)	0.0 (11.1)	0.0 (11.7)	0.0 (10.3)	0.0 (-1.2)	0.0 (-12.5)	0.0 (-6.0)	0.0 (-4.4)
Electricity (MWh)	0.0 (-2.2)	0.0 (5.0)	0.0 (5.0)	0.0 (-0.6)	0.0 (7.5)	0.0 (4.2)	0.0 (3.3)	0.0 (1.5)	0.0 (1.4)	0.0 (-0.6)
City gas (1 000 m <sup>3</sup> )	- (-2.1)	- (3.5)	- (4.2)	- (-2.0)	- (-0.8)	- (2.0)	- (3.8)	- (3.6)	- (1.4)	- (-7.2)
Total energy (toe)	0.0 (-3.6)	0.0 (5.6)	0.0 (5.3)	- (6.0)	- (7.2)	- (6.8)	0.0 (-0.4)	- (-6.6)	- (-4.3)	- (-5.8)

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			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industrial production index										
All industry	107.4 (-1.0)	112.7 (4.9)	111.2 (4.7)	111.3 (1.5)	112.4 (4.9)	116.3 (5.4)	115.4 (3.7)	114.9 (3.2)	115.5 (2.8)	117.7 (1.2)
Mining & manufacturing	106.4 (-0.3)	114.3 (7.4)	113.2 (7.4)	111.1 (-1.0)	114.8 (5.1)	119.3 (6.7)	115.8 (2.3)	111.8 (0.6)	113.5 (-1.1)	115.3 (-3.4)
Semiconductor	230.7 (22.7)	298.6 (29.4)	293.6 (29.4)	330.2 (30.5)	330.6 (37.8)	331.0 (33.9)	333.3 (13.5)	318.4 (-3.6)	323.5 (-2.1)	281.7 (-14.9)
Iron & steel	92.1 (-6.3)	97.4 (5.8)	97.4 (6.4)	95.3 (2.5)	97.1 (2.3)	98.7 (3.0)	89.6 (-8.0)	69.1 (-27.5)	73.1 (-24.7)	75.2 (-23.8)
Cement	87.2 (-7.5)	91.6 (5.0)	90.9 (4.9)	82.9 (-7.7)	96.0 (0.8)	100.2 (1.5)	89.3 (-1.7)	85.4 (3.0)	98.8 (2.9)	92.8 (-7.4)
Basic compound	101.1 (-7.1)	107.9 (6.7)	107.5 (6.5)	110.6 (7.5)	105.1 (4.2)	100.3 (14.5)	102.0 (-5.1)	95.6 (-13.6)	94.6 (-10.0)	90.0 (-10.3)
Transport equipment	84.4 (-9.6)	88.2 (4.5)	87.3 (4.2)	73.9 (-24.7)	83.0 (-14.2)	92.1 (-5.1)	95.7 (9.6)	97.0 (31.3)	101.8 (22.7)	113.8 (23.6)
Electric & electronic	108.5 (-1.0)	115.2 (6.1)	113.5 (6.2)	109.2 (-8.6)	116.0 (3.0)	124.1 (4.5)	115.1 (1.4)	115.6 (5.9)	114.9 (-0.9)	117.7 (-5.2)
Service	106.2 (-2.0)	110.9 (4.3)	109.7 (4.2)	110.5 (3.3)	111.8 (5.1)	114.7 (5.4)	115.2 (4.9)	117.1 (6.0)	117.3 (4.9)	118.2 (3.1)
Wholesale and retail	101.9 (-2.6)	106.0 (4.0)	105.4 (4.0)	106.3 (0.3)	108.5 (4.3)	110.3 (4.1)	108.3 (2.8)	109.3 (2.8)	111.5 (2.8)	110.9 (0.5)
Food & Accommodation	79.6 (-18.4)	80.7 (1.4)	79.6 (-1.4)	80.6 (11.3)	89.7 (7.4)	92.3 (14.4)	95.2 (19.5)	97.9 (21.5)	104.9 (16.9)	98.6 (6.8)
Production output										
Iron & steel - Pig iron	45 359.6 (-4.5)	46 440.5 (2.4)	42 482.5 (3.0)	3 818.2 (-3.7)	3 754.5 (-4.8)	3 897.3 (0.8)	39 089.8 (-8.0)	3 169.0 (-17.0)	3 417.4 (-9.0)	3 231.9 (-17.1)
Iron & steel - Crude steel	67 078.8 (-6.1)	70 418.0 (5.0)	64 482.8 (5.4)	5 440.8 (-5.3)	5 781.8 (-1.3)	5 834.0 (1.2)	60 617.6 (-6.0)	4 614.6 (-15.2)	5 151.1 (-10.9)	4 811.1 (-17.5)
Petrochemical - Basic petrochemicals	30 542.7 (-4.4)	34 434.5 (12.7)	31 318.6 (11.3)	3 021.5 (19.9)	2 939.8 (20.0)	2 833.3 (30.4)	30 235.3 (-3.5)	2 552.9 (-15.5)	2 395.1 (-18.5)	2 484.2 (-12.3)
Petrochemical - Intermediate raw material	15 369.0 (-6.1)	15 764.6 (2.6)	14 442.3 (2.6)	1 395.8 (11.0)	1 250.4 (3.2)	1 246.3 (13.2)	12 755.4 (-11.7)	1 116.8 (-20.0)	1 041.5 (-16.7)	1 077.1 (-13.6)
Petrochemical - 3 major products	21 268.9 (-1.7)	23 224.7 (9.2)	21 047.2 (8.1)	1 987.5 (14.8)	1 883.5 (6.4)	1 886.2 (14.0)	20 374.6 (-3.2)	1 697.8 (-14.6)	1 542.5 (-18.1)	1 520.4 (-19.4)
The number of cars	3 506.8 (-11.2)	3 462.4 (-1.3)	3 143.3 (-2.1)	229.4 (-33.0)	263.7 (-21.6)	303.0 (-6.6)	3 403.1 (8.3)	307.7 (34.1)	327.5 (24.2)	379.8 (25.4)

Note: p means provisional

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

## International Energy Prices

	2020	2021					2022			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Crude oil (USD/bbl)										
WTI	39.4 (-30.9)	67.9 (72.4)	67.6 (74.6)	71.5 (80.6)	81.2 (105.3)	78.7 (90.2)	95.8 (41.8)	83.8 (17.1)	87.0 (7.2)	84.4 (7.3)
Dubai	42.2 (-33.6)	69.3 (64.1)	68.9 (65.9)	72.6 (75.0)	81.6 (100.6)	80.3 (84.9)	98.1 (42.4)	90.9 (25.2)	91.2 (11.7)	86.3 (7.4)
Brent	43.2 (-32.7)	70.8 (63.8)	70.4 (65.4)	74.9 (78.8)	83.7 (101.7)	80.8 (83.8)	100.5 (42.7)	90.6 (21.0)	93.6 (11.8)	90.9 (12.4)
Unit value of import (C&F)	44.8 (-31.7)	70.2 (56.9)	69.4 (55.6)	73.9 (66.1)	79.0 (82.3)	82.7 (93.7)	103.4 (49.0)	104.7 (41.8)	100.9 (27.7)	94.8 (14.7)
LNG										
Henry Hub (USD/MMBTU)	2.1 (-15.9)	3.7 (74.6)	3.7 (77.4)	5.1 (124.3)	5.6 (96.4)	5.1 (78.3)	6.6 (77.6)	7.8 (51.7)	6.1 (9.2)	6.4 (25.6)
TTF (USD/MMBTU)	3.2 (-32.4)	16.0 (396.1)	14.1 (369.4)	22.6 (473.6)	30.8 (530.8)	27.7 (472.9)	40.4 (187.2)	57.9 (156.1)	38.4 (24.4)	35.9 (29.5)
JKM (USD/MMBTU)	4.2 (-25.1)	17.9 (324.7)	16.0 (330.4)	23.4 (404.5)	33.2 (456.1)	33.6 (394.7)	34.0 (111.9)	47.0 (101.2)	33.0 (-0.8)	28.4 (-15.6)
Unit value of import (USD/ton, CIF)	390.2 (-22.8)	550.8 (41.2)	519.7 (32.2)	571.1 (116.8)	668.8 (142.5)	805.4 (158.1)	1 035.2 (99.2)	1 470.4 (157.5)	1 247.3 (86.5)	1 259.0 (56.3)
Coal (USD/ton)										
Thermal coal (Newcastle)	60.3 (-22.8)	136.0 (125.8)	133.4 (127.7)	184.1 (254.0)	235.4 (309.7)	153.7 (145.1)	352.3 (164.0)	439.4 (138.7)	390.4 (65.8)	348.6 (126.7)
Unit value of import (CIF)	77.7 (-22.9)	115.1 (48.1)	108.5 (38.8)	126.2 (84.5)	142.3 (101.9)	176.4 (148.6)	228.3 (110.4)	203.1 (60.9)	230.1 (61.8)	204.0 (15.6)
Petroleum product (USD/bbl)										
Gasoline	46.7 (-35.7)	80.3 (72.2)	79.6 (73.0)	84.1 (78.0)	98.7 (114.5)	94.9 (103.1)	117.5 (47.6)	97.8 (16.4)	94.9 (-3.8)	98.5 (3.7)
Kerosene	44.7 (-42.1)	75.1 (67.9)	74.3 (69.3)	79.9 (103.1)	93.0 (123.5)	89.2 (95.2)	128.1 (72.4)	120.9 (51.3)	123.4 (32.6)	121.2 (35.9)
Diesel	49.4 (-36.8)	77.6 (57.2)	76.9 (57.4)	82.9 (87.7)	95.5 (117.4)	91.6 (92.5)	137.3 (78.6)	129.1 (55.7)	137.3 (43.7)	127.8 (39.6)
Bunker-C	39.2 (-31.9)	64.4 (64.3)	64.3 (67.1)	73.5 (85.4)	77.6 (88.1)	71.1 (62.9)	84.4 (31.3)	66.2 (-9.9)	62.2 (-19.8)	65.5 (-7.9)
Propane	397.1 (-8.6)	647.9 (63.2)	634.5 (61.8)	665.0 (82.2)	800.0 (113.3)	870.0 (102.3)	745.0 (17.4)	650.0 (-2.3)	590.0 (-26.3)	610.0 (-29.9)
Butane	403.8 (-8.6)	629.6 (55.9)	618.6 (55.2)	665.0 (87.3)	795.0 (109.2)	830.0 (88.6)	741.8 (19.9)	630.0 (-5.3)	560.0 (-29.6)	610.0 (-26.5)
Naphtha	40.5 (-28.9)	70.6 (74.6)	70.0 (75.9)	75.0 (74.4)	84.3 (101.9)	84.0 (107.1)	84.7 (21.0)	67.1 (-10.6)	71.4 (-15.3)	73.8 (-12.2)

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			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Petroleum product										
Gasoline (won/liter)	1 381.6 (-6.1)	1 590.5 (15.1)	1 585.4 (14.6)	1 642.7 (21.5)	1 712.4 (28.4)	1 737.5 (31.7)	1 835.0 (15.7)	1 730.0 (5.3)	1 666.7 (-2.7)	1 650.3 (-5.0)
Diesel (won/liter)	1 189.8 (-11.2)	1 391.3 (16.9)	1 384.2 (16.1)	1 437.2 (24.5)	1 509.3 (33.1)	1 549.7 (38.4)	1 847.2 (33.4)	1 850.2 (28.7)	1 838.4 (21.8)	1 879.2 (21.3)
Bunker-C (won/liter)	573.6 (-22.9)	731.7 (27.6)	720.1 (24.5)	768.2 (33.6)	813.4 (52.6)	867.4 (66.8)	1 126.9 (56.5)	1 128.6 (46.9)	1 050.8 (29.2)	1 142.2 (31.7)
Propane (won/kg)	1 850.7 (-1.0)	2 092.6 (13.1)	2 063.7 (11.6)	2 160.1 (18.6)	2 163.4 (18.7)	2 312.3 (26.9)	2 482.3 (20.3)	2 471.2 (14.4)	2 469.8 (14.2)	2 455.4 (6.2)
Butane (won/liter)	791.1 (-1.9)	931.8 (17.8)	917.7 (16.1)	980.5 (27.1)	981.2 (27.2)	1 053.8 (36.7)	1 087.2 (18.5)	1 051.4 (7.2)	1 049.5 (7.0)	1 032.2 (-2.0)
City gas(won/MJ)										
Residential	15.1 (-3.6)	14.2 (-5.7)	14.2 (-6.2)	14.2 -	14.2 -	14.2 -	16.3 (14.7)	17.0 (19.5)	19.7 (38.4)	19.7 (38.4)
General(1)	14.9 (-4.7)	13.9 (-6.5)	13.9 (-7.1)	13.8 (-0.0)	13.8 -	13.8 -	16.0 (15.3)	16.6 (20.2)	19.3 (39.7)	19.3 (39.7)
Commercial	15.1 (-6.4)	17.2 (14.2)	16.6 (9.3)	18.1 (32.2)	18.8 (47.8)	21.4 (68.9)	28.0 (68.2)	34.0 (87.9)	35.6 (89.4)	35.3 (65.3)
Industry	12.6 (-8.4)	14.4 (14.2)	13.8 (8.3)	14.8 (36.9)	15.6 (57.0)	18.2 (84.2)	25.2 (82.7)	30.9 (108.4)	32.6 (109.1)	32.4 (77.9)
Heat(won/Mcal)										
Residential	66.2 (0.7)	65.2 (-1.4)	65.2 (-1.6)	65.2 -	65.2 -	65.2 -	72.7 (11.5)	74.5 (14.2)	89.9 (37.8)	89.9 (37.8)
Commercial	85.9 (0.7)	84.7 (-1.4)	84.7 (-1.6)	84.7 -	84.7 -	84.7 -	94.4 (11.5)	96.7 (14.2)	116.7 (37.8)	116.7 (37.8)
Public	75.1 (0.7)	74.0 (-1.4)	74.0 (-1.6)	74.0 -	74.0 -	74.0 -	82.5 (11.5)	84.5 (14.2)	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 (-3.4)	142.3 (-3.4)	147.2 (3.5)	147.2 (3.4)	154.6 (8.6)	154.6 (8.6)
General	84.4 -	79.4 (-5.9)	78.6 (-6.0)	60.2 (-7.7)	60.2 (-7.7)	87.3 (-5.4)	83.5 (6.2)	65.1 (8.1)	72.5 (20.4)	99.6 (14.1)
Industry	96.0 -	91.0 (-5.2)	89.9 (-5.3)	73.5 (-6.4)	73.5 (-6.4)	103.5 (-4.6)	96.4 (7.3)	78.4 (6.7)	95.0 (29.3)	125.0 (20.8)

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	2021p					2022p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal (Mton)	119.9 (-12.3)	119.8 (-0.1)	108.9 (-0.6)	10.0 (-8.5)	9.4 (1.0)	10.1 (10.0)	103.7 (-4.8)	9.0 (-9.3)	8.5 (-8.9)	8.8 (-13.3)
- Coking coal excluded	95.1 (-14.0)	94.3 (-0.9)	85.6 (-1.6)	7.8 (-11.1)	7.3 (3.2)	8.0 (12.8)	82.4 (-3.8)	7.4 (-6.0)	6.6 (-9.5)	6.9 (-13.3)
Oil (Mbbl)	775.7 (-4.0)	835.4 (7.7)	754.6 (6.4)	71.2 (10.9)	68.6 (11.5)	68.4 (10.1)	744.2 (-1.4)	62.1 (-12.7)	64.3 (-6.2)	65.2 (-4.6)
LNG (Mton)	41.5 (1.2)	45.9 (10.6)	40.8 (13.0)	2.9 (4.9)	3.3 (7.7)	4.0 (4.1)	39.6 (-2.9)	2.6 (-9.7)	3.0 (-8.4)	3.6 (-9.6)
Hydro (TWh)	3.9 (39.0)	3.1 (-21.2)	2.9 (-22.0)	0.3 (-52.7)	0.2 (-6.9)	0.2 (-12.4)	3.3 (16.3)	0.5 (63.8)	0.3 (17.4)	0.2 (19.7)
Nuclear (TWh)	160.2 (9.8)	158.0 (-1.4)	141.5 (-2.5)	12.2 (31.0)	13.5 (-0.0)	13.6 (-3.4)	160.8 (13.7)	14.1 (15.8)	14.4 (6.8)	14.0 (3.2)
Others (Mtoe)	12.6 (9.4)	14.6 (15.3)	13.2 (15.8)	1.2 (10.7)	1.1 (8.1)	1.1 (8.4)	13.3 (0.4)	1.2 (4.0)	1.2 (9.0)	1.1 (-1.3)
<b>TPED (Mtoe)</b>	<b>288.4</b> (-3.4)	<b>304.1</b> (5.5)	<b>274.6</b> (5.1)	<b>24.1</b> (5.8)	<b>24.1</b> (7.0)	<b>25.3</b> (6.6)	<b>272.9</b> (-0.6)	<b>22.5</b> (-6.8)	<b>23.0</b> (-4.6)	<b>23.7</b> (-6.0)

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

## Share of TPED by Sources

(unit: %)

	2020	2021p					2022p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal	25.2	23.9	24.1	25.1	23.6	24.1	23.0	24.3	22.6	22.3
- Coking coal excluded	19.2	18.1	18.2	18.9	17.7	18.4	17.5	19.0	16.7	16.9
Oil	39.3	40.1	40.2	43.1	41.9	39.8	39.9	40.9	41.5	40.6
LNG	18.8	19.7	19.4	15.9	17.9	20.4	19.0	15.4	17.2	19.7
Hydro	0.3	0.2	0.2	0.3	0.2	0.1	0.3	0.5	0.2	0.2
Nuclear	11.8	11.1	11.0	10.8	11.9	11.4	12.6	13.4	13.3	12.6
Others	4.4	4.8	4.8	4.8	4.8	4.6	4.9	5.4	5.4	4.8
<b>TPED</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Note: p means provisional  
Source: Korea Energy Economics Institute

## Total Final Consumption (TFC)

(Unit: Mtoe)

	2020	2021p	2022p				2022p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industry	124.0 (-4.1)	133.6 (7.8)	121.3 (7.5)	11.3 (10.1)	10.9 (8.4)	11.1 (15.5)	118.8 (-2.1)	9.9 (-12.2)	9.9 (-8.9)	10.3 (-7.6)
Transport	34.7 (-6.6)	36.6 (5.5)	33.2 (4.1)	3.1 (6.6)	2.9 (2.6)	3.0 (-7.4)	32.8 (-0.9)	2.9 (-7.6)	3.1 (8.4)	2.8 (-5.7)
Residential	22.4 (4.2)	22.9 (2.4)	19.8 (3.1)	1.1 (-4.8)	1.3 (0.1)	2.0 (0.2)	20.1 (1.5)	1.1 (0.0)	1.3 (-0.2)	1.9 (-8.6)
commercial	17.7 (-5.3)	18.0 (2.0)	16.2 (1.7)	1.4 (-1.0)	1.3 (6.7)	1.4 (1.1)	17.2 (6.4)	1.5 (7.3)	1.4 (4.5)	1.5 (0.8)
Public	5.0 (-3.4)	5.2 (4.0)	4.7 (4.6)	0.4 (-1.3)	0.4 (6.5)	0.4 (-2.4)	4.6 (-0.2)	0.4 (-2.8)	0.4 (0.6)	0.4 (-2.4)
<b>TFC</b>	<b>203.8</b> (-3.8)	<b>216.4</b> (6.2)	<b>195.0</b> (5.9)	<b>17.2</b> (7.2)	<b>16.8</b> (6.5)	<b>18.0</b> (7.6)	<b>193.6</b> (-0.8)	<b>15.7</b> (-8.8)	<b>16.2</b> (-4.0)	<b>16.8</b> (-6.6)
Coal (Mton)	49.2 (-5.3)	50.8 (3.4)	46.4 (4.1)	4.3 (1.9)	4.2 (-0.7)	4.5 (8.7)	42.9 (-7.4)	3.5 (-17.6)	3.7 (-11.1)	3.8 (-14.1)
Oil (Mbbbl)	752.3 (-5.5)	815.3 (8.4)	736.1 (7.2)	69.3 (13.7)	66.7 (10.6)	66.9 (12.3)	727.8 (-1.1)	61.1 (-11.8)	62.6 (-6.1)	63.1 (-5.7)
- Non-energy oil excluded	336.2 (-5.3)	351.0 (4.4)	316.5 (3.8)	28.7 (7.2)	28.7 (5.4)	29.2 (-8.9)	307.9 (-2.7)	26.5 (-7.9)	29.7 (3.4)	27.4 (-6.2)
Electricity (TWh)	497.3 (-2.0)	521.0 (4.8)	474.9 (4.8)	43.8 (-0.8)	40.8 (7.3)	41.8 (4.0)	489.5 (3.1)	44.3 (1.3)	41.3 (1.2)	41.5 (-0.8)
City gas (Bm³)	22.0 (-2.0)	22.7 (3.3)	19.8 (4.0)	1.1 (-2.2)	1.3 (-1.0)	2.0 (1.9)	20.5 (3.6)	1.1 (3.4)	1.4 (1.2)	1.9 (-7.4)
Heat:others (1 000 toe)	9.3 (3.1)	9.9 (6.4)	8.7 (6.9)	0.6 (5.6)	0.7 (3.2)	0.8 (3.7)	8.7 (0.7)	0.6 (-1.0)	0.7 (1.2)	0.8 (-9.5)

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

Source: Korea Energy Economics Institute

## Share of the Total Final Consumption by Sources

(unit: %)

	2020	2021p	2022p				2022p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industry	60.9	61.8	62.2	65.8	64.8	61.8	61.4	63.4	61.5	61.1
Transport	17.0	16.9	17.0	17.9	17.2	16.7	17.0	18.2	19.4	16.8
Residential	11.0	10.6	10.1	6.2	8.0	11.3	10.4	6.8	8.3	11.0
Commercial	8.7	8.3	8.3	7.9	7.8	8.0	8.9	9.3	8.5	8.6
Public	2.4	2.4	2.4	2.2	2.2	2.3	2.4	2.3	2.3	2.4
<b>TFC</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Coal	15.3	14.9	15.0	15.6	15.6	15.5	14.2	14.3	14.7	14.5
Oil	47.0	48.1	48.2	51.4	50.6	47.5	47.8	49.4	49.6	47.6
- Non-energy oil excluded	22.0	21.6	21.6	22.3	22.6	21.4	21.1	22.2	24.5	21.4
Electricity	21.0	20.7	20.9	21.9	20.9	19.9	21.7	24.3	22.0	21.2
City gas	12.1	11.8	11.4	7.4	8.9	12.4	11.8	8.0	9.5	12.2
Heat:others	4.5	4.6	4.4	3.7	4.0	4.7	4.5	4.0	4.2	4.6

Note: p means provisional

Source: Korea Energy Economics Institute

## Statistics on Energy Production Facilities

	2019	2020	2021	2022			M9	M10	M11
				M9	M10	M11			
Total capacity (GW)	125.3 (5.2)	129.2 (3.1)	134.0 (3.7)	132.1 (2.8)	133.5 (4.1)	133.9 (4.1)	134.8 (2.0)	136.0 (1.9)	136.3 (1.8)
Nuclear	23.3 (6.4)	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -
Bituminous coal	36.4 (0.1)	36.5 (0.1)	36.9 (1.3)	36.4 (-0.2)	37.4 (2.7)	37.4 (2.7)	36.3 (-0.4)	37.3 (-0.4)	37.3 (-0.4)
Gas	39.6 (4.5)	41.2 (4.1)	41.2 (0.1)	41.2 -	41.2 -	41.2 -	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 (0.0)

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

Source: Korea Electric Power Corporation, Korea National Oil Corporation

## Statistics on Energy Consumption

	2019	2020	2021	2022			M9	M10	M11
				M9	M10	M11			
The number of household demanding city gas (mil)	19.7 (2.8)	20.1 (2.4)	20.5 (2.0)	20.2 (1.7)	20.3 (2.0)	20.4 (2.1)	20.7 (2.2)	20.7 (2.1)	20.9 (2.3)
Registered cars (mil)	23.7 (2.0)	24.4 (2.9)	24.9 (2.2)	24.8 (2.4)	24.8 (2.3)	24.9 (2.2)	25.4 (2.3)	25.4 (2.4)	25.5 (2.4)
- gasoline	11.0 (3.1)	11.4 (4.1)	11.8 (3.1)	11.7 (3.3)	11.7 (3.2)	11.7 (3.1)	12.0 (2.6)	12.0 (2.7)	12.0 (2.7)
- diesel	10.0 (0.3)	10.0 (0.3)	9.9 (-1.2)	9.9 (-0.8)	9.9 (-1.0)	9.9 (-1.2)	9.8 (-1.2)	9.8 (-1.1)	9.8 (-1.1)
- LPG	2.0 (-1.5)	2.0 (-1.3)	1.9 (-1.7)	2.0 (-1.9)	2.0 (-1.9)	1.9 (-1.8)	1.9 (-1.9)	1.9 (-1.9)	1.9 (-2.0)
- hybrid	0.5 (26.1)	0.6 (33.1)	0.9 (34.0)	0.8 (37.0)	0.8 (36.9)	0.9 (35.4)	1.1 (30.2)	1.1 (29.1)	1.1 (28.8)

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

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