

2022 / 03

korea energy economics institute

KEEI MONTHLY KOREA ENERGY TRENDS



COAL 4.4%
PETROLEUM 16.8%
LNG -6.9%
NUCLEAR 9.8%
NEW & RENEWABLE 0.7%
DECEMBER. 2021



**This publication is derived from Energy Demand & Supply
Statistics and Energy Price Statistics issued until December 2021**



Table of Contents

1.	The Economy and the Industry.....	5
2.	Energy Prices	6
3.	Energy Supply	9
4.	Energy Consumption	10
5.	Coal	12
6.	Petroleum	13
7.	Gas	14
8.	Electricity	16
9.	Nuclear	17
10.	Heat and Renewable energy	18
11.	Industry	19
12.	Transport	20
13.	Building.....	21
14.	Transformation	22
App.	Major Indicators & Statistics of Energy Supply and Demand	23



1. The Economy and the Industry

- **GDP for 2021 Q4 posted a year-on-year increase of 4.2% thanks to the growth in private consumption and facility investment, although the construction investment suffered a decrease.**
 - While construction investment continued to fall by the decreased amount of construction orders received, private consumption and facility investment showed a year-on-year growth.
- **Despite a decline in steel production, the mining & manufacturing index in December soared by 7.4% year-on-year due to overall increase of production activities.**
 - With the contactless trends prevalent by COVID-19, the demand for semiconductor used in PCs and servers has been increased so continuously that the semiconductor production index rose by 31.4% YoY.
 - The basic chemical material production index rose by 8.6% due to the expansion of facilities.
 - A base effect of low automobile sector due to a partial strike of Kia labor union and facility construction last year led the sectoral production and the steel production index to rise by 7.7%, 0.4% each YoY.
- **The service production index grew by 5.8% year-on-year, led by a base effect and the Gradual Return to New Normal policy.**
 - The food & accommodation production index rose by 38.6% YoY as the business hours of publicly used facilities extended by the new policy, starting from November and a base effect from last year's plunge.
 - Consumer sentiment recovered as some restrictions were relaxed. As a result, the wholesale & retail production index rose by 4.3% YoY while the transport production index increased by 12.0%.

► Major economic and industrial indicators

	2019	2020	M12	2021p			
				M10	M11	M12	
GDP (trillion won)	1 852.7	1 836.9	484.1	1 910.7	-	-	504.3
	(2.2)	(-0.9)	(-1.1)	(4.0)	-	-	(4.2)
Total export (\$billion, customs clearance basis)	542.2	512.5	51.3	644.4	55.7	60.3	60.7
	(-10.4)	(-5.5)	(12.4)	(25.7)	(24.2)	(31.9)	(18.3)
Industrial production index (2015=100)	106.7	106.4	118.3	114.3	114.8	119.3	127.0
	(0.3)	(-0.3)	(2.8)	(7.4)	(5.1)	(6.7)	(7.4)
Semi-conductors	188.1	230.7	272.8	299.0	330.6	331.0	358.4
	(11.7)	(22.7)	(17.5)	(29.6)	(37.8)	(33.9)	(31.4)
Basic chemical products	108.9	101.1	103.9	107.9	105.1	100.3	112.8
	(-1.4)	(-7.1)	(-9.6)	(6.7)	(4.2)	(14.5)	(8.6)
Iron&Steel	98.3	92.1	98.6	97.4	97.1	98.7	98.2
	(-2.2)	(-6.3)	(0.5)	(5.8)	(2.3)	(3.0)	(-0.4)
Cars	93.3	84.4	90.6	88.2	83.0	92.1	97.6
	(-0.7)	(-9.6)	(-4.2)	(4.5)	(-14.2)	(-5.1)	(7.7)
Service production index (2015=100)	108.4	106.2	116.4	110.9	111.8	114.7	123.2
	(1.4)	(-2.0)	(-2.0)	(4.3)	(5.1)	(5.4)	(5.8)
Wholesale & Retail	104.6	101.9	108.4	106.0	108.5	110.3	113.1
	(-0.4)	(-2.6)	(-1.2)	(4.0)	(4.3)	(4.1)	(4.3)
Restaurant & Accommodation	97.5	79.6	66.4	80.7	89.7	92.3	92.0
	(-1.0)	(-18.4)	(-39.6)	(1.4)	(7.4)	(14.4)	(38.6)

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

Source: BOK Economic statistics system, Korea International Trade Association, Korea Statistical Information Service

2. Energy Prices¹

Global Energy Prices

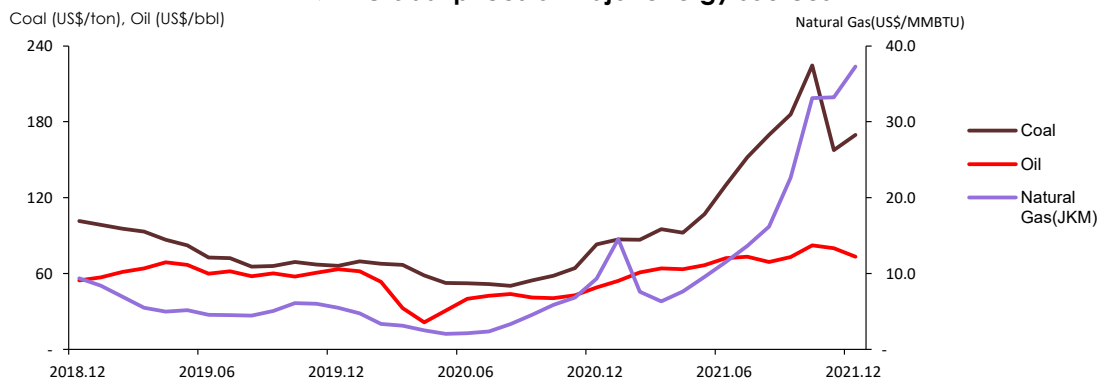
- **Global oil price in December plunged by 8.4% month-on-month as many concerned about a possible decline in the oil demand due to Omicron variant of Coronavirus.**
 - The new variant of Corona virus, Omicron, was first reported from South Africa and then confirmed in several major countries including the U.S. at a fast pace, becoming the dominant strain. This raised concerns that the oil demand could slow down. In turn, the global oil price suffered a massive month-on-month decrease.
 - As for the global natural gas future prices, after Russia halted the supply to the Yamal-Europe pipeline, Europe natural gas future (TTF) price soared dramatically by 37.9% month-on-month, and in turn, JKM future price rose by 12.2% as well.

► Global energy prices

	2019	2020				2021		
			M10	M11	M12	M10	M11	M12
Crude oil (US\$/bbl)	61.6 (-10.2)	41.6 (-32.4)	40.6 (-29.6)	42.9 (-29.2)	49.0 (-22.5)	82.2 (102.5)	79.9 (86.3)	73.2 (49.3)
Natural gas futures (US\$/MMBTU)								
TTF	4.8 (-32.7)	3.2 (-32.3)	4.9 (-3.3)	4.8 (-6.0)	5.9 (26.8)	31.0 (535.0)	27.6 (470.1)	38.0 (548.9)
JKM	5.6 (-36.6)	4.2 (-25.2)	5.9 (-4.0)	6.8 (13.6)	9.3 (70.0)	33.1 (465.1)	33.2 (386.4)	37.3 (298.8)
Coal (US\$/ton)	78.0 (-27.2)	60.3 (-22.8)	57.5 (-14.1)	62.7 (-6.6)	78.3 (17.5)	235.4 (309.7)	153.7 (145.1)	164.6 (110.4)

Note: Oil price is the average of Brent, Dubai and WTI. Coal prices are based on Australian coal. () is year-on-year growth rates (%)
Source: www.petronet.co.kr, World Bank(Commodity Markets), CME Group

► Global prices of major energy sources



¹ This report presents the energy price trend of the month for which energy consumed data is available. For more on the latest price trend, see *Energy Supply and Demand Brief*

Domestic energy prices

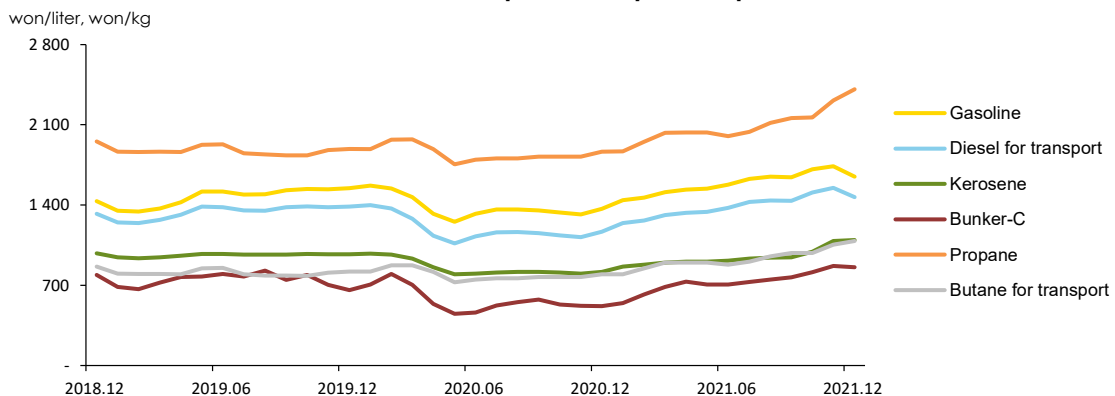
- **In December, the prices for gasoline and diesel dropped by 5.2% month-on-month, due to the mark-down of the fuel taxes and a decrease in global prices.**
 - Upon a 20% reduction of the fuel taxes starting from November 12, the gas station average prices for gasoline and diesel declined by KRW 164.1/L and KRW 116.32/L, respectively.
 - Due to a fall in global oil price, the price of heavy oil (Bunker-C oil) decreased by 1.0% month-on-month, posted a decline for the first time in six months.
 - The prices for propane and butane in December stepped up by 4.2% and 3.2% respectively as each of the supply prices was marked up by KRW 88/kg.
- **The relative price of industrial propane and city gas (propane / city gas) was 1.31, posting a month-on-month drop of 8.9%.**
 - The industrial propane price climbed up by 6.7% month-on-month, while the industrial city gas price significantly soared by 17.2% due to an increase in global LNG prices. As a result, the relative price suffered a massive fall.

► Domestic petroleum product prices

	2019	2020				2021		
			M10	M11	M12	M10	M11	M12
Gasoline (won/liter)	1 472.6 (-6.9)	1 381.2 (-6.2)	1 333.3 (-13.5)	1 319.6 (-14.1)	1 367.8 (-11.7)	1 712.3 (28.4)	1 737.4 (31.7)	1 646.4 (20.4)
Diesel for transport (won/liter)	1 340.6 (-3.7)	1 189.5 (-11.3)	1 134.0 (-18.3)	1 119.6 (-18.9)	1 168.3 (-15.7)	1 509.3 (33.1)	1 549.7 (38.4)	1 468.9 (25.7)
Bunker-C (won/liter)	744.5 (1.3)	572.9 (-23.0)	533.0 (-32.7)	520.0 (-26.1)	518.9 (-21.1)	813.4 (52.6)	867.4 (66.8)	859.0 (65.6)
Propane (won/kg)	1 869.6 (-2.6)	1 850.3 (-1.0)	1 822.1 (-0.6)	1 822.2 (-3.0)	1 865.2 (-1.3)	2 163.4 (18.7)	2 312.3 (26.9)	2 410.1 (29.2)
Butane for transport (won/liter)	806.3 (-7.8)	790.8 (-1.9)	771.4 (-1.6)	770.6 (-4.9)	796.9 (-2.9)	981.2 (27.2)	1 053.8 (36.7)	1 087.5 (36.5)

Note: Gasoline, diesel and butane is based on charging station prices, Bunker-C is based on dealership prices, propane is based on sales shop prices. () is year-on-year growth rates (%)
Source: www.opinet.co.kr

► Domestic petroleum product prices



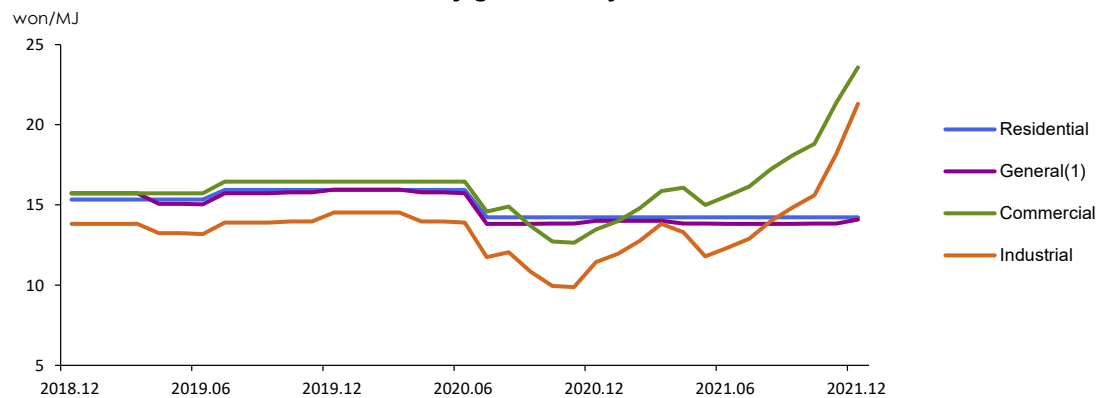
- **As for the city gas rates in December, the commercial and industrial uses rose by 10.3% and 17.2%, respectively, month-on-month.**

- The rates for commercial and industrial city gas uses, adjusted every month under Fuel Cost Adjustment (FCA)², were raised significantly month-on-month due to a global LNG price rise and a resulting increase in wholesale prices. In contrast, the rate for residential use got frozen while the general use rate increased by 1.9% due to a change in the winter season rate.

- **Electric rates in December was kept the same after Fuel Cost Pass-Through Adjustment Rate was raised by KRW 3/kWh for the fourth quarter.**

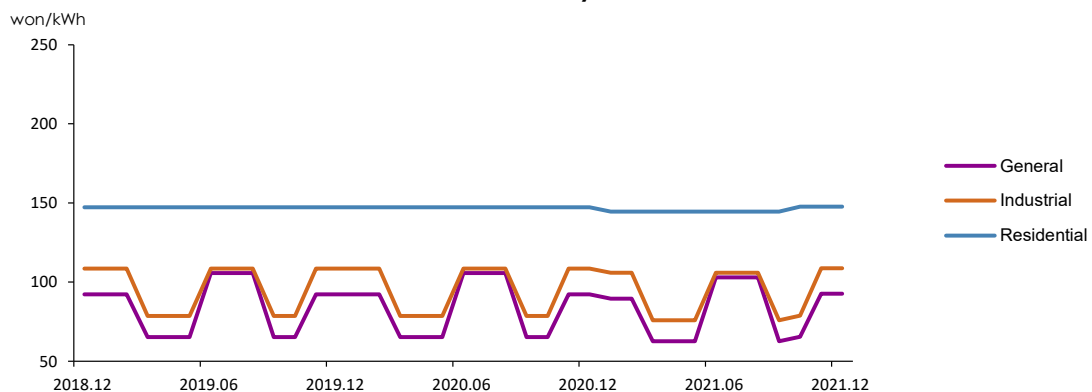
- For the first time since the FCA launched, Fuel Cost Pass-Through Adjustment Rate went up in the fourth quarter with the rates for each and all use being raised by KRW 3/kWh.

► City gas rates by end-use sectors



Source: Seoulgas

► 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

² Fuel Cost Adjustment (FCA) is a system that provides adjustment in electric rate and city gas wholesale rate in response to changes in the costs of power generation fuel and LNG import, respectively.

3. Energy Supply

- **Despite of a drop in bituminous coal and LNG imports, the total energy import volume in December went up by 2.6% year-on-year as crude oil and petroleum product imports jumped.**
- The import volume of crude oil increased by 2.9% YoY thanks to the recovery of the refining margin, a base effect from a drop (-5.6%) in import a year earlier, and an increase in crude oil feedstock for refineries (3.3%). The end-of-month stock of crude oil declined by 7.1% year-on-year.
 - The import volume of petroleum products rose by 33.8% YoY with the increase of Bunker-C oil, LPG and naphtha imports. Import volume of naphtha, the main feedstock of petrochemicals, rose by 44.8% YoY.
 - Although the coking and steaming coal use increased, the volume of bituminous coal import fell by 10.6% as the amount of steaming coal import shrank by 18.3% due to the soaring global price.
 - The gas import volume fell by 9.3% YoY as gas consumption for power generation declined significantly by 14.4% due to a rapid increase in global natural gas price. The volume of gas used for city gas also inched down by 0.8% because of the warm weather.
 - The amount of energy import in 2021 exceeded 2019's (pre COVID-19) with the inflation of global prices.

► Import and domestic production of energy

	2019	2020		2021p			
			M12		M10	M11	M12
Import volume							
Crude oil (Mbbbl)	1 071.9 (-4.0)	980.3 (-8.6)	84.4 (-5.6)	960.1 (-2.1)	85.1 (3.6)	80.4 (15.6)	86.9 (2.9)
Petroleum product (Mbbbl)	352.1 (3.1)	347.4 (-1.4)	28.3 (-21.5)	392.4 (12.9)	34.0 (67.2)	31.5 (32.7)	37.9 (33.8)
Bituminous coal (Mton)	132.7 (0.9)	115.5 (-13.0)	10.2 (-11.9)	108.0 (-6.4)	7.8 (-17.7)	8.8 (-5.8)	9.1 (-10.6)
Anthracite (Mton)	6.9 (-16.4)	6.3 (-8.3)	0.8 (32.2)	6.5 (3.0)	0.5 (22.0)	0.7 (67.2)	0.4 (-41.7)
LNG (Mton)	40.7 (-7.4)	40.0 (-1.9)	4.3 (-10.9)	45.9 (14.9)	3.9 (1.3)	3.8 (7.4)	3.9 (-9.3)
Import volume (Mtoe)	349.2 (-1.5)	325.4 (-6.8)	28.9 (-11.0)	335.6 (3.1)	28.0 (7.7)	28.0 (7.4)	29.7 (2.6)
Import value (billion US\$, CIF)	126.7 (-13.2)	86.6 (-31.7)	7.7 (-32.0)	137.2 (58.5)	13.3 (111.8)	14.7 (151.1)	15.8 (106.0)
Energy share of total import value (%)	25.2	18.4	17.2	22.1	24.8	25.6	25.9
Foreign energy dependence (%)*	93.5	92.7	93.4	92.8	93.0	93.4	93.8
Domestic production							
Hydropower (TWh)	6.25 (-14.1)	7.15 (14.4)	0.50 (-0.7)	6.74 (-5.8)	0.51 (6.9)	0.43 (1.9)	0.52 (4.5)
Anthracite (Mton)	1.08 (-9.7)	1.02 (-6.0)	0.08 (-8.9)	0.90 (-11.9)	0.08 (-3.8)	0.08 (-7.0)	0.08 (-6.1)
Natural gas (Mton)	0.20 (-15.2)	0.14 (-28.6)	0.01 (-38.1)	0.04 (-70.3)	0.00 -	0.00 (-73.3)	0.00 (-87.6)
Renewable energy (Mtoe)	17.69 (3.3)	18.98 (7.3)	1.66 (13.3)	20.06 (5.7)	1.56 (-4.2)	1.53 (-2.4)	1.67 (0.7)

Note: p means provisional, () is year-on-year growth rates (%), *Foreign energy dependence (%) including Nuclear energy
Source: Monthly energy statistics(KEEI)

4. Energy Consumption

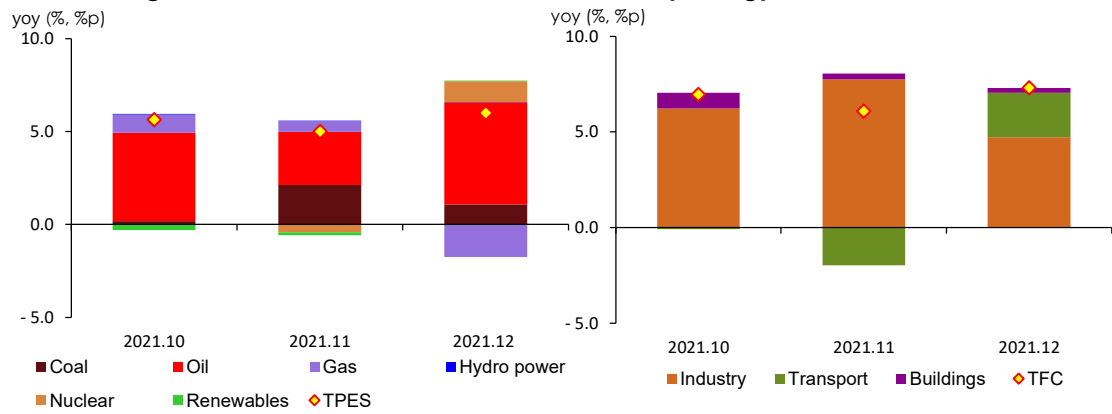
- **In December, Total Primary Energy Supply (“TPES”) posted a year-on-year increase of 6.0% as all energy sources except gas showed a growth in consumption.**
 - While industrial coal consumption went down, the power generation sector posted a substantial increase (11.8%) in coal use driven by the increase in coal-fired generation facility capacity (0.5GW) and the role of coal to replace gas in power generation. As a result, coal use increased by 4.4% YoY.
 - Industrial petroleum use rapidly grew by 19.4% driven by expansion of existing facilities, and the transport sector also showed a fast growth in petroleum consumption due to increased travel demand on the back of the efforts for Gradual Return to Normal and a growth in storage demand. Consequently, the total petroleum use soared by 16.8% year-on-year.
 - In the power generation and industrial sector, gas was partially replaced with other energy sources due to a surge in global LNG price. Similarly, the building sector experienced a drop in gas consumption driven by a temperature effect. In turn, the total gas use dropped by 6.9% year-on-year.
- **Total Final Consumption (“TFC”) jumped by 7.3% year-on-year mainly in the industrial and transport sectors.**
 - The energy use in the steel and fabricated metal industries was sluggish due to a drop in working days (0.5 day) and a surge in gas price. However, the total industrial energy use rose by 8.1% year-on-year thanks to a growth in the petrochemical sector, mainly for naphtha.
 - Energy use in the transport sector soared by 14.9% year-on-year as the demands for travel and storage stepped up.
 - As for the building sector, the residential sector witnessed a slight decrease (-2.3%) in energy consumption due to a fall in heating degree days (-8.6%) while the commercial sector posted a rise (4.0%) based on increased service production index. In turn, the total energy use in the building sector slightly climbed up by 1.0% year-on-year.

► Energy consumption

	2019	2020		2021p			
			M12		M10	M11	M12
TPES (Mtoe)	303.1	292.1	27.9	305.2	24.4	25.5	29.6
	(-1.5)	(-3.6)	(-0.3)	(4.5)	(5.6)	(5.0)	(6.0)
- Feedstock exclude	219.6	212.5	21.0	217.7	17.0	18.2	21.7
	(-1.5)	(-3.2)	(1.6)	(2.4)	(2.1)	(-0.5)	(3.2)
TFC (Mtoe)	231.4	222.6	21.0	234.6	18.6	19.5	22.6
	(-0.9)	(-3.8)	(-2.7)	(5.4)	(7.0)	(6.1)	(7.3)

Note: p means provisional, () is year-on-year growth rates
Source: Monthly energy statistics (KEEI)

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



5. Coal

□ **Despite a decline in the industrial sector, the total coal use in December climbed up by 4.4% driven by a rapid increase in the power generation sector.**

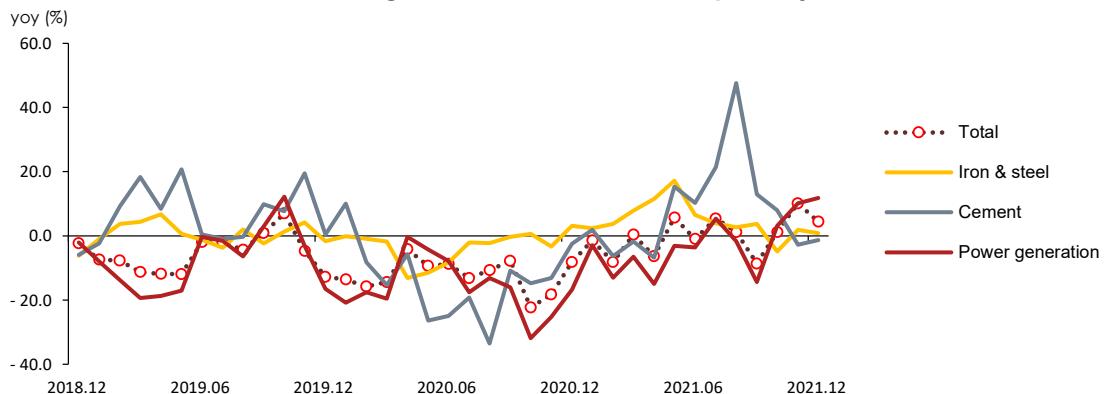
- Industrial coal use dropped by 5.1% YoY due to a fall in the consumption of bituminous coal for cement manufacturing and industrial anthracite, although bituminous coal use for steel producing went up.
- Although coal-fired power generation was limited over the enforcement of the fine dust seasonal management system (Effective from December-February), the coal consumption in the power generation sector showed a steep year-on-year increase of nearly 12% due to a growth in facility capacity and its role in replacing the reduced gas-fired generation

► Coal consumption

	2019	2020	2021p				
			M12		M10	M11	M12
Coal (Mton)	133.0	116.6	10.0	116.8	9.1	9.8	10.5
	(-5.7)	(-12.4)	(-8.1)	(0.2)	(1.2)	(10.1)	(4.4)
Industry	47.6	45.3	4.3	47.4	3.8	4.1	4.0
	(-1.7)	(-4.7)	(6.4)	(4.6)	(-0.9)	(10.4)	(-5.1)
-Coking-coal	35.0	33.8	3.0	35.3	2.8	2.9	3.1
	(1.0)	(-3.3)	(3.2)	(4.5)	(-4.9)	(1.9)	(0.8)
Buildings	0.6	0.5	0.1	0.5	0.1	0.1	0.1
	(-29.3)	(-20.8)	(4.1)	(-11.6)	(-18.9)	-	(-6.3)
Power generation	84.8	70.7	5.7	68.9	5.2	5.6	6.4
	(-7.6)	(-16.6)	(-16.8)	(-2.5)	(3.1)	(10.1)	(11.8)

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

► The growth rate of coal consumption by use



6. Petroleum

□ Petroleum use in December surged by 16.8% year-on-year as all sectors except the building sector posted a massive increase.

- Petroleum use in the industrial sector soared by 19.4% year-on-year as naphtha and LPG consumption substantially increased due to new facilities and addition to existing ones.
- Petroleum use in the transport sector rose by 15.5% year-on-year with the demand for domestic and overseas travel as well as the demand for storing petroleum products increasing.
- Petroleum use in the building sector decreased by 2.8% year-on-year as the residential sector showed a 2.6% drop amidst mild weather.
- The total petroleum use in 2021 stepped up by 6.8% year-on-year mainly in the industrial sector, returned to the pre-COVID level in 2019.

► Petroleum product consumption by end-use sectors

	2019	2020		2021p			
			M12		M10	M11	M12
Petroleum (Mbbbl)	927.1	872.4	75.5	931.9	78.2	76.9	88.2
	(-0.5)	(-5.9)	(-11.3)	(6.8)	(12.4)	(8.5)	(16.8)
Industry	566.2	543.9	45.6	597.1	51.3	49.0	54.5
	(0.4)	(-4.0)	(-12.2)	(9.8)	(18.3)	(23.4)	(19.4)
-Naphtha	438.6	405.3	33.6	450.9	38.7	37.2	41.5
	(-2.8)	(-7.6)	(-12.5)	(11.3)	(25.0)	(35.9)	(23.3)
Transport	303.2	277.2	23.1	280.1	22.5	23.2	26.7
	(0.3)	(-8.6)	(-12.8)	(1.1)	(0.1)	(-10.3)	(15.5)
Buildings	49.1	44.7	5.9	46.1	3.8	4.0	5.7
	(-8.6)	(-8.9)	(3.7)	(3.0)	(13.9)	(-9.6)	(-2.8)
Power generation	8.6	6.6	1.0	8.7	0.7	0.8	1.3
	(-26.9)	(-23.2)	(-5.7)	(31.4)	(47.1)	(-15.8)	(38.9)

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

Source: Monthly Energy Statistics

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



7. Gas

□ **Gas use in December fell by 6.9% year-on-year driven by the decrease in the power generation and building sectors, although the industrial consumption posted a slight increase.**

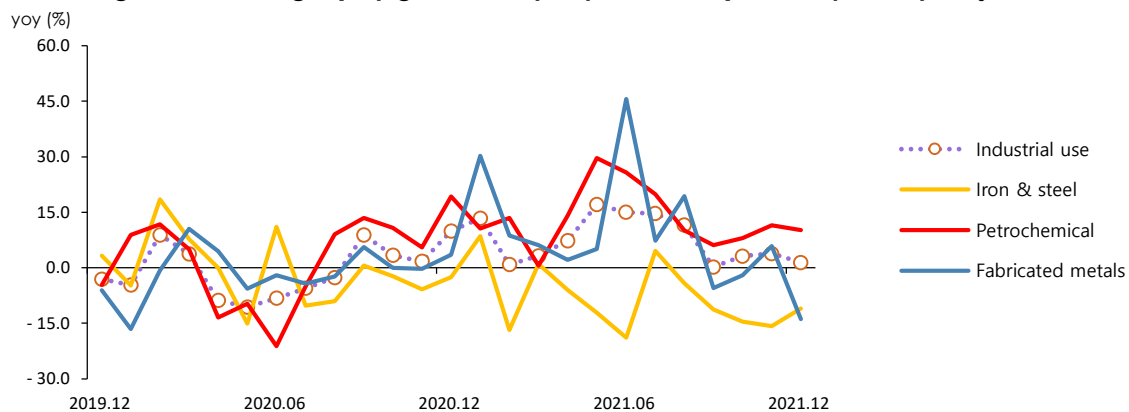
- While electricity use went up by nearly 5%, the gas consumed in the power sector showed a YoY decline for the first time in 2021 due to a decrease in gas generation, driven by a soaring global gas price.
- The growth in industrial gas use slowed down to around 1% as gas use in the iron & steel and the fabricated metal sector decreased due to a fall in working days (0.5 day) and the soaring gas price, although gas use in the petrochemicals sector continued to go up with newly-built petrochemical facilities.
- The commercial sector rose (3.5%) in gas use with the regulations on publicly-used facilities being eased, while gas consumption in the residential sector declined by 3.0% due to a temperature effect such as a decrease in heating degree days (-8.6%). As a result, the total gas use in the building sector went down.

► **Natural gas and city gas consumption**

	2019	2020		2021p			
			M12		M10	M11	M12
LNG (Mton)	41.0	42.1	5.4	45.8	3.3	3.9	5.1
	(-3.1)	(2.7)	(8.5)	(8.7)	(5.5)	(2.9)	(-6.9)
Power generation	17.9	18.6	2.1	21.5	1.6	1.7	1.8
	(-3.0)	(3.7)	(3.6)	(15.7)	(9.8)	(4.7)	(-14.4)
City gas production	18.8	18.2	2.7	19.3	1.3	1.9	2.7
	(-5.0)	(-3.1)	(9.9)	(5.9)	(4.2)	(5.3)	(-0.8)
Industry(Direct private importer)	2.2	2.8	0.3	2.7	0.2	0.2	0.3
	(42.7)	(23.8)	(16.1)	(-3.4)	(-16.1)	(-12.7)	(0.5)
City gas (Bm³)	26.1	25.9	3.4	27.0	1.7	2.4	3.3
	(-0.6)	(-0.6)	(7.8)	(4.0)	(-0.5)	(2.8)	(-0.6)
Industry(including directly imported)	11.1	11.1	1.2	11.9	0.9	1.0	1.2
	(3.5)	(-0.3)	(9.9)	(7.2)	(3.1)	(3.9)	(1.4)
Buildings	13.8	13.8	2.1	14.1	0.7	1.3	2.1
	(-3.6)	(0.0)	(7.7)	(2.0)	(-5.2)	(2.4)	(-1.8)
Transport.	1.2	1.1	0.1	1.0	0.1	0.1	0.1
	(-1.8)	(-9.6)	(-12.0)	(-3.5)	(-1.6)	(-2.4)	(0.9)

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

► The growth rate of gas(city gas+directly imported LNG)consumption by major industries



8. Electricity

- Electricity use in December stepped up by 4.9% year-on-year as both the industrial and building sectors showed a rapid growth.
 - Industrial electricity consumption went up by 4.6% year-on-year as all of top three power-intensive industries – fabricated metal, petrochemical and steel & iron – posted a decent increase.
 - Although the residential sector was sluggish in power consumption, the total electricity use in the building sector rose by 5.6% with a rapid growth in the commercial & public sector.

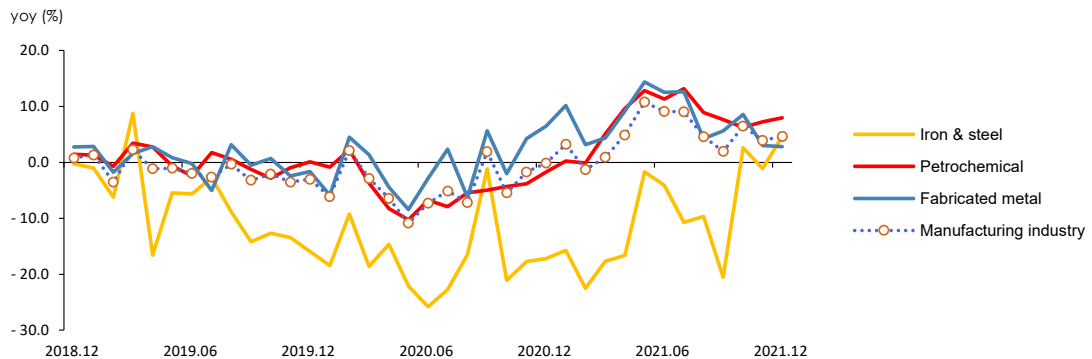
► Electricity consumption by end-use sectors

	2019	2020		2021p			
			M12		M10	M11	M12
Electricity (TWh)	520.5	509.3	45.0	533.4	41.8	42.8	47.3
	(-1.1)	(-2.2)	(0.7)	(4.7)	(7.1)	(4.1)	(4.9)
Industry	279.8	268.7	23.7	282.4	23.0	23.4	24.8
	(-1.4)	(-4.0)	(0.3)	(5.1)	(6.9)	(4.4)	(4.6)
Transport	2.9	3.2	0.3	3.1	0.2	0.2	0.3
	(-2.0)	(8.4)	(32.2)	(-1.3)	(0.3)	(-3.1)	(-13.8)
Buildings	237.8	237.4	21.0	247.9	18.6	19.2	22.2
	(-0.7)	(-0.2)	(0.7)	(4.4)	(7.4)	(3.8)	(5.6)
Residential	70.5	74.1	6.2	77.6	5.9	6.0	6.2
	(-0.3)	(5.1)	(6.3)	(4.7)	(5.5)	(2.9)	(0.4)
Commercial	135.2	132.1	11.8	136.9	10.2	10.6	12.3
	(-0.9)	(-2.3)	(-1.9)	(3.6)	(9.1)	(4.5)	(4.0)

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

Source: Monthly energy statistics

► The growth rate of electricity consumption in manufacturing industry

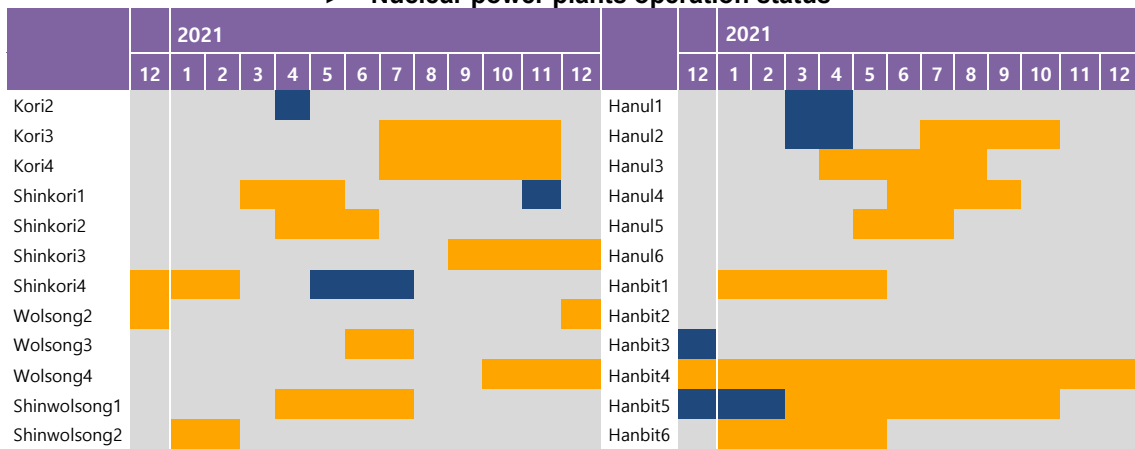


9. Nuclear

□ In December, nuclear generation rose by 9.8% year-on-year as the capacity factor went up with the number of units on shutdown decreased.

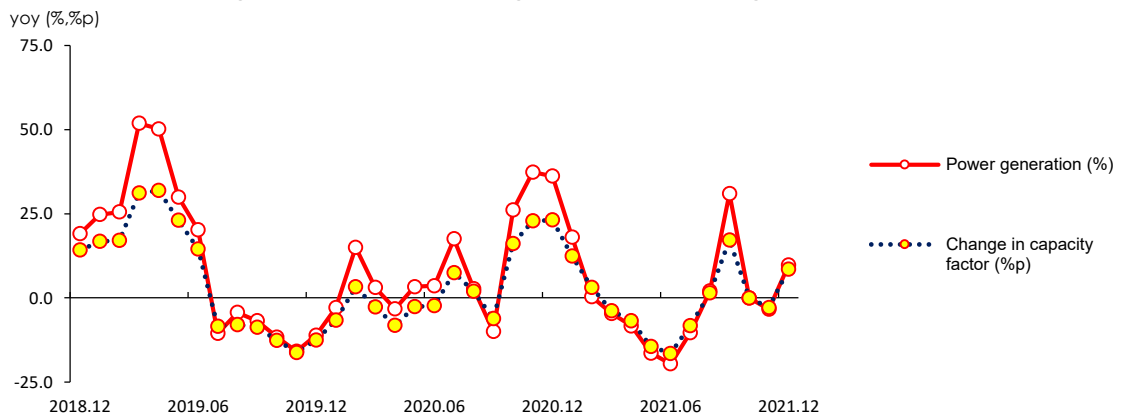
- Although the number of units in planned preventive maintenance projects increased by one, compared to the same month last year, the capacity factor of nuclear generation increased by 8.5%p year-on-year as there were two less units in unplanned maintenance mode.
- As some units of the planned preventive maintenance projects resumed operation in early or mid-December, the capacity factor rose to a mid-90% level, the highest record, since April 2016.
- The share of nuclear in the total generation mix dropped to an early 20% level in July 2021, however, it since recovered fast to reach nearly 30% by November. In December, the share of nuclear generation exceeded the 30% level to post 31.0%.

► Nuclear power plants operation status



Notes: ■ normal operation, ■ prevented 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

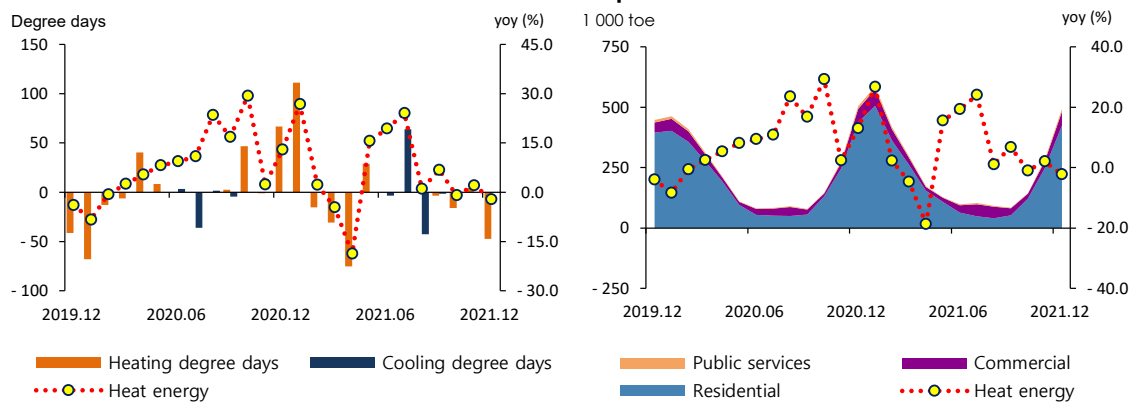
□ **Despite of a growth in the commercial sector, the heat energy use in December declined by 2.2% year-on-year led by the residential sector.**

- While heat energy use in the commercial & public sector grew by 5.6% by increased service production activities (5.8%, production index) with the new policy, the total consumption decreased as the residential sector, the residential sector which makes up the substantial share in the total consumption mix declined 3.2% with less heating degree days (-8.6%).

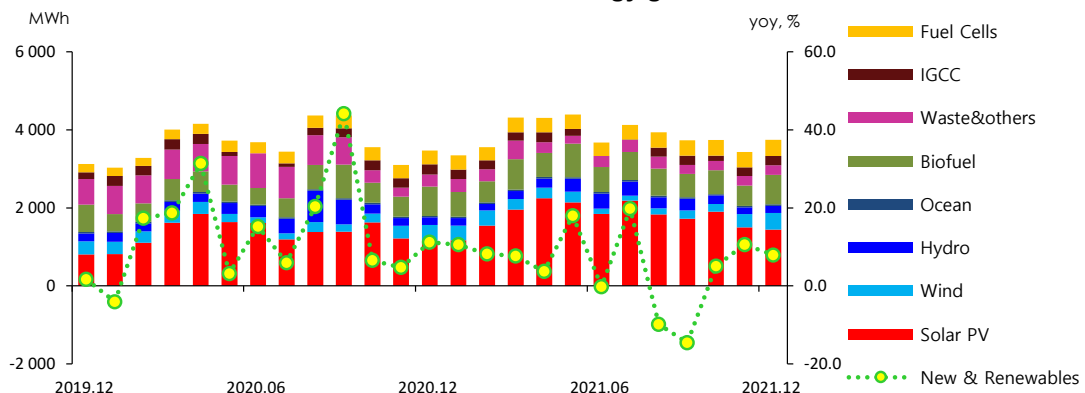
□ **Renewable and other energy power generation³ climbed up by 7.9% year-on-year driven by solar PV, fuel cell and wind.**

- While the generation from waste & others, IGCC and Hydro declined, the total renewable and other energy generation rose by 7.9% YoY as the facility capacity expanded in solar PV, fuel cell and wind.

► 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



³ Installed capacity and power generation data for renewable energy sources is from KEPCO's Monthly Electricity Statistics. As of March 2021, Waste Energy was integrated into Other Energy section; renaming the section to Waste & Other Energy. In Energy Balance, hydropower was excluded from renewable and other energy generation data

11. Industry

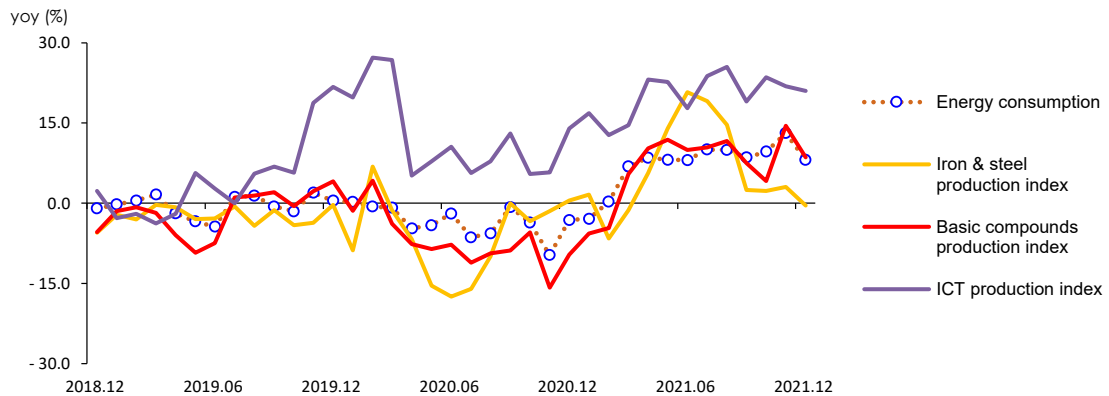
- Industrial energy use in December grew by 8.1% year-on-year as the petrochemical sector showed a rapid increase in energy consumption, mainly for naphtha.
 - Energy use in the steel and fabricated metal industries was dull as working days decreased by 0.5 day and gas consumption became sluggish due to a surge in global natural gas price. However, the total industrial energy use rapidly rose led by a sharp growth in naphtha consumption of the petrochemical industry.

► Industrial energy consumption

	2019	2020		2021p			
			M12		M10	M11	M12
Industry (Mtoe)	142.9	138.0	12.3	148.0	12.3	12.3	13.3
	(-0.4)	(-3.5)	(-3.1)	(7.3)	(9.6)	(13.1)	(8.1)
Petrochemical	72.0	69.2	5.8	76.6	6.5	6.3	7.0
	(-0.1)	(-4.0)	(-9.4)	(10.8)	(17.6)	(26.5)	(20.3)
- Naphtha	53.8	49.7	4.1	55.3	4.7	4.6	5.1
	(-2.8)	(-7.6)	(-12.5)	(11.3)	(25.0)	(35.9)	(23.3)
Iron & Steel	29.5	28.2	2.5	28.8	2.3	2.4	2.5
	(0.4)	(-4.5)	(1.0)	(2.2)	(-5.2)	(0.1)	(0.1)
-Coking coal	24.4	23.6	2.1	24.6	2.0	2.0	2.1
	(1.0)	(-3.3)	(3.2)	(4.5)	(-4.9)	(1.9)	(0.8)
Fabricated metal	11.4	11.4	1.1	12.2	1.0	1.0	1.1
	(-0.1)	(-0.5)	(5.7)	(7.8)	(7.0)	(3.7)	(-0.5)
Share of feedstock (%)	58.3	57.5	56.0	59.0	60.0	58.9	59.4

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

► Industrial energy consumption & production index



12. Transport

□ In December, the energy use in the transport sector rose by 14.9% year-on-year as all sectors – road, air and marine transport – witnessed an increase.

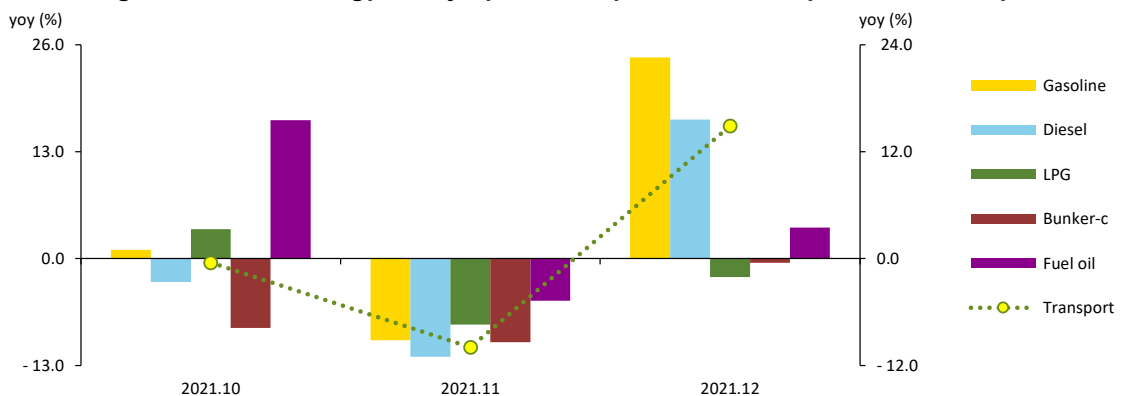
- Energy use in the road transport sector jumped up by 15.7% year-on-year with the travel demand and the storage demand at gas stations both growing.
- Energy use in the air transport sector was up by 3.8% year-on-year as the demand for domestic and overseas travel grew thanks to the effort for Gradual Return to Normal being carried out.
- Energy use in the marine transport sector surged by 18.4% as diesel consumption skyrocketed by 86.8% and heavy oil use climbed up by 1.6% from a year earlier.
- Energy use in the transport sector in 2021 inched up by nearly 1% year-on-year, while it is 7.4% lower than the pre-COVID level in 2019.

► The growth rate of petroleum consumption in the transport sector

	2019	2020		2021p			
			M12		M10	M11	M12
Transport (Mtoe)	42.97	39.44	3.29	39.78	3.18	3.28	3.77
	(0.0)	(-8.2)	(-12.3)	(0.9)	(-0.5)	(-10.0)	(14.9)
Road	35.05	33.45	2.80	33.92	2.65	2.77	3.23
	(1.9)	(-4.6)	(-7.1)	(1.4)	(-2.8)	(-11.8)	(15.7)
Navigation	2.65	3.11	0.25	3.10	0.26	0.28	0.29
	(-17.1)	(17.5)	(0.1)	(-0.3)	(10.9)	(7.6)	(18.4)
Aviation	4.93	2.56	0.21	2.46	0.24	0.20	0.22
	(-1.7)	(-48.1)	(-53.7)	(-3.9)	(16.8)	(-5.2)	(3.8)
Rail	0.35	0.32	0.03	0.31	0.02	0.02	0.03
	(-2.8)	(-7.5)	(9.5)	(-4.5)	(3.1)	(-6.1)	(-12.2)

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

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



13. Buildings

□ Although the residential sector showed a decrease, the total energy use in the building sector in December inched up by 1.0% year-on-year led by the commercial & public sector.

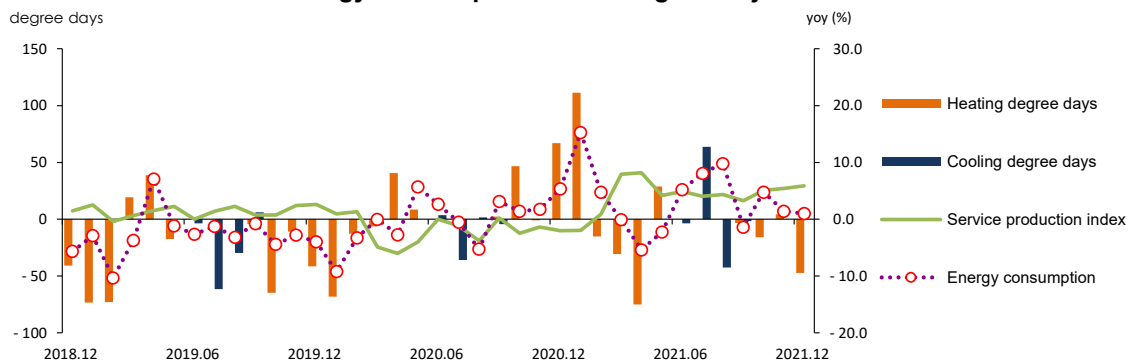
- Energy use in the residential sector went down by 2.3% year-on-year as the consumption in city gas and heat energy declined due to warm weather.
- Energy use in the commercial & public sector jumped up by 5.9% year-on-year, mainly driven by the commercial sector, upon the implementation of the measures for Gradual Return to Normal.
- Building sector energy consumption in 2021 recovered to exceed the pre-COVID level in 2019 by 3.0%.

► Energy consumption in buildings

	2019	2020		2021p			
			M12		M10	M11	M12
Buildings (Mtoe)	45.5	45.2	5.5	46.8	3.1	3.9	5.5
	(-3.1)	(-0.7)	(5.4)	(3.7)	(4.8)	(1.4)	(1.0)
Residential	22.6	23.2	3.3	23.7	1.4	2.1	3.2
	(-3.6)	(2.6)	(10.4)	(2.3)	(-0.2)	(-0.2)	(-2.3)
Commercial	17.5	16.7	1.7	17.6	1.3	1.4	1.7
	(-2.3)	(-4.3)	(-1.9)	(5.3)	(10.6)	(3.7)	(4.0)
Public:others	5.4	5.3	0.5	5.5	0.4	0.4	0.6
	(-3.2)	(-2.6)	(0.2)	(5.0)	(5.7)	(2.2)	(12.1)
Heating degree days	2 370.9	2 448.0	547.6	2 404.7	121.4	290.6	500.4
	(-8.7)	(3.3)	(13.9)	(-1.8)	(-11.6)	(1.5)	(-8.6)
Cooling degree days	120.4	85.2	-	101.3	-	-	-
	(-42.4)	(-29.2)	n.a	(18.9)	-	-	-
Service production index (2015=100)	108.4	106.2	116.4	110.9	111.8	114.7	123.2
	(1.4)	(- 2.0)	-	(4.3)	-	-	-

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

► Energy consumption in buildings & major indicators



14. Transformation

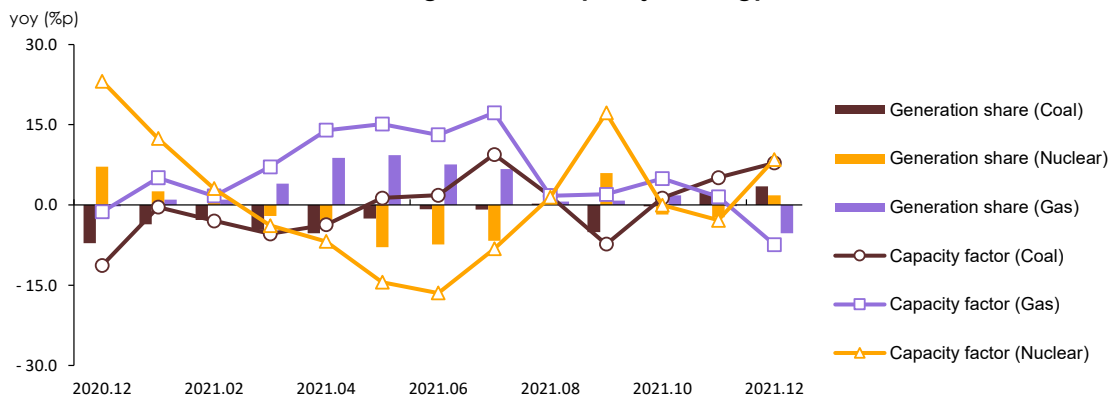
- In December, both the total power generation and energy input for generation grew by 3.4% year-on-year due to increased electricity consumption.
 - With a surge in global natural gas price, gas-fired generation showed a substantial plunge while base-load generation including coal and nuclear soared by more than 10%.
 - In the generation mix, as for December, coal and nuclear increased by 3.5%p and 1.8%p year-on-year to take up 34.1% and 31.0% of the total generation, respectively. On the other side, gas-fired generations accounted for 26.9%, showing a YoY decline of 5.3%p.

► Electricity Generation in the power generation sector

	2019	2020		2021p			
			M12		M10	M11	M12
Electricity Generation (TWh)	563.0	552.2	51.6	576.1	45.8	46.9	53.3
	(-1.3)	(-1.9)	(2.6)	(4.3)	(6.1)	(4.3)	(3.4)
Coal	227.4	196.3	15.8	196.2	15.0	16.2	18.2
	(-4.6)	(-13.7)	(-16.7)	(-0.0)	(5.2)	(12.3)	(15.1)
Oil	3.3	2.3	0.3	3.5	0.2	0.2	0.2
	(-42.6)	(-31.5)	(-31.3)	(53.5)	(117.8)	(-42.3)	(-51.1)
Gas	144.4	145.9	16.6	168.4	13.0	13.2	14.4
	(-6.0)	(1.1)	(1.7)	(15.4)	(13.1)	(3.6)	(-13.6)
Nuclear	145.9	160.2	15.1	158.0	13.5	13.6	16.5
	(9.3)	(9.8)	(36.2)	(-1.4)	(-0.0)	(-3.4)	(9.8)
Hydro/other renewables	39.2	40.4	3.4	46.2	3.7	3.4	3.7
	(0.6)	(3.1)	(21.4)	(14.3)	(7.5)	(9.5)	(9.7)
Baseload	373.3	356.5	30.9	354.3	28.5	29.8	34.7
	(0.4)	(-4.5)	(2.7)	(-0.6)	(2.7)	(4.5)	(12.5)

Notes: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

► Power generation by major energy sources



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

Major Statistics & Indicators of the Economy

	2018	2019	2020	2021			2021	M10	M11	M12
				M10	M11	M12				
GDP (trillion won)	1 812.0 (2.9)	1 852.7 (2.2)	1 836.9 (-0.9)	- -	- -	484.1 (-1.1)	1 910.7 (4.0)	- -	- -	504.3 (4.2)
Private consumption	875.6 (3.2)	894.1 (2.1)	849.1 (-5.0)	- -	- -	214.4 (-6.6)	879.8 (3.6)	- -	- -	227.9 (6.3)
Facilities investment	166.3 (-2.3)	155.3 (-6.6)	166.3 (7.1)	- -	- -	43.9 (6.1)	180.1 (8.3)	- -	- -	45.6 (4.0)
Construction investment	269.8 (-4.6)	265.2 (-1.7)	264.1 (-0.4)	- -	- -	71.4 (-2.9)	260.1 (-1.5)	- -	- -	70.2 (-1.7)
Consumer price index (2015=100)	104.5	104.9	105.4	105.6	105.5	105.7	102.5	103.4	103.9	104.0
USD to KRW exchange rate (won)	1 100.2	1 165.4	1 180.3	1 144.7	1 116.8	1 095.1	1 144.0	1 182.8	1 182.9	1 183.7
Benchmark rate (%)	1.5	1.6	0.7	0.5	0.5	0.5	0.6	0.8	1.0	1.0
Coincident composite index (2015=100)	110.5	112.1	112.5	113.4	114.2	114.4	116.9	118.1	118.5	119.5
Mining & manufacturing production index (2015=100)	106.3	106.7	106.4	109.2	111.8	118.3	114.3	114.8	119.3	127.0
Manufacturing operation ratio index (2015=100)	98.8	98.4	95.3	98.5	100.3	103.1	99.8	99.9	104.5	109.4
Average temperature	13.0	13.4	13.0	13.7	8.5	0.3	13.3	15.1	8.3	1.9
- year-on-year difference	- 0.1	0.4	- 0.4	- 1.9	0.0	- 2.2	0.3	1.5	- 0.1	1.5
Heating degree days	2 597.8 (3.2)	2 370.9 (-8.7)	2 448.0 (3.3)	137.4 (51.7)	286.3 (-0.3)	547.6 (13.9)	2 404.7 (-1.8)	121.4 (-11.6)	290.6 (1.5)	500.4 (-8.6)
Cooling degree days	209.0 (57.5)	120.4 (-42.4)	85.2 (-29.2)	- -	- -	- -	101.3 (18.9)	- -	- -	- -
Energy intensity	0.17 (-1.0)	0.16 (-3.6)	0.16 (-2.9)	- -	- -	0.16 (-1.7)	0.16 (0.5)	- -	- -	0.16 (1.3)
Per capita consumption										
oil (bbl)	18.1 (-1.0)	17.9 (-0.9)	16.8 (-6.0)	1.3 (-8.2)	1.4 (-10.9)	1.5 (-11.4)	18.0 (7.0)	1.5 (12.6)	1.5 (8.7)	1.7 (17.0)
Electricity (MWh)	10.2 (3.2)	10.1 (-1.4)	9.8 (-2.3)	0.8 (-4.0)	0.8 (-0.1)	0.9 (0.5)	10.3 (4.9)	0.8 (7.3)	0.8 (4.3)	0.9 (5.1)
City gas (1 000 m ³)	0.5 (6.9)	0.4 (-4.5)	0.4 (-3.7)	0.0 (3.0)	0.0 (0.7)	0.1 (6.9)	0.5 (5.3)	0.0 (3.0)	0.0 (5.3)	0.1 (-0.5)
Total energy (toe)	6.0 (1.4)	5.9 (-1.8)	5.6 (-3.8)	0.4 (-4.4)	0.5 (-4.2)	0.5 (-0.4)	5.9 (4.7)	0.5 (5.8)	0.5 (5.2)	0.6 (6.2)

Note: Figures are based on the real price of 2010, p means provisional, () is year-on-year growth rates (%)
Source: BOK Economic statistics system, Korea Statistical Information Service, Monthly Energy Statistics

The Index of Production Ratio & Output by Sectors

(2015=100)

	2018	2019	2020				2021			
			M10	M11	M12		M10	M11	M12	
Industrial production index										
All industry	107.5 (1.6)	108.6 (1.0)	107.4 (-1.0)	107.2 (-2.9)	110.3 (-0.6)	121.2 (-0.5)	112.7 (4.9)	112.4 (4.9)	116.3 (5.4)	129.5 (6.8)
Mining & manufacturing	106.3 (1.5)	106.7 (0.3)	106.4 (-0.3)	109.2 (-2.6)	111.8 (0.3)	118.3 (2.8)	114.3 (7.4)	114.8 (5.1)	119.3 (6.7)	127.0 (7.4)
Semiconductor	168.3 (21.2)	188.1 (11.7)	230.7 (22.7)	239.9 (12.4)	247.2 (7.8)	272.8 (17.5)	299.0 (29.6)	330.6 (37.8)	331.0 (33.9)	358.4 (31.4)
Iron & steel	100.5 (-2.7)	98.3 (-2.2)	92.1 (-6.3)	94.9 (-3.4)	95.8 (-1.4)	98.6 (0.5)	97.4 (5.8)	97.1 (2.3)	98.7 (3.0)	98.2 (-0.4)
Cement	100.0 (-8.8)	94.3 (-5.7)	87.2 (-7.5)	95.2 (-5.6)	98.7 (-4.8)	93.9 (-1.8)	91.6 (5.0)	96.0 (0.8)	100.2 (1.5)	99.4 (5.9)
Basic compound	110.4 (0.0)	108.9 (-1.4)	101.1 (-7.1)	100.9 (-5.4)	87.6 (-15.8)	103.9 (-9.6)	107.9 (6.7)	105.1 (4.2)	100.3 (14.5)	112.8 (8.6)
Transport equipment	93.9 (-1.2)	93.3 (-0.7)	84.4 (-9.6)	96.7 (-3.1)	97.0 (1.7)	90.6 (-4.2)	88.2 (4.5)	83.0 (-14.2)	92.1 (-5.1)	97.6 (7.7)
Electric & electronic	106.5 (-0.1)	109.6 (2.9)	108.5 (-1.0)	112.6 (-5.2)	118.7 (2.9)	126.4 (4.5)	115.1 (6.1)	116.0 (3.0)	124.1 (4.5)	132.5 (4.8)
Service	106.9 (2.2)	108.4 (1.4)	106.2 (-2.0)	106.4 (-2.5)	108.8 (-1.4)	116.4 (-2.0)	110.9 (4.3)	111.8 (5.1)	114.7 (5.4)	123.2 (5.8)
Wholesale and retail	105.0 (1.8)	104.6 (-0.4)	101.9 (-2.6)	104.0 (-1.7)	106.0 (-2.5)	108.4 (-1.2)	106.0 (4.0)	108.5 (4.3)	110.3 (4.1)	113.1 (4.3)
Food & Accommodation	98.5 (-1.9)	97.5 (-1.0)	79.6 (-18.4)	83.5 (-15.1)	80.7 (-17.1)	66.4 (-39.6)	80.7 (1.4)	89.7 (7.4)	92.3 (14.4)	92.0 (38.6)
Production output										
Iron & steel - Pig iron	47 124.3 (0.1)	47 520.7 (0.8)	45 359.6 (-4.5)	3 943.9 (-2.3)	3 867.8 (-2.1)	4 115.2 (4.2)	46 440.5 (2.4)	3 754.5 (-4.8)	3 897.3 (0.8)	3 958.0 (-3.8)
Iron & steel - Crude steel	72 464.0 (2.0)	71 411.9 (-1.5)	67 078.8 (-6.1)	5 859.9 (-1.7)	5 765.4 (-2.4)	5 909.6 (0.5)	70 418.0 (5.0)	5 781.8 (-1.3)	5 834.0 (1.2)	5 935.3 (0.4)
Petrochemical - Basic petrochemicals	31 139.2 (1.9)	31 804.1 (2.1)	30 323.6 (-4.7)	2 426.7 (-6.2)	2 153.7 (-19.3)	2 395.2 (-17.0)	34 434.7 (13.6)	2 941.9 (21.2)	2 833.3 (31.6)	3 115.8 (30.1)
Petrochemical - Intermediate raw material	16 981.8 (2.9)	16 014.0 (-5.7)	15 355.4 (-4.1)	1 211.5 (-1.9)	1 087.8 (-20.2)	1 293.2 (-7.7)	15 764.6 (2.7)	1 250.4 (3.2)	1 246.3 (14.6)	1 322.2 (2.2)
Petrochemical - 3 major products	21 793.6 (-1.1)	21 584.6 (-1.0)	21 252.7 (-1.5)	1 769.1 (3.8)	1 649.7 (-1.3)	1 789.1 (-1.1)	23 179.1 (9.1)	1 882.8 (6.4)	1 885.1 (14.3)	2 141.7 (19.7)
The number of cars	4 031.7 (-2.0)	3 948.1 (-2.1)	3 506.8 (-11.2)	336.3 (-4.3)	324.5 (-6.3)	296.9 (-12.0)	3 462.4 (-1.3)	263.7 (-21.6)	303.0 (-6.6)	319.1 (7.5)

Note: p means provisional

Source: Monthly Energy Statistics, Korea Petrochemical Industry Association

International Energy Prices

	2018	2019	2020				2021			
				M10	M11	M12		M10	M11	M12
Crude oil (USD/bbl)										
WTI	64.8 (27.1)	57.0 (-11.9)	39.4 (-30.9)	39.6 (-26.8)	41.4 (-27.5)	47.1 (-21.3)	67.9 (72.4)	81.2 (105.4)	78.7 (90.2)	71.7 (52.3)
Dubai	69.4 (30.5)	63.5 (-8.5)	42.2 (-33.6)	40.7 (-31.5)	43.4 (-30.0)	49.8 (-23.2)	69.3 (64.1)	81.6 (100.7)	80.3 (84.9)	73.2 (46.9)
Brent	71.5 (30.5)	64.2 (-10.3)	43.2 (-32.7)	41.5 (-30.4)	44.0 (-29.9)	50.2 (-22.9)	70.8 (63.8)	83.8 (101.7)	80.9 (83.8)	74.8 (48.9)
Unit value of import (C&F)	71.4 (34.0)	65.5 (-8.2)	44.8 (-31.7)	43.4 (-32.4)	42.7 (-33.7)	46.7 (-29.4)	70.2 (56.9)	79.0 (82.3)	82.7 (93.7)	79.5 (70.2)
LNG										
Import price(Japan) (USD/MMBTU)	10.7 (24.0)	10.6 (-1.0)	8.3 (-21.3)	6.2 (-38.1)	6.9 (-31.7)	7.7 (-23.8)	10.8 (29.5)	12.4 (100.3)	15.3 (122.5)	15.3 (100.0)
Unit value of import (USD/ton, CIF)	526.3 (26.4)	505.4 (-4.0)	390.2 (-22.8)	275.7 (-42.4)	312.1 (-31.3)	358.5 (-21.3)	550.7 (41.2)	668.7 (142.6)	805.5 (158.1)	892.5 (149.0)
Bituminous coal (USD/ton)										
From Australia	107.1 (21.5)	78.1 (-27.1)	60.3 (-22.8)	57.5 (-14.1)	62.7 (-6.6)	78.3 (17.5)	136.0 (125.8)	235.4 (309.7)	153.7 (145.1)	164.6 (110.4)
Unit value of import (CIF)	113.6 (8.9)	100.7 (-11.3)	77.7 (-22.9)	70.4 (-23.5)	70.9 (-19.0)	72.2 (-15.2)	115.1 (48.1)	142.3 (102.1)	176.4 (148.9)	187.5 (159.6)
Petroleum product (USD/bbl)										
Gasoline	79.9 (17.4)	72.5 (-9.3)	46.7 (-35.7)	46.0 (-37.9)	46.8 (-38.7)	53.5 (-28.5)	80.3 (72.2)	98.7 (114.6)	95.0 (103.1)	87.9 (64.3)
Kerosene	84.8 (29.8)	77.3 (-8.9)	44.7 (-42.1)	41.6 (-44.8)	45.7 (-39.0)	53.9 (-30.7)	75.1 (67.9)	93.1 (123.5)	89.2 (95.2)	83.5 (55.0)
Diesel	84.9 (27.9)	78.2 (-7.9)	49.4 (-36.8)	43.9 (-43.0)	47.6 (-37.4)	55.4 (-30.0)	77.6 (57.2)	95.5 (117.5)	91.6 (92.5)	85.9 (54.9)
Bunker-C	65.2 (31.3)	57.5 (-11.8)	39.2 (-31.9)	41.2 (-13.0)	43.7 (10.9)	47.4 (9.5)	64.4 (64.3)	77.6 (88.2)	71.1 (62.9)	65.8 (38.8)
Propane	542.1 (16.0)	434.6 (-19.8)	397.1 (-8.6)	375.0 (-10.7)	430.0 -	450.0 (2.3)	647.9 (63.2)	800.0 (113.3)	870.0 (102.3)	795.0 (76.7)
Butane	539.2 (7.5)	441.7 (-18.1)	403.8 (-8.6)	380.0 (-12.6)	440.0 (-1.1)	460.0 (1.1)	629.6 (55.9)	795.0 (109.2)	830.0 (88.6)	750.0 (63.0)
Naphtha	67.0 (24.5)	56.9 (-15.1)	40.5 (-28.9)	41.7 (-26.6)	40.6 (-31.8)	47.6 (-25.0)	70.6 (74.6)	84.3 (101.9)	84.0 (107.1)	77.6 (63.1)

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: www.petronet.co.kr, IMF (primary commodity price), Monthly energy statistics

Domestic Energy Prices

	2018	2019	2020				2021			
				M10	M11	M12		M10	M11	M12
Petroleum product										
Gasoline (won/liter)	1 581.4 (6.0)	1 471.9 (-6.9)	1 381.6 (-6.1)	1 333.3 (-13.5)	1 319.6 (-14.1)	1 367.8 (-11.7)	1 590.5 (15.1)	1 712.3 (28.4)	1 737.4 (31.7)	1 646.4 (20.4)
Diesel (won/liter)	1 391.9 (8.5)	1 340.1 (-3.7)	1 189.8 (-11.2)	1 134.0 (-18.3)	1 119.6 (-18.9)	1 168.3 (-15.7)	1 391.3 (16.9)	1 509.3 (33.1)	1 549.7 (38.4)	1 468.9 (25.7)
Bunker-C (won/liter)	734.8 (18.6)	743.9 (1.2)	573.6 (-22.9)	533.0 (-32.7)	520.0 (-26.1)	518.9 (-21.1)	731.7 (27.6)	813.4 (52.6)	867.4 (66.8)	859.0 -
Propane (won/kg)	1 920.5 (4.7)	1 869.7 (-2.6)	1 850.7 (-1.0)	1 822.1 (-0.6)	1 822.2 (-3.0)	1 865.2 (-1.3)	2 092.6 (13.1)	2 163.4 (18.7)	2 312.3 (26.9)	2 410.1 (29.2)
Butane (won/liter)	874.6 (5.8)	806.2 (-7.8)	791.1 (-1.9)	771.4 (-1.6)	770.6 (-4.9)	796.9 (-2.9)	931.9 (17.8)	981.2 (27.2)	1 053.8 (36.7)	1 087.5 (36.5)
City gas(won/MJ)										
Residential	15.1 (-4.3)	15.6 (3.9)	15.1 (-3.6)	14.2 (-10.7)	14.2 (-10.7)	14.2 (-10.7)	14.2 (-5.7)	14.2 -	14.2 -	14.2 -
General(1)	14.9 (-3.8)	15.6 (4.9)	14.9 (-4.7)	13.8 (-12.3)	13.8 (-12.3)	14.0 (-12.3)	13.9 (-6.5)	13.8 -	13.8 -	14.1 (0.6)
Commercial	15.4 (-4.4)	16.1 (4.4)	15.1 (-6.4)	12.7 (-22.7)	12.7 (-23.2)	13.5 (-18.2)	17.2 (14.2)	18.8 (47.8)	21.4 (68.9)	23.6 (75.0)
Industry	13.0 (-2.3)	13.8 (6.0)	12.6 (-8.4)	9.9 (-28.8)	9.9 (-29.3)	11.4 (-21.4)	14.4 (14.2)	15.6 (57.0)	18.2 (84.2)	21.3 (86.5)
Heat(won/Mcal)										
Residential	64.5 (-2.7)	65.7 (1.8)	66.2 (0.7)	65.2 (-2.8)	65.2 (-2.8)	65.2 (-2.8)	65.2 (-1.4)	65.2 -	65.2 -	65.2 -
Commercial	83.8 (-2.7)	85.3 (1.8)	85.9 (0.7)	84.7 (-2.8)	84.7 (-2.8)	84.7 (-2.8)	84.7 (-1.4)	84.7 -	84.7 -	84.7 -
Public	73.2 (-2.7)	74.5 (1.9)	75.1 (0.7)	74.0 (-2.9)	74.0 (-2.9)	74.0 (-2.9)	74.0 (-1.4)	74.0 -	74.0 -	74.0 -
Electricity(won/kWh)										
Residential	147.3 -	147.3 -	147.3 -	147.3 -	147.3 -	147.3 -	142.3 (-3.4)	142.3 (-3.4)	142.3 (-3.4)	142.3 (-3.4)
General	84.4 -	84.4 -	84.4 -	65.2 -	92.3 -	92.3 -	79.4 (-5.9)	60.2 (-7.7)	87.3 (-5.4)	87.3 (-5.4)
Industry	96.0 -	96.0 -	96.0 -	78.5 -	108.5 -	108.5 -	91.0 (-5.2)	73.5 (-6.4)	103.5 (-4.6)	103.5 (-4.6)

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

2.Electricity prices are based on Residential(High-voltage, 201~400kWh), General((A) 1, Low-voltage), Industry((B), High-voltageB, option II mid-load)

Source: www.petronet.co.kr, www.seoulgas.co.kr, cyber.kepco.co.kr

Total Primary Energy Supply (TPES)

	2018	2019	2020				2021p			
				M10	M11	M12		M10	M11	M12
Coal (Mton)	141.1	133.0	116.6	9.0	8.9	10.0	116.8	9.1	9.8	10.5
	12.1	- 67.8	- 146.2	- 22.3	- 18.3	- 8.1	3.0	1.2	10.1	4.4
- Coking coal excluded	106.4	98.0	82.8	6.0	6.1	7.0	81.5	6.3	6.9	7.4
	35.7	- 93.5	- 181.5	- 30.1	- 23.8	- 12.3	- 17.8	4.2	14.0	6.0
Oil (Mbbbl)	931.8	927.1	872.4	69.6	70.8	75.5	931.9	78.2	76.9	88.2
	- 5.6	- 6.4	- 68.3	- 8.1	- 10.7	- 11.3	84.2	12.4	8.5	16.8
- Non-energy oil excluded	445.5	451.8	423.6	34.7	39.3	37.4	429.3	34.9	35.1	42.0
	4.9	16.5	- 67.5	- 10.0	- 0.5	- 12.8	18.3	0.4	- 10.7	12.4
LNG (Mton)	42.3	41.0	42.1	3.1	3.8	5.4	45.8	3.3	3.9	5.1
	225.1	- 35.8	30.4	12.9	3.2	8.5	129.4	5.5	2.9	- 6.9
Hydro (TWh)	7.3	6.2	7.1	0.5	0.4	0.5	6.7	0.5	0.4	0.5
	67.2	- 132.1	159.4	- 13.2	- 5.9	- 0.7	- 10.3	6.9	1.9	4.5
Nuclear (TWh)	133.5	145.9	160.2	13.5	14.0	15.1	158.0	13.5	13.6	16.5
	- 109.2	141.5	129.6	27.1	37.4	36.2	- 1.5	- 0.0	- 3.4	9.8
Others (Mtoe)	17.1	17.7	19.0	1.6	1.6	1.7	20.1	1.6	1.5	1.7
	96.8	40.1	90.3	12.6	12.9	13.3	71.0	- 4.2	- 2.4	0.7
TPES (Mtoe)	307.6	303.1	292.1	23.1	24.3	27.9	305.2	24.4	25.5	29.6
	22.3	- 17.3	- 42.9	- 4.2	- 4.1	- 0.3	54.1	5.6	5.0	6.0
- Non-energy oil excluded	247.1	244.0	236.1	18.7	20.3	23.1	242.3	19.0	20.2	23.8
	32.1	- 14.7	- 37.7	- 4.0	- 0.2	1.7	31.4	1.3	- 0.3	3.0
- Non-energy oil&coal excluded	223.0	219.6	212.5	16.6	18.3	21.0	217.7	17.0	18.2	21.7
	42.3	- 17.6	- 37.1	- 4.5	0.2	1.6	28.6	2.1	- 0.5	3.2

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

Share of TPES by Sources

(unit: %)

	2018	2019	2020				2021p			
				M10	M11	M12		M10	M11	M12
Coal	28.2	27.1	24.7	24.4	22.9	22.3	23.8	23.2	23.8	22.0
- Coking coal excluded	20.3	19.1	16.7	15.4	14.7	14.7	15.7	15.1	15.9	14.8
Oil	38.5	38.7	37.7	38.1	37.3	34.5	38.6	40.6	38.3	37.8
- non-energy oil excluded	18.9	19.2	18.6	19.2	20.9	17.4	18.0	18.3	17.6	18.2
LNG	18.0	17.7	18.8	17.6	20.7	25.4	19.6	17.6	20.2	22.3
Hydro	0.5	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4
Nuclear	9.2	10.3	11.7	12.4	12.3	11.5	11.0	11.8	11.3	11.9
Others	5.6	5.8	6.5	7.1	6.5	5.9	6.6	6.4	6.0	5.6
TPES	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: Monthly energy statistics

Total Final Consumption (TFC)

(unit: Mtoe)

	2018	2019	2020				2021p			
				M10	M11	M12		M10	M11	M12
Industry	143.5 (0.8)	142.9 (-5.0)	138.0 (-41.2)	11.2 (-3.6)	10.9 (-9.7)	12.3 (-3.1)	148.0 (88.3)	12.3 (9.6)	12.3 (13.1)	13.3 (8.1)
Transport	43.0 (0.4)	43.0 (2.3)	39.4 (-90.0)	3.2 (-11.9)	3.6 (1.0)	3.3 (-12.3)	39.8 (14.0)	3.2 (-0.5)	3.3 (-10.0)	3.8 (14.9)
Residential	23.5 (4.5)	22.6 (-33.5)	23.2 (51.1)	1.4 (10.7)	2.1 (4.1)	3.3 (10.4)	23.7 (19.3)	1.4 (-0.2)	2.1 (-0.2)	3.2 (-2.3)
commercial	17.9 (2.8)	17.5 (-22.4)	16.7 (-50.5)	1.1 (-6.9)	1.3 (-1.1)	1.7 (-1.9)	17.6 (64.3)	1.3 (10.6)	1.4 (3.7)	1.7 (4.0)
Public	5.6 (2.0)	5.4 (-35.0)	5.3 (-28.5)	0.4 (-2.7)	0.4 (-0.5)	0.5 (0.2)	5.5 (59.0)	0.4 (5.7)	0.4 (2.2)	0.6 (12.1)
TFC	233.4 (1.2)	231.4 (-10.8)	222.6 (-44.7)	17.4 (-4.5)	18.4 (-5.5)	21.0 (-2.7)	234.6 (65.9)	18.6 (7.0)	19.5 (6.1)	22.6 (7.3)
Coal (Mton)	49.3 (-2.0)	48.2 (-25.1)	45.8 (-57.5)	4.0 (-5.3)	3.8 (-6.6)	4.4 (6.4)	47.8 (56.0)	3.9 (-1.3)	4.2 (10.1)	4.1 (-5.2)
Oil (Mbbl)	920.0 (-0.6)	918.5 (-2.2)	865.8 (-66.4)	69.2 (-8.1)	69.9 (-11.3)	74.6 (-11.3)	923.2 (82.2)	77.6 (12.1)	76.1 (8.9)	86.9 (16.5)
Electricity (TWh)	526.1 (3.6)	520.5 (-12.0)	509.3 (-25.6)	39.1 (-3.8)	41.1 (0.1)	45.0 (0.7)	533.4 (57.5)	41.8 (7.1)	42.8 (4.1)	47.3 (4.9)
City gas (Bm³)	24.3 (8.4)	23.3 (-42.7)	22.4 (-47.0)	1.4 (3.2)	2.0 (0.9)	3.0 (7.0)	23.6 (59.7)	1.4 (2.9)	2.1 (5.2)	3.0 (-0.7)
Heat-others (1 000 toe)	11.8 (6.7)	11.6 (-23.2)	12.3 (76.1)	0.9 (10.7)	1.0 (6.8)	1.3 (11.3)	12.5 (23.2)	0.9 (-4.3)	1.0 (-2.2)	1.3 (-3.4)

Note: p means provisional, () is year-on-year growth rates (%)
Source: Monthly energy statistics

Share of the Total Final Consumption by Sources

(unit: %)

	2018	2019	2020				2021p			
				M10	M11	M12		M10	M11	M12
Industry	61.5	61.8	62.0	64.7	59.1	58.4	63.1	66.3	63.1	58.8
Transport	18.4	18.6	17.7	18.4	19.8	15.6	17.0	17.1	16.8	16.7
Residential	10.1	9.8	10.4	8.2	11.4	15.5	10.1	7.6	10.8	14.1
commercial	7.7	7.6	7.5	6.6	7.3	8.0	7.5	6.8	7.1	7.7
Public	2.4	2.3	2.4	2.2	2.3	2.4	2.4	2.2	2.2	2.5
Final energy	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Coal	13.9	13.9	13.7	15.2	13.8	13.6	13.6	13.9	14.0	12.2
Oil	50.1	50.2	49.1	50.3	48.5	45.2	49.7	52.8	49.4	48.9
Electricity	19.4	19.3	19.7	19.3	19.2	18.4	19.6	19.3	18.9	18.0
City gas	11.6	11.6	12.0	10.1	12.9	16.5	11.8	9.4	12.5	15.3
Heat-others	5.1	5.0	5.5	5.1	5.7	6.3	5.3	4.6	5.2	5.7

Note: p means provisional
Source: Monthly energy statistics

Statistics on Energy Production Facilities

	2018	2019	2020	2021			2021		
				M10	M11	M12	M10	M11	M12
Total capacity (GW)	119.1 (1.9)	125.3 (5.2)	129.2 (3.1)	128.2 (3.4)	128.6 (3.4)	129.2 (3.1)	133.5 (4.1)	133.9 (4.1)	134.0 (3.7)
Nuclear	21.9 (-3.0)	23.3 (6.4)	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -	23.3 -
Bituminous coal	36.4 (0.7)	36.4 (0.1)	36.5 (0.1)	36.5 (0.1)	36.5 (0.1)	36.5 (0.1)	37.4 (2.7)	37.4 (2.7)	36.9 (1.3)
Gas	37.9 (-0.0)	39.6 (4.5)	41.2 (4.1)	41.2 (5.1)	41.2 (4.1)	41.2 (4.1)	41.2 -	41.2 -	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 -	3.2 -

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

Source: The monthly report on major electric power statistics, Monthly energy statistics

Statistics on Energy Consumption

	2018	2019	2020	2021			2021		
				M10	M11	M12	M10	M11	M12
The number of household demanding city gas (mil)	19.1 (3.1)	19.7 (2.8)	20.1 (2.3)	19.9 (2.5)	20.0 (2.5)	20.1 (2.3)	20.3 (2.0)	20.4 (2.0)	20.5 (2.0)
Registered cars (mil)	23.2 (3.0)	23.7 (2.0)	24.4 (2.9)	24.3 (2.8)	24.3 (2.9)	24.4 (2.9)	24.8 (2.3)	24.9 (2.2)	24.9 (2.2)
- gasoline	10.6 (2.5)	11.0 (3.1)	11.4 (4.1)	11.3 (4.1)	11.4 (4.1)	11.4 (4.1)	11.7 (3.2)	11.7 (3.1)	11.8 (3.1)
- diesel	9.9 (3.7)	10.0 (0.3)	10.0 (0.3)	10.0 (0.2)	10.0 (0.4)	10.0 (0.3)	9.9 (-1.0)	9.9 (-1.2)	9.9 (-1.2)
- LPG	2.0 (-3.3)	2.0 (-1.5)	2.0 (-1.3)	2.0 (-0.9)	2.0 (-1.1)	2.0 (-1.3)	2.0 (-1.9)	1.9 (-1.8)	1.9 (-1.7)
- hybrid	0.4 (30.9)	0.5 (26.1)	0.6 (33.1)	0.6 (29.9)	0.6 (32.0)	0.6 (33.1)	0.8 (36.9)	0.9 (35.4)	0.9 (34.0)

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

Source: Monthly energy statistics