

KEEI MONTHLY KOREA ENERGY TRENDS



COAL 10.1%
PETROLEUM 8.5%
LNG 2.9%
NUCLEAR -3.4%
NEW & RENEWABLE -2.8%
NOVEMBER. 2021

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



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1. The Economy and the Industry

- **The mining & manufacturing index in November rose by 6.3% year-on-year as the drop in automobile production slowed down and the industrial sector took a turn for the better**
 - With the demand for contactless activities being steady, the semiconductor production index significantly soared by 33.9% year-on-year thanks to a rise in emerging demands for semiconductors used for AI / autonomous driving vehicle / big data / latest smartphone model and other fields
 - The basic chemical material production index stepped up by 14.6% YoY as the demands for synthetic resin and rubber increased, resulting from rising demands for semi durable and nondurable goods
 - Steel production went up thanks to the upswing in major demand industries such as construction and shipbuilding. As a result, the steel production index grew by 3.0% year-on-year
 - Automobile production index dropped by 3.9% because of the supply chain disruption in automobile semiconductor. However, the reduction in output slowed down thanks to some major plants' efforts.

- **The service production index increased by 5.4% year-on-year as production activities picked up with the nation entering into the first phase of Gradual Return to Normal**
 - From the November 1st, the first phase of Return to Normal began to ease the private gathering limit and business hours, leading to the increase of food & accommodation production index by 14.3% YoY
 - Transport production index for road / marine / air transportation jumped up by 9.9% compared to a year earlier. The production index for the wholesale & retail industry grew by 4.0% year-on-year as the production of wholesale and retail sectors (except automobile sales and parts distributors) increased

► Major economic and industrial indicators

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
GDP (trillion won)	1 836.9 (-0.9)	1 352.8 (-0.8)	- -	1 406.4 (4.0)	477.6 (4.0)	- -	- -
Total export (\$billion, customs clearance basis)	512.5 (-5.5)	461.2 (-7.1)	45.8 (3.9)	583.7 (26.6)	55.9 (16.9)	55.7 (24.2)	60.3 (31.9)
Industrial production index (2015=100)	106.3 (-0.3)	105.3 (-0.6)	111.5 (0.1)	112.6 (7.0)	110.0 (-1.9)	113.9 (4.5)	118.5 (6.3)
Semi-conductors	230.6 (22.6)	226.7 (23.2)	247.2 (7.9)	293.6 (29.5)	330.5 (30.6)	330.0 (37.7)	330.9 (33.9)
Basic chemical products	102.3 (-6.0)	102.1 (-5.8)	88.4 (-15.0)	108.7 (6.5)	112.6 (8.0)	106.3 (4.0)	101.3 (14.6)
Iron&Steel	92.1 (-6.3)	91.5 (-6.9)	95.9 (-1.3)	97.6 (6.6)	95.5 (2.7)	97.2 (2.4)	98.8 (3.0)
Cars	84.1 (-9.9)	83.6 (-10.3)	95.4 (0.2)	87.2 (4.3)	73.7 (-24.2)	82.7 (-13.3)	91.7 (-3.9)
Service production index (2015=100)	106.2 (-2.0)	105.3 (-2.0)	108.8 (-1.4)	109.7 (4.2)	110.5 (3.4)	111.7 (5.0)	114.7 (5.4)
Wholesale & Retail	101.9 (-2.6)	101.3 (-2.7)	106.0 (-2.5)	105.4 (4.0)	106.2 (0.3)	108.3 (4.1)	110.2 (4.0)
Restaurant & Accommodation	79.5 (-18.5)	80.7 (-16.3)	80.7 (-17.1)	79.6 (-1.4)	80.5 (11.3)	89.6 (7.4)	92.2 (14.3)

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

Source: Korea International Trade Association, Korea Statistical Information Service

2. Energy Prices¹

Global Energy Prices

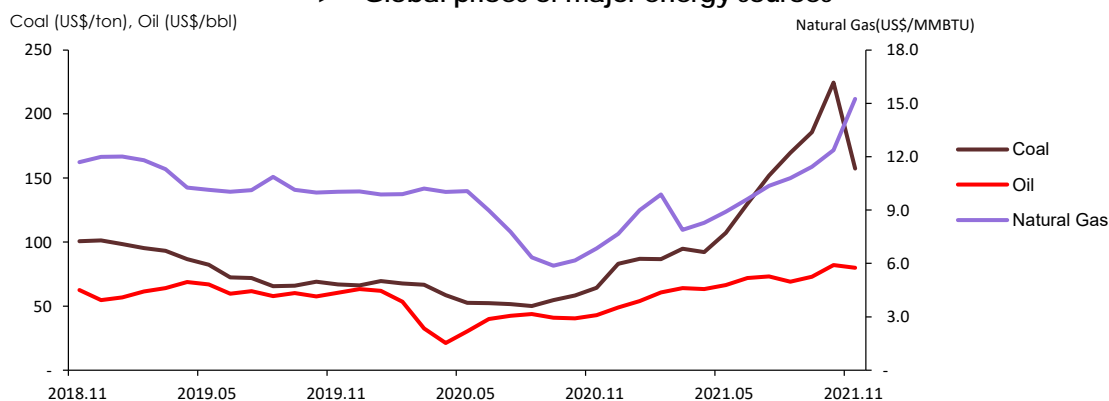
- In November, the average global oil price posted a year-on-year decline due to several factors including major countries' decision to release oil from their Strategic Petroleum Reserve and an emergence of new variants of COVID-19 virus
 - Six major countries including the U.S., China and Korea decided to release oil from their Strategic Petroleum Reserve in response to a surge in oil prices. Meanwhile, many expressed concerns about a possible slow-down in the oil demand as a new variant of Coronavirus, named Omicron, had been reported. And there was a possibility that the 2015 Iran nuclear deal, known as Joint Comprehensive Plan of Action (JCPOA), could be revived. As a result, the global oil price experienced a drop
 - As for the natural gas prices, the European natural gas futures (HH, NBP) posted a month-on-month drop on the back of Russia's pledge to expand its gas supply to Europe. However, the prices for Asian countries continued to rise, making the natural gas price skyrocket by 23.2% month-on-month
 - The Australian coal price showed a free fall of 29.9% on the MoM basis as China rapidly increased its coal production to overcome power shortages, mitigating the instability of supply and demand of coal

► Global energy prices

	2019	2020			2021			
			M9	M10	M11	M9	M10	M11
Crude oil (US\$/bbl)	61.6	41.6	41.0	40.6	42.9	73.0	82.2	79.9
	(-10.2)	(-32.4)	(-31.8)	(-29.6)	(-29.2)	(78.1)	(102.5)	(86.3)
Natural gas (US\$/MMBTU)	10.6	8.3	5.9	6.2	6.9	11.4	12.4	15.3
	(-1.1)	(-21.3)	(-42.0)	(-38.1)	(-31.7)	(94.4)	(100.3)	(122.5)
Coal (US\$/ton)	77.8	60.8	54.6	58.4	64.4	185.7	224.5	157.5
	(-27.3)	(-21.9)	(-17.2)	(-15.6)	(-3.9)	(240.1)	(284.4)	(144.5)

Note: Global oil price is the average of the three benchmarks; Brent, Dubai, WTI, Natural gas and coal prices are based on Japan's LNG importing price from Indonesia (CIF) and the price of Australian coal. () is year-on-year growth rates (%)
 Source: www.petronet.co.kr, World Bank(Commodity Markets)

► 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

- **Although the fuel taxes were marked down, the prices for gasoline and diesel in November increased by 1.5% and 2.7% respectively month-on-month due to a growth in global prices**
 - Upon a 20% reduction of the fuel taxes starting from November 12, the fuel taxes for gasoline and diesel dropped by KRW 164.1/L and KRW 116.32/L, respectively. Despite the markdown, the gas station average prices posted a month-on-month increase on the back of a surge in global oil price
 - With the global oil price surge, the price of heavy oil (Bunker-C oil) stepped up by 6.6% month-on-month, increasing for five consecutive months. In terms of the year-on-year basis, the price showed a whopping 66.8% growth

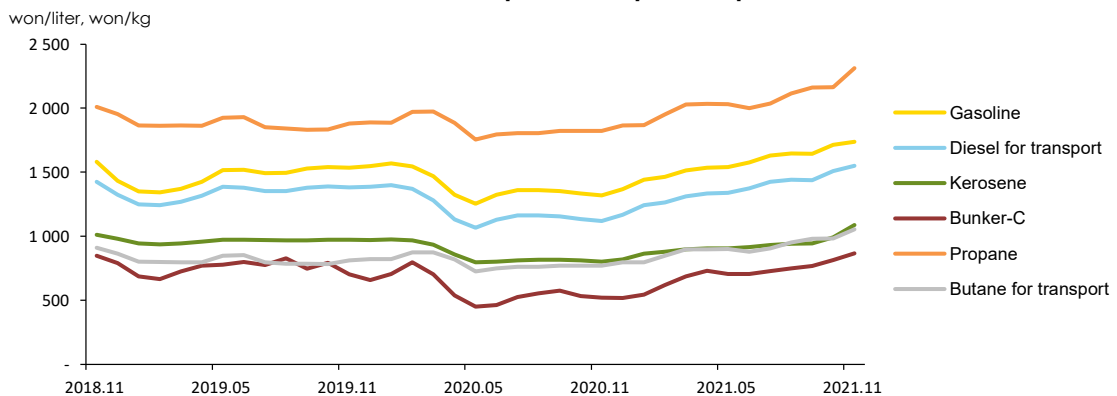
- **The prices for propane and butane in November rose by 6.9% and 7.4% respectively due to a markup of supply prices**
 - Saudi Aramco raised the global prices for propane and butane in October and in turn, LPG importers jacked up the supply prices by KRW 165/L

► Domestic petroleum product prices

	2019	2020			2021			
			M9	M10	M11	M9	M10	M11
Gasoline (won/liter)	1 472.6 (-6.9)	1 381.2 (-6.2)	1 352.5 (-11.6)	1 333.3 (-13.5)	1 319.6 (-14.1)	1 642.7 (21.5)	1 712.3 (28.4)	1 737.4 (31.7)
Diesel for transport (won/liter)	1 340.6 (-3.7)	1 189.5 (-11.3)	1 154.5 (-16.3)	1 134.0 (-18.3)	1 119.6 (-18.9)	1 437.2 (24.5)	1 509.3 (33.1)	1 549.7 (38.4)
Bunker-C (won/liter)	744.5 (1.3)	572.9 (-23.0)	575.2 (-23.0)	533.0 (-32.7)	520.0 (-26.1)	768.2 (33.6)	813.4 (52.6)	867.4 (66.8)
Propane (won/kg)	1 869.6 (-2.6)	1 850.3 (-1.0)	1 821.0 (-0.6)	1 822.1 (-0.6)	1 822.2 (-3.0)	2 160.1 (18.6)	2 163.4 (18.7)	2 312.3 (26.9)
Butane for transport (won/liter)	806.3 (-7.8)	790.8 (-1.9)	771.5 (-1.7)	771.4 (-1.6)	770.6 (-4.9)	980.5 (27.1)	981.2 (27.2)	1 053.8 (36.7)

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



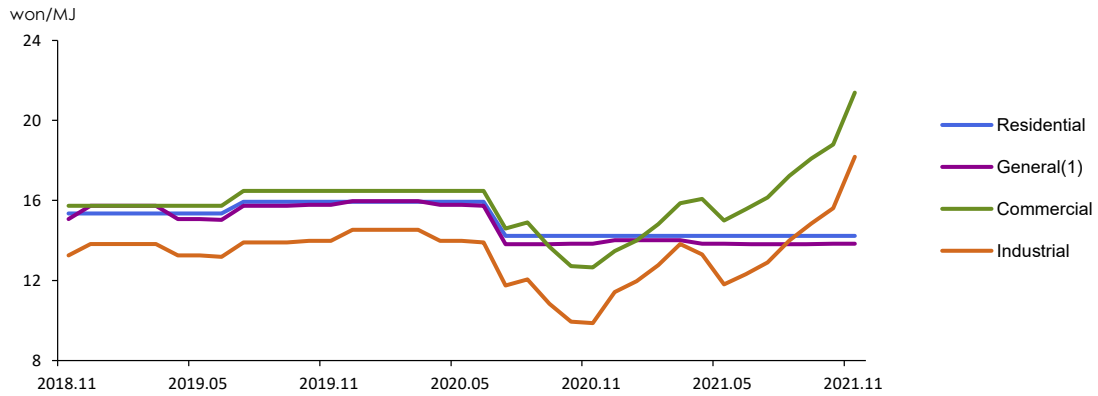
□ **In November, the city gas rates for commercial and industrial uses were marked up by 13.7% and 16.5% respectively on the month-on-month basis**

- The rates for commercial and industrial city gas uses, adjusted every month under Fuel Adjustment Mechanism (FAM), were raised significantly month-on-month due to a global LNG price rise and a resulting increase in wholesale prices. In contrast, the rates for residential and general uses, which respond to civilian demands, were frozen for 17 months in a row

□ **Electricity rates for November were kept the same after Fuel Expenses Adjustment Fee was raised by KRW 3/kWh in October**

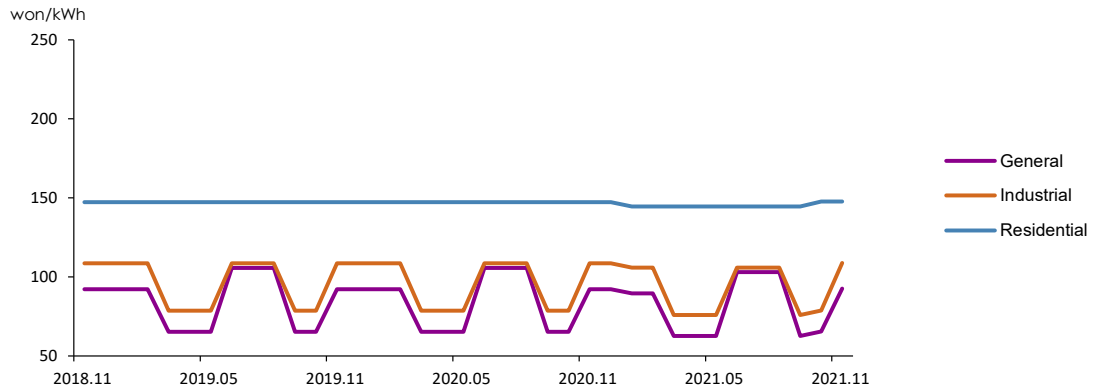
- For the first time since the FAM launched, Fuel Expenses Adjustment Fee went up in October, with the rates for each use increasing by KRW 3/kWh month-on-month

► **City gas prices by end-use sectors**



Source: Seoulgas

► **Electricity prices by end-use sectors**



Note: The electricity prices by end-use sectors refer to the prices for residential use ([high voltage], the 2nd stage price), general use ([A], low voltage) and Industrial use ([B], high voltage B middle load), including Climate Environmental Price

Source: KEPCO

3. Energy Supply

□ **The total energy import volume in November soared by 7.4% year-on-year as many major energy sources except bituminous coal showed a growth in imports**

- Due to a base effect of a plunge a year earlier (-25.3%) and a surge in the use of crude oil for refineries (6.0%), the total import volume of crude oil rose by 15.6% while the end-of-month stock declined
- Despite of a 4.5% decrease in LPG import, the total import volume of petroleum products soared by 32.7% year-on-year as Bunker-C oil and naphtha imports went up
- The bituminous coal consumption went up in the steel and power generation industries. However, the import volume of both coking coal and steam coal declined as the global coal price skyrocketed by 144.5%. As a result, the volume of bituminous coal import shrank by 5.8% year-on-year
- The gas use for power generation grew by 4.7% due to the increased electricity use (4.1%) while the gas use for producing city gas jumped by 5.3% due to increased heating degree days. As a result, the total import volume of gas rose by 7.4% year-on-year
- As global prices of major energy sources grew, the amount of energy imports (by CIF) soared by 151.1%

► **Import and domestic production of energy**

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Import volume							
Crude oil (Mbbbl)	980.3 (-8.6)	895.8 (-8.8)	69.5 (-25.3)	873.2 (-2.5)	78.6 (-1.5)	85.1 (3.6)	80.4 (15.6)
Petroleum product (Mbbbl)	347.4 (-1.4)	319.1 (0.9)	23.7 (-16.9)	354.5 (11.1)	34.9 (17.6)	34.0 (67.2)	31.5 (32.7)
Bituminous coal (Mton)	115.5 (-13.0)	105.3 (-13.1)	9.4 (-15.2)	98.9 (-6.0)	10.2 (-7.1)	7.8 (-17.7)	8.8 (-5.8)
Anthracite (Mton)	6.3 (-8.3)	5.5 (-12.0)	0.4 (0.4)	6.0 (9.1)	0.5 (-15.4)	0.5 (22.0)	0.7 (67.2)
LNG (Mton)	40.0 (-1.9)	35.7 (-0.7)	3.6 (-5.5)	42.1 (17.8)	3.7 (26.2)	3.9 (1.3)	3.8 (7.4)
Import volume (Mtoe)	325.4 (-6.8)	296.4 (-6.4)	26.1 (-10.6)	305.9 (3.2)	28.7 (7.9)	28.0 (7.7)	28.0 (7.4)
Import value (billion US\$, CIF)	86.6 (-31.7)	78.9 (-31.7)	5.8 (-43.8)	121.4 (53.9)	12.3 (88.9)	13.3 (111.8)	14.7 (151.1)
Energy share of total import value (%)	18.4	18.5	14.6	21.8	23.9	24.8	25.6
Foreign energy dependence (%)*	92.7	92.7	92.9	92.7	92.6	93.0	93.4
Domestic production							
Hydropower (TWh)	7.1 (14.4)	6.7 (15.7)	0.4 (-5.9)	6.2 (-6.5)	0.6 (-34.7)	0.5 (6.9)	0.4 (1.9)
Anthracite (Mton)	1.0 (-6.0)	0.9 (-5.7)	0.1 (-10.4)	0.8 (-12.4)	0.1 (-26.7)	0.1 (-3.8)	0.1 (-7.0)
Natural gas (Mton)	0.1 (-28.6)	0.1 (-27.8)	0.0 (-16.1)	0.0 (-69.1)	0.0 (241.7)	0.0 -	0.0 (-73.3)
Renewable energy (Mtoe)	19.0 (7.3)	17.3 (6.8)	1.6 (12.9)	18.4 (6.2)	1.6 (-1.7)	1.6 (-4.1)	1.5 (-2.8)

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 November, Total Primary Energy Supply (“TPES”) posted a year-on-year increase of 5.0% led by petroleum, coal and gas, although nuclear witnessed a drop**
 - The power generation sector posted a growth of more than 10% in coal consumption as a base effect from a plunge (-25.2%) a year earlier came to play and Goseong Unit 2 came online in October 30. Similarly, the industrial sector consumed more coal with converter steel production rising. As a result, the total coal use soared by 10.1% year-on-year
 - All sectors except the industrial sector showed a decline in petroleum use. However, the total petroleum consumption rose by 8.5% year-on-year as industrial petroleum use in the petrochemical sector rapidly grew, mainly driven by naphtha, thanks to an upturn in upstream industries and expansion of facilities
 - Industrial gas use stepped up as production by the industrial sector expanded. Also, the amount of gas used for power generation and buildings increased due to a growth in power consumption (4.1%) and a temperature effect. In turn, the total gas use grew by 2.9% year-on-year

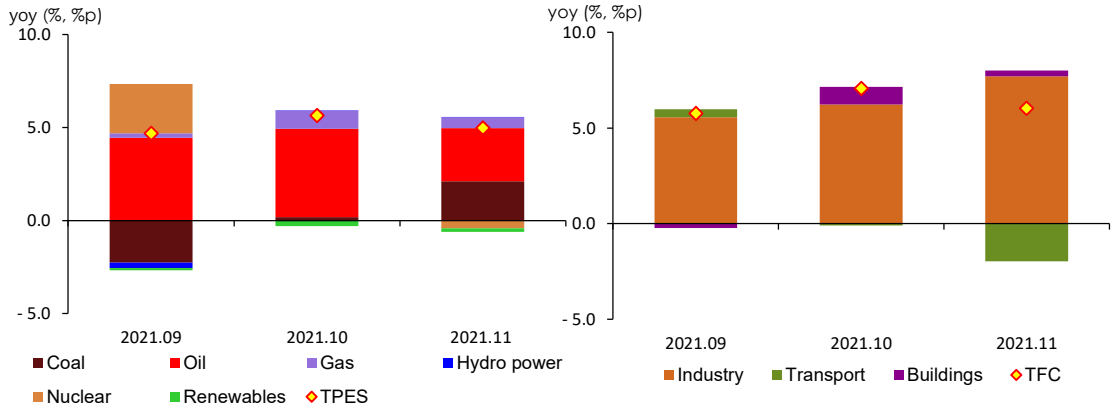
- **Despite of a decline in the transport sector, Total Final Consumption (“TFC”) jumped by 6.0% year-on-year driven by the industrial and building sectors**
 - With the number of working days increasing by one day, most industries except automobile makers showed increased production amidst the domestic and global economic recovery. As a result, industrial energy consumption rose rapidly by 13.0% year-on-year
 - Energy use in the transport sector fell by 10.0% with a year-on-year oil price spike of more than 30% and a base effect
 - Despite of an increase in heating degree days (1.5%), the energy use in the residential sector stayed at the last year’s level as petroleum consumption declined. However, the commercial sector showed an increase of nearly 4% thanks to a surge in service production index. As a result, the energy use in the building sector inched up by 1.4% year-on-year

► Energy consumption

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
TPES (Mtoe)	292.1	264.2	24.3	275.6	24.2	24.4	25.5
	(-3.6)	(-4.0)	(-4.1)	(4.3)	(4.7)	(5.6)	(5.0)
- Feedstock exclude	212.5	191.5	18.3	196.0	16.6	17.0	18.2
	(-3.2)	(-3.7)	(0.2)	(2.3)	(0.5)	(2.1)	(-0.6)
TFC (Mtoe)	222.6	201.5	18.4	212.1	18.8	18.6	19.5
	(-3.8)	(-3.9)	(-5.5)	(5.2)	(5.8)	(7.1)	(6.0)

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

► The growth rates(%) and contribution(%p) of TPES & TFC by energy sources/end-use sectors



5. Coal

□ In November, coal use rose by 10.1% year-on-year as both the industrial and power generation sectors witnessed a rapid growth

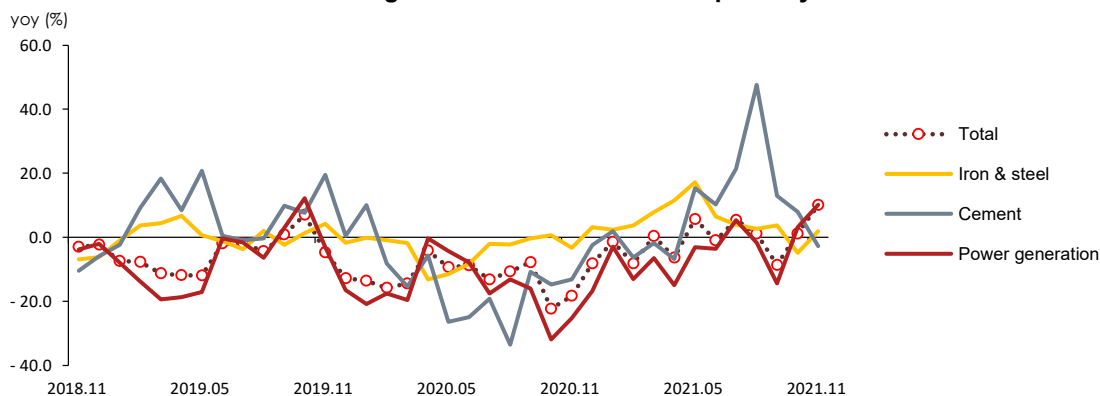
- Although the bituminous coal consumption in the cement production sector went down, the total industrial coal use soared by 10.3% year-on-year as the consumption of bituminous coal for steel manufacturing and industrial anthracite use grew up
- In the power generation sector, the capacity factor increased due to an early termination of the voluntary coal-fired generation reduction scheme as well as a base effect. In addition, Goseong Hai Unit 2 joined the generation pool on October 30. As a result, the coal use for power generation soared fast by more than 10% year-on-year

► Coal consumption

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Coal (Mton)	116.6	106.5	8.9	106.3	9.7	9.1	9.8
	(-12.4)	(-12.7)	(-18.3)	(-0.2)	(-8.6)	(1.2)	(10.1)
Industry	45.3	41.1	3.7	43.4	4.0	3.8	4.1
	(-4.7)	(-5.7)	(-5.5)	(5.6)	(1.1)	(-0.8)	(10.3)
-Coking-coal	33.8	30.8	2.8	32.3	3.0	2.8	2.9
	(-3.3)	(-3.9)	(-3.3)	(4.9)	(3.7)	(-4.9)	(1.9)
Buildings	0.5	0.4	0.1	0.4	0.0	0.1	0.1
	(-20.8)	(-24.9)	(-37.3)	(-12.8)	(-11.1)	(-18.9)	-
Power generation	70.7	65.1	5.1	62.6	5.7	5.2	5.6
	(-16.6)	(-16.6)	(-25.2)	(-3.8)	(-14.3)	(3.1)	(10.1)

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

► The growth rate of coal consumption by use



6. Petroleum

□ **Despite of a decrease in the transport and building sectors, the petroleum use in November rose by 8.5% year-on-year led by the industrial sector**

- The industrial sector experienced a huge year-on-year increase of 23.4% in its petroleum use as naphtha consumption massively rose due to new facilities and addition to existing ones
- Although the government made efforts to achieve 'Gradual Return to Normal', the petroleum use in the transport sector plunged by 10.3% year-on-year driven by a base effect from a rally in the petroleum demand last year
- Petroleum use in the building sector dropped by 9.6% year-on-year as kerosene consumption in the residential and commercial sectors fell by 22.0% and 20.2%, respectively

▶ **Petroleum product consumption by end-use sectors**

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Petroleum (Mbbbl)	872.4	796.8	70.8	843.7	79.3	78.2	76.9
	(-5.9)	(-5.4)	(-10.7)	(5.9)	(11.2)	(12.4)	(8.5)
Industry	543.9	498.3	39.7	542.6	52.1	51.3	49.0
	(-4.0)	(-3.1)	(-18.5)	(8.9)	(16.0)	(18.3)	(23.4)
-Naphtha	405.3	371.6	27.4	409.4	39.6	38.7	37.2
	(-7.6)	(-7.1)	(-24.7)	(10.2)	(18.5)	(25.0)	(35.9)
Transport	277.2	254.1	25.9	253.4	23.5	22.5	23.2
	(-8.6)	(-8.2)	(1.1)	(-0.3)	(2.7)	(0.1)	(-10.3)
Buildings	44.7	38.8	4.4	40.4	3.1	3.8	4.0
	(-8.9)	(-10.5)	(-3.8)	(3.9)	(8.6)	(13.9)	(-9.6)
Power generation	6.6	5.6	0.9	7.3	0.6	0.7	0.8
	(-23.2)	(-25.5)	(65.9)	(30.1)	(-12.4)	(47.1)	(-15.8)

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

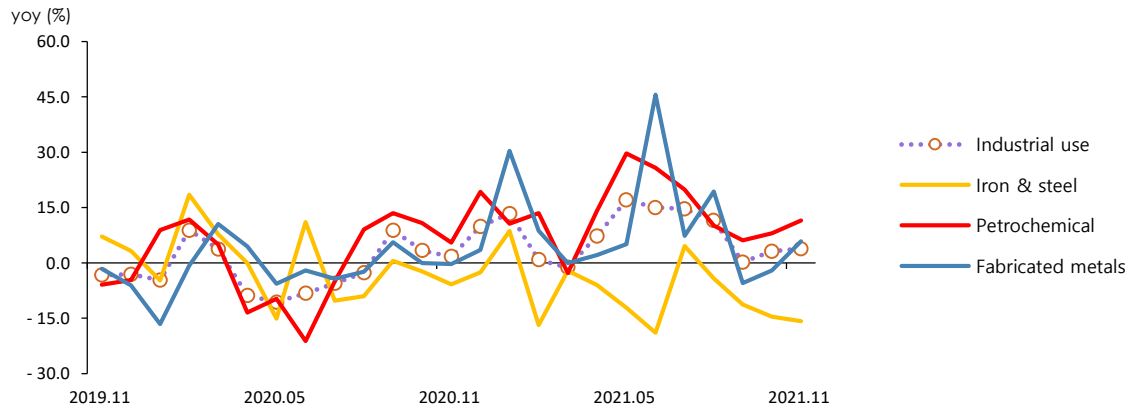
- **Gas use in November was up by 2.9% year-on-year as gas consumption in all of the power generation, final industrial and building sectors went up**
 - Led by an increase of more than 4% in power consumption, gas use in the power generation sector increased rapidly year-on-year. However, in terms of the month-on-month basis, the growth slowed down as the coal-fired generation surged due to introduction of new bituminous generation facilities
 - Gas use in the iron & steel sector decreased due to poor production in the automobile industry while the petrochemical and fabricated metal sectors posted a growth based on introduction and addition of petrochemical facilities as well as an upturn in semiconductor production and exports. As a result, the industrial gas consumption went up by nearly 4%
 - Both the commercial and residential building sectors showed an approximate 2% growth in gas consumption as heating degree days increased (1.5%) and the measures for Gradual Return to Normal being were carried out. In addition, gas replaced petroleum as a main fuel in these sectors with a surge in oil price. As a result, the total gas use in the building sector posted an increase

► Natural gas and city gas consumption

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
LNG (Mton)	42.1	36.7	3.8	40.7	2.9	3.3	3.9
	(2.7)	(1.9)	(3.2)	(11.0)	(1.5)	(5.5)	(2.9)
Power generation	18.6	16.5	1.6	19.7	1.6	1.6	1.7
	(3.7)	(3.7)	(2.6)	(19.5)	(1.8)	(9.8)	(4.7)
City gas production	18.2	15.5	1.8	16.6	0.9	1.3	1.9
	(-3.1)	(-5.0)	(-0.6)	(7.1)	(2.6)	(4.2)	(5.3)
Industry (Direct private importer)	2.8	2.5	0.2	2.4	0.2	0.2	0.2
	(23.8)	(24.7)	(18.9)	(-3.8)	(-8.5)	(-16.1)	(-12.7)
City gas (Bm³)	25.9	22.6	2.3	23.7	1.4	1.7	2.4
	(-0.6)	(-1.7)	(2.9)	(4.9)	(-1.3)	(0.5)	(2.8)
Industry (including directly imported)	11.1	9.9	1.0	10.7	0.9	0.9	1.0
	(-0.3)	(-1.4)	(1.7)	(7.4)	(0.2)	(3.1)	(3.9)
Buildings	13.8	11.7	1.2	12.1	0.4	0.7	1.3
	(0.0)	(-1.3)	(5.0)	(3.4)	(-3.8)	(-2.7)	(2.4)
Transport.	1.1	1.0	0.1	0.9	0.1	0.1	0.1
	(-9.6)	(-9.4)	(-10.4)	(-3.9)	(-4.2)	(-1.6)	(-2.4)

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

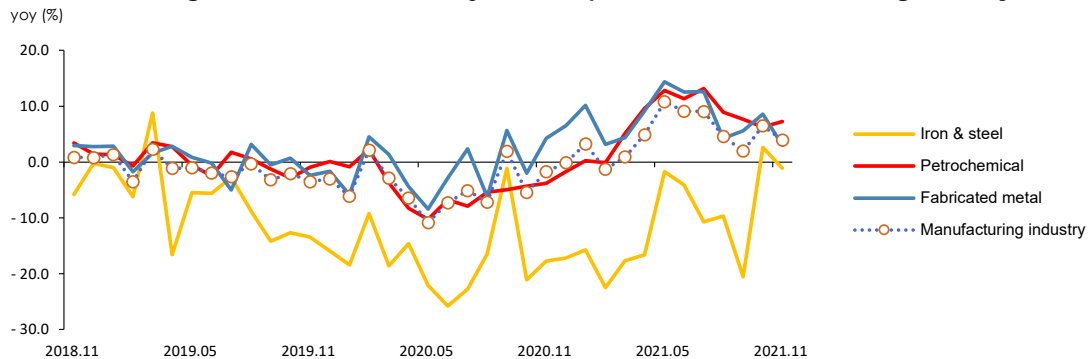
- In November, electricity use grew by 4.1% year-on-year as all sectors except transportation witnessed an increase in power consumption
 - Despite of a decline in the iron & steel sector, the industrial power use stepped up by 4.4% year-on-year driven by the fabricated metal and petrochemical sectors
 - Electricity use in the building sector increased by 3.8% year-on-year as both the residential and commercial & public sectors showed a growth

► Electricity consumption by end-use sectors

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Electricity (TWh)	509.3	464.2	41.1	486.2	44.8	41.8	42.8
	(-2.2)	(-2.4)	(0.1)	(4.7)	(-0.6)	(7.1)	(4.1)
Industry	268.7	245.0	22.4	257.6	23.7	23.0	23.4
	(-4.0)	(-4.4)	(-1.5)	(5.1)	(2.3)	(6.9)	(4.4)
Transport	3.2	2.8	0.3	2.8	0.3	0.2	0.2
	(8.4)	(6.3)	(17.4)	(0.0)	(-2.7)	(0.3)	(-3.1)
Buildings	237.4	216.4	18.5	225.8	20.8	18.6	19.2
	(-0.2)	(-0.2)	(1.9)	(4.3)	(-3.8)	(7.4)	(3.8)
Residential	74.1	67.9	5.8	71.3	6.9	5.9	6.0
	(5.1)	(5.0)	(5.5)	(5.1)	(-9.3)	(5.5)	(2.9)
Commercial	132.1	120.2	10.1	124.6	11.2	10.2	10.6
	(-2.3)	(-2.4)	(0.3)	(3.6)	(-0.4)	(9.1)	(4.5)

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

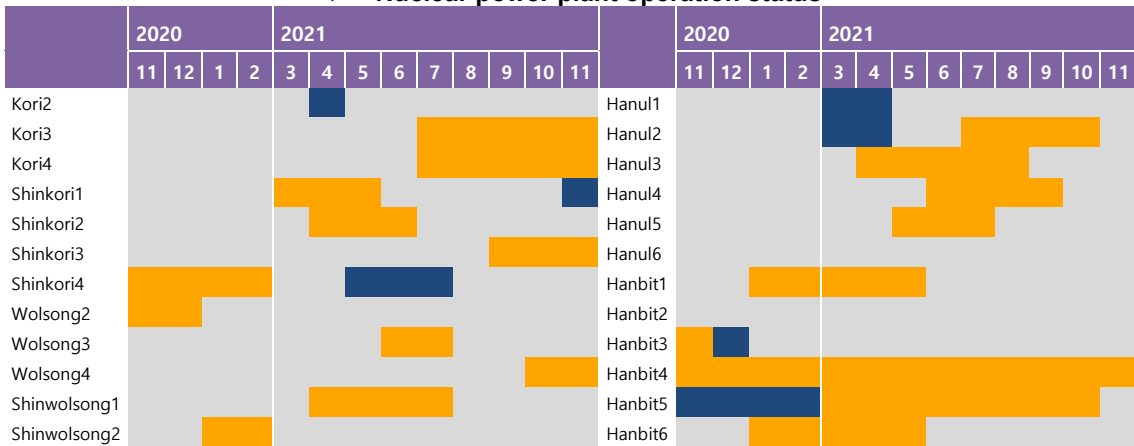
► The growth rate of electricity consumption in the manufacturing industry



9. Nuclear

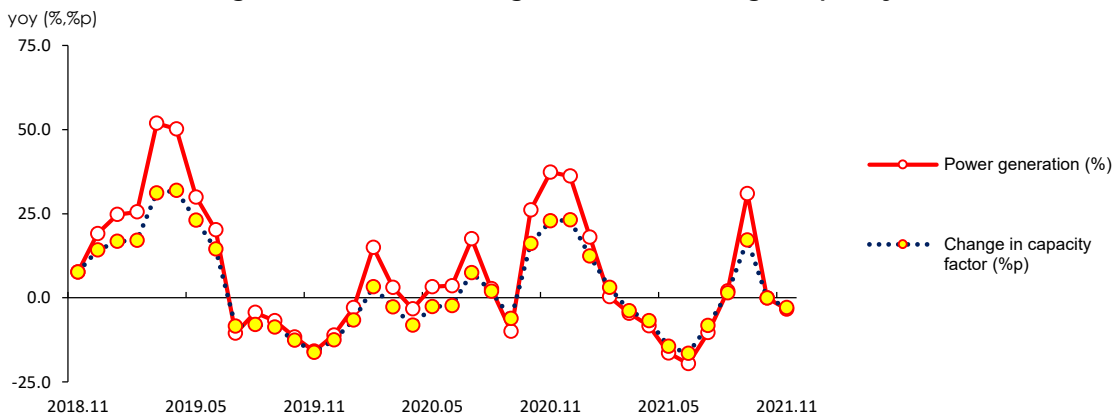
- In November, nuclear generation was down by 3.4% year-on-year as capacity factor went down with the increased number of units in planned preventive maintenance projects
 - The number of generation units in planned preventive maintenance projects decreased by one compared to the same month last year, and several units with relatively large capacity entered into preventive maintenance mode. In turn, the capacity factor of nuclear power fell by 2.9%p year-on-year
 - The share of nuclear in the total generation mix went down to an early 20% level in July 2021, however, it recovered fast to reach 30% in October and stayed the same in November

► Nuclear power plant 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

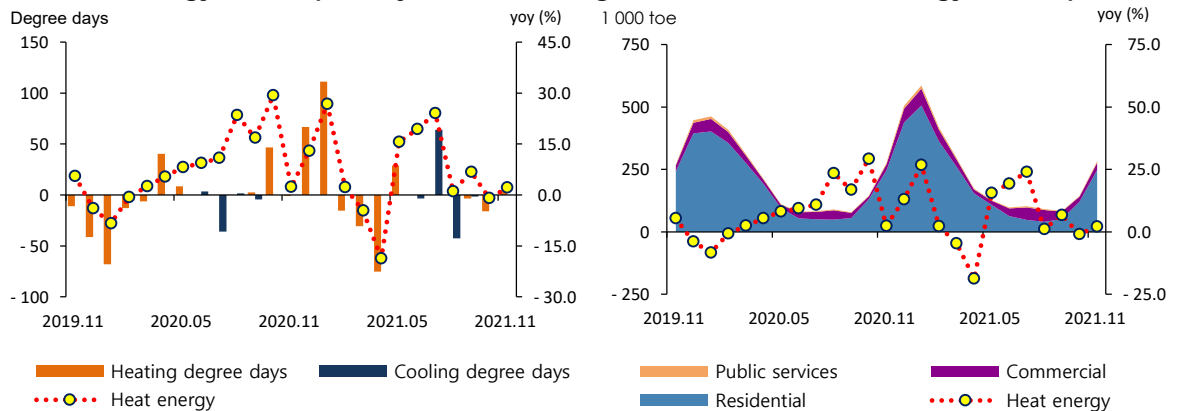
☐ Heat energy use in November grew by 2.1% year-on-year as all sectors showed an increase

- Energy use in the commercial & public sector rose by 11.4% as service production activities picked up (5.4%, by production index) upon the implementation of the first phase of Gradual Return to Normal as well as increased heating degree days. In addition, the residential sector posted an 1.0% increase in heat consumption. As a result, the total heat energy use went up by 2.1% year-on-year

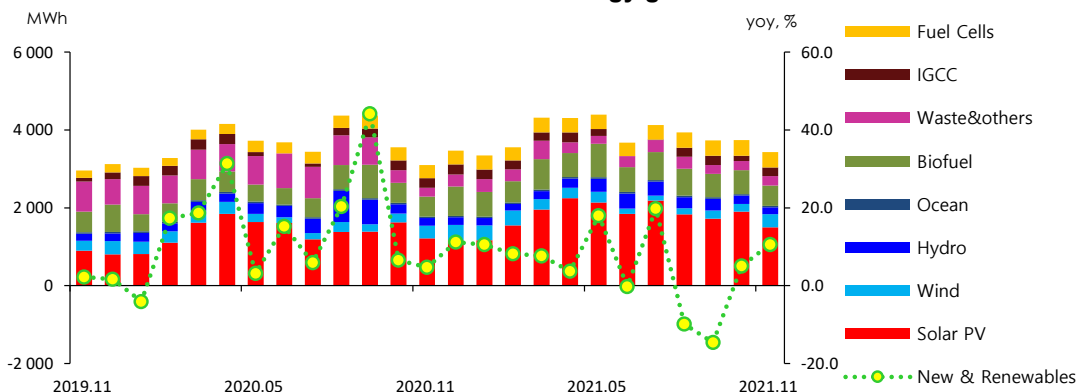
☐ Renewable and other energy power generation² rose by 10.6% year-on-year led by solar PV, fuel cell and wind

- Although hydro and IGCC generation declined, the total electricity generated from renewable & others went up by 5.1% year-on-year driven by increased generation facility capacity of solar PV, fuel cell and wind (28.0%, 20.8% and 5.3%, respectively)

► 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



² Installed capacity and power generation data for renewable energy sources is from Renewable & Other energy section of 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

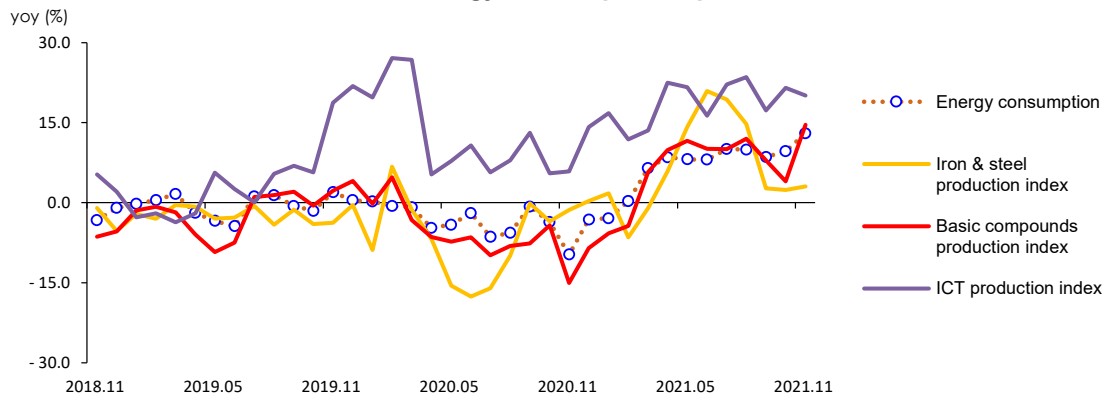
- **Industrial energy use in November soared by 13.0% year-on-year as production increased in all major industries except automobile**
 - Thanks to an increase in working days (one day) and an economic recovery in major countries, industrial energy consumption rapidly grew driven by petrochemical and fabricated metal industries

► Industrial energy consumption

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Industry (Mtoe)	138.0	125.7	10.9	134.7	12.5	12.3	12.3
	(-3.5)	(-3.5)	(-9.7)	(7.1)	(8.6)	(9.6)	(13.0)
Petrochemical	69.2	63.3	5.0	69.6	6.6	6.5	6.3
	(-4.0)	(-3.4)	(-17.5)	(9.9)	(15.5)	(17.6)	(26.5)
-Naphtha	49.7	45.6	3.4	50.2	4.9	4.7	4.6
	(-7.6)	(-7.1)	(-24.7)	(10.2)	(18.5)	(25.0)	(35.9)
Iron & Steel	28.2	25.7	2.4	26.3	2.4	2.3	2.4
	(-4.5)	(-5.0)	(-4.8)	(2.4)	(0.3)	(-5.2)	(0.1)
-Coking coal	23.6	21.4	2.0	22.5	2.1	2.0	2.0
	(-3.3)	(-3.9)	(-3.3)	(4.9)	(3.7)	(-4.9)	(1.9)
Fabricated metal	11.4	10.3	1.0	11.1	1.0	1.0	1.0
	(-0.5)	(-1.2)	(3.3)	(8.6)	(3.8)	(7.0)	(3.7)
Share of feedstock (%)	57.5	57.7	54.6	58.9	60.3	60.0	58.9

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

► Industrial energy consumption & production index



12. Transport

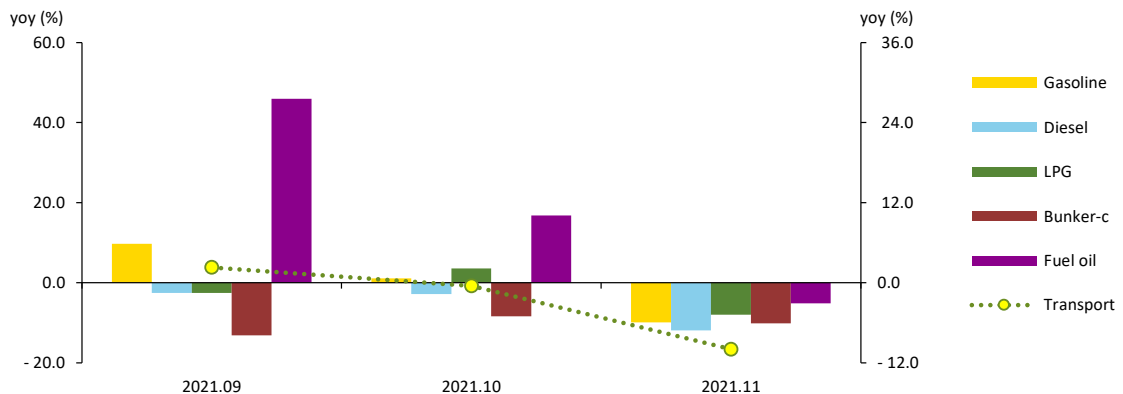
- **Despite of a growth in the marine transportation, the total energy use in the transport sector dropped by 10.0% year-on-year due to a decrease in the road and air transport sectors**
 - Energy use in the road transport sector decreased by 11.8% year-on-year due to a base effect from increased consumption last year and a mark-down of the fuel tax this year
 - Despite of a growth in travel demand, the energy use in the air transport sector went down by 5.2% driven by an increase in global aviation fuel
 - Energy use in the marine transport sector soared by 7.6% year-on-year as diesel consumption skyrocketed by 85% even in the face of a drop in heavy oil use

► The growth rate of petroleum consumption in the transport sector

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Transport (Mtoe)	39.44	36.15	3.65	36.01	3.34	3.18	3.28
	(-8.2)	(-7.9)	(1.0)	(-0.4)	(2.3)	(-0.5)	(-10.0)
Road	33.45	30.65	3.14	30.68	2.86	2.65	2.77
	(-4.6)	(-4.3)	(6.1)	(0.1)	(1.7)	(-2.8)	(-11.8)
Navigation	3.11	2.87	0.26	2.81	0.24	0.26	0.28
	(17.5)	(19.3)	(33.0)	(-1.9)	(-14.0)	(10.9)	(7.6)
Aviation	2.56	2.34	0.21	2.24	0.21	0.24	0.20
	(-48.1)	(-47.6)	(-49.3)	(-4.6)	(45.9)	(16.8)	(-5.2)
Rail	0.32	0.29	0.03	0.28	0.03	0.02	0.02
	(-7.5)	(-9.0)	(-5.5)	(-3.7)	(-7.1)	(3.1)	(-6.1)

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

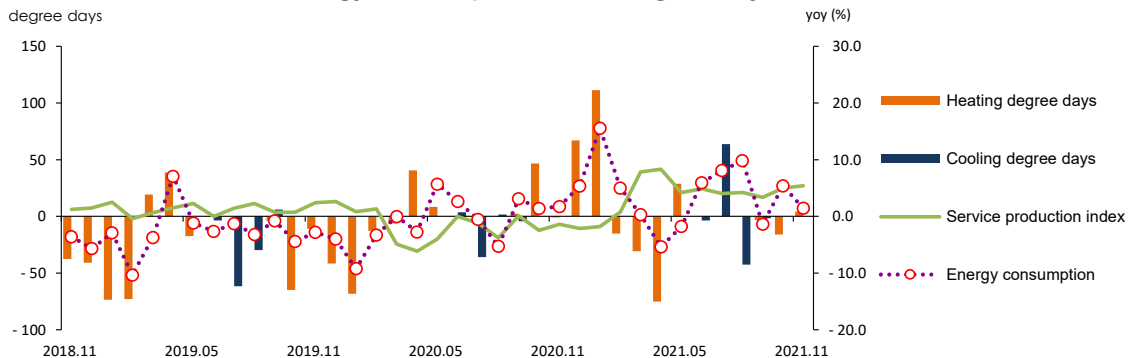
- **Energy use in the building sector in November inched up by 1.4% year-on-year as major energy sources except petroleum showed a growth with an increase in heating degree days**
 - Based on increased heating degree days and a growth in service production activities, electricity, city gas and heat energy consumption went up in the building sector. However, the growth was limited as petroleum consumption declined due to a rapid surge in oil price
 - Due to increased heating degree days, city gas, electricity and heat energy consumption went up in the residential sector. However, the total energy used in the sector inched down by 0.2% year-on-year as petroleum use plunged by 15.6% due to a rapid surge in oil price
 - With the first phase of Gradual Return to Normal being carried out, the restrictions on publicly used facilities were eased to boost production activities in the food & accommodation as well as wholesale & retail industries (14.3% and 4.0% in production index, respectively). Consequently, the energy use in the commercial & public buildings stepped up by 3.3% year-on-year

► Energy consumption in buildings

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Buildings (Mtoe)	45.2	39.7	3.9	41.4	2.9	3.1	3.9
	(-0.7)	(-1.5)	(1.7)	(4.3)	(-1.4)	(5.4)	(1.4)
Residential	23.2	19.9	2.1	20.5	1.1	1.4	2.1
	(2.6)	(1.4)	(4.1)	(3.0)	(-5.6)	(-0.2)	(-0.2)
Commercial	16.7	15.0	1.3	15.9	1.3	1.3	1.4
	(-4.3)	(-4.6)	(-1.1)	(6.1)	(3.3)	(12.3)	(3.7)
Public-others	5.3	4.7	0.4	4.9	0.4	0.4	0.4
	(-2.6)	(-2.8)	(-0.5)	(4.4)	(-3.5)	(5.9)	(2.3)
Heating degree days	2 448.0	1 900.4	286.3	1 904.3	-	121.4	290.6
	(3.3)	(0.5)	(-0.3)	(0.2)	(-100.0)	(-11.6)	(1.5)
Cooling degree days	85.2	85.2	-	101.3	-	-	-
	(-29.2)	(-29.2)	-	(18.9)	(-100.0)	-	-

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

► Energy consumption in buildings & major indicators



14. Transformation

- The total power generation in November rose by 4.3% year-on-year with electricity consumption increasing. On the same note, fuel consumption for power generation climbed up by 3.0%
 - With the total generation increasing by more than 4%, the growth in gas generation massively slowed down due to a surge in global natural gas price while coal-fired generation rapidly grew, stepping in for part of reduction of gas generation

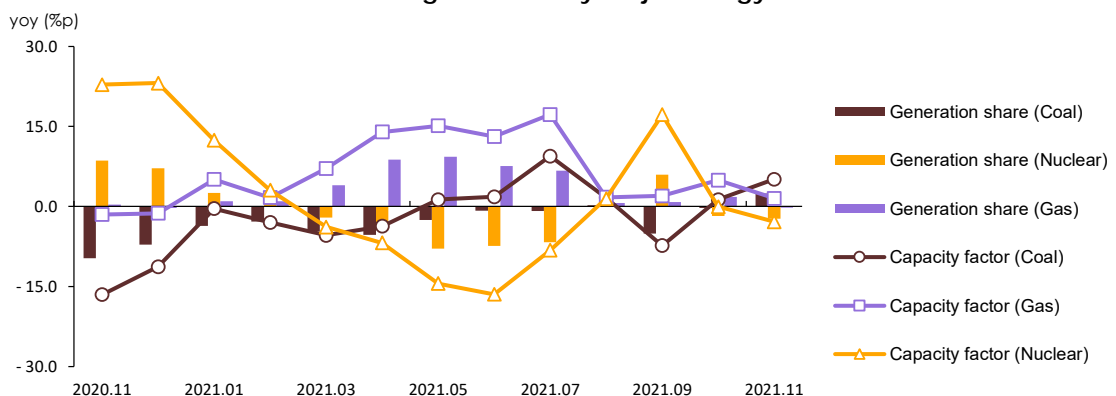
► Electricity generation in the power generation sector

	2020			2021p			
		M1~11	M11	M1~11	M9	M10	M11
Electricity Generation (TWh)	552.2	500.6	44.9	522.8	45.4	45.8	46.9
	(-1.9)	(-2.4)	(-0.5)	(4.4)	(1.8)	(6.1)	(4.3)
Coal	196.3	180.5	14.4	178.0	16.4	15.0	16.2
	(-13.7)	(-13.4)	(-23.6)	(-1.4)	(-10.7)	(5.2)	(12.3)
Oil	2.3	1.9	0.4	3.3	0.3	0.2	0.2
	(-31.5)	(-31.5)	(137.6)	(70.5)	(-22.2)	(117.8)	(-42.3)
Gas	145.9	129.3	12.7	154.0	12.6	13.0	13.2
	(1.1)	(1.0)	(0.7)	(19.1)	(4.9)	(13.1)	(3.6)
Nuclear	160.2	145.1	14.0	141.5	12.2	13.5	13.6
	(9.8)	(7.6)	(37.4)	(-2.5)	(31.0)	(-0.0)	(-3.4)
Hydro/other renewables	40.4	37.0	3.1	42.5	3.8	3.7	3.4
	(3.1)	(1.7)	(24.1)	(14.8)	(-11.4)	(7.5)	(9.5)
Baseload	356.5	325.6	28.5	319.5	28.5	28.5	29.8
	(-4.5)	(-5.1)	(-2.2)	(-1.9)	(3.3)	(2.7)	(4.5)

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

	2019	2020					2021				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11	
GDP (trillion won)	1 852.7 (2.2)	1 836.9 (-0.9)	1 352.8 (-0.8)	459.3 (-1.0)	- -	- -	1 406.4 (4.0)	477.6 (4.0)	- -	- -	
Private consumption	894.1 (2.1)	849.1 (-5.0)	634.7 (-4.5)	213.6 -	- -	- -	651.9 (2.7)	220.5 -	- -	- -	
Facilities investment	155.3 (-6.6)	166.3 (7.1)	122.5 (7.4)	40.7 -	- -	- -	134.5 (9.8)	42.4 -	- -	- -	
Construction investment	265.2 (-1.7)	264.1 (-0.4)	192.7 (0.5)	65.4 (-1.5)	- -	- -	190.0 (-1.4)	64.6 (-1.2)	- -	- -	
Consumer price index (2015=100)	104.9	105.4	105.4	106.2	105.6	105.5	107.8	108.8	109.0	109.4	
USD to KRW exchange rate (won)	1 165.4	1 180.3	1 188.0	1 178.8	1 144.7	1 116.8	1 140.3	1 169.5	1 182.8	1 182.9	
Benchmark rate (%)	1.6	0.7	0.7	0.5	0.5	0.5	0.6	0.8	0.8	1.0	
Coincident composite index (2015=100)	112.0	112.3	112.1	112.3	113.0	113.8	116.3	117.2	117.1	117.7	
Mining & manufacturing production index (2015=100)	106.7	106.3	105.3	112.1	109.0	111.5	112.6	110.0	113.9	118.5	
Manufacturing operation ratio index (2015=100)	98.4	95.6	94.9	101.2	98.8	100.5	99.3	96.8	100.1	104.6	
Average temperature	13.4	13.0	14.2	20.1	13.7	8.5	14.4	21.3	15.1	8.3	
- year-on-year difference	0.4	- 0.4	- 0.3	- 1.6	- 1.9	0.0	0.2	1.2	1.5	- 0.1	
Heating degree days	2 370.9 (-8.7)	2 448.0 (3.3)	1 900.4 (0.5)	3.3 (266.7)	137.4 (51.7)	286.3 (-0.3)	1 904.3 (0.2)	- (-100.0)	121.4 (-11.6)	290.6 (1.5)	
Cooling degree days	120.4 (- 42.4)	85.2 (- 29.2)	85.2 (- 29.2)	1.7 (- 72.1)	- -	- -	101.3 (18.9)	- (- 100.0)	- -	- -	
Energy intensity	0.16 (-3.6)	0.16 (-2.9)	0.16 (-3.3)	0.16 (-3.4)	- -	- -	0.16 (0.2)	0.16 (2.0)	- -	- -	
Per capita consumption											
oil (bbl)	17.9 (-0.7)	16.8 (-6.0)	15.4 (-5.5)	1.4 (-1.5)	1.3 (-8.2)	1.4 (-10.9)	16.3 (5.8)	1.5 (11.1)	1.5 (12.3)	1.5 (8.5)	
Electricity (MWh)	10.1 (-1.3)	9.8 (-2.3)	9.0 (-2.6)	0.9 (3.2)	0.8 (-4.0)	0.8 (-0.1)	9.4 (4.6)	0.9 (-0.7)	0.8 (7.0)	0.8 (4.0)	
City gas (1 000 m ³)	0.5 (-4.3)	0.4 (-3.7)	0.4 (-5.1)	0.0 (-0.9)	0.0 (3.0)	0.0 (0.7)	0.4 (6.2)	0.0 (0.5)	0.0 (4.1)	0.0 (5.1)	
Total energy (toe)	5.9 (-1.6)	5.6 (-3.8)	5.1 (-4.1)	0.4 (-0.0)	0.4 (-4.4)	0.5 (-4.2)	5.3 (4.2)	0.5 (4.6)	0.5 (5.6)	0.5 (4.9)	

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)

	2019	2020					2021			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industrial production index										
All industry	108.6 (1.0)	107.3 (-1.2)	106.0 (-1.2)	109.5 (3.0)	107.0 (-3.1)	110.1 (-0.7)	111.0 (4.7)	111.0 (1.4)	112.0 (4.7)	116.0 (5.4)
Mining & manufacturing	106.7 (0.3)	106.3 (-0.3)	105.3 (-0.6)	112.1 (7.3)	109.0 (-2.8)	111.5 (0.1)	112.6 (7.0)	110.0 (-1.9)	113.9 (4.5)	118.5 (6.3)
Semiconductor	188.0 (11.7)	230.6 (22.6)	226.7 (23.2)	253.1 (24.6)	239.7 (12.3)	247.2 (7.9)	293.6 (29.5)	330.5 (30.6)	330.0 (37.7)	330.9 (33.9)
Iron & steel	98.3 (-2.2)	92.1 (-6.3)	91.5 (-6.9)	93.0 (-0.1)	94.9 (-3.5)	95.9 (-1.3)	97.6 (6.6)	95.5 (2.7)	97.2 (2.4)	98.8 (3.0)
Cement	94.3 (-5.7)	86.6 (-8.2)	86.0 (-8.8)	89.1 (14.8)	94.5 (-6.3)	98.1 (-5.4)	90.2 (5.0)	82.5 (-7.4)	95.1 (0.6)	99.2 (1.1)
Basic compound	108.9 (-1.4)	102.3 (-6.0)	102.1 (-5.8)	104.3 (-7.6)	102.2 (-4.2)	88.4 (-15.0)	108.7 (6.5)	112.6 (8.0)	106.3 (4.0)	101.3 (14.6)
Transport equipment	93.4 (-0.6)	84.1 (-9.9)	83.6 (-10.3)	97.2 (16.7)	95.4 (-4.0)	95.4 (0.2)	87.2 (4.3)	73.7 (-24.2)	82.7 (-13.3)	91.7 (-3.9)
Electric & electronic	109.6 (2.9)	108.7 (-0.8)	107.1 (-1.3)	119.9 (11.8)	112.4 (-5.3)	118.7 (2.9)	114.0 (6.4)	109.2 (-8.9)	116.5 (3.6)	124.7 (5.1)
Service	108.4 (1.4)	106.2 (-2.0)	105.3 (-2.0)	106.9 (0.1)	106.4 (-2.5)	108.8 (-1.4)	109.7 (4.2)	110.5 (3.4)	111.7 (5.0)	114.7 (5.4)
Wholesale and retail	104.6 (-0.4)	101.9 (-2.6)	101.3 (-2.7)	105.9 (3.0)	104.0 (-1.7)	106.0 (-2.5)	105.4 (4.0)	106.2 (0.3)	108.3 (4.1)	110.2 (4.0)
Food & Accommodation	97.5 (-1.0)	79.5 (-18.5)	80.7 (-16.3)	72.3 (-21.0)	83.4 (-15.2)	80.7 (-17.1)	79.6 (-1.4)	80.5 (11.3)	89.6 (7.4)	92.2 (14.3)
Production output										
Iron & steel - Pig iron	47 520.7 (0.8)	45 359.6 (-4.5)	41 244.3 (-5.3)	3 966.9 (1.6)	3 943.9 (-2.3)	3 867.8 (-2.1)	42 482.5 (3.0)	3 818.2 (-3.7)	3 754.5 (-4.8)	3 897.3 (0.8)
Iron & steel - Crude steel	71 411.9 (-1.5)	67 078.8 (-6.1)	61 169.2 (-6.7)	5 747.9 (0.7)	5 859.9 (-1.7)	5 765.4 (-2.4)	64 482.8 (5.4)	5 440.8 (-5.3)	5 781.8 (-1.3)	5 834.0 (1.2)
Petrochemical - Basic oil	31 804.1 (2.1)	30 323.6 (-4.7)	27 928.5 (-3.4)	2 511.6 (-8.6)	2 426.7 (-6.2)	2 153.7 (-19.3)	30 532.1 (9.3)	2 862.9 (14.0)	2 777.5 (14.5)	2 675.1 (24.2)
Petrochemical - Intermediate raw material	16 014.0 (-5.7)	15 355.4 (-4.1)	14 062.2 (-3.8)	1 257.8 (-8.9)	1 211.5 (-1.9)	1 087.8 (-20.2)	14 442.3 (2.7)	1 395.8 (11.0)	1 250.4 (3.2)	1 246.3 (14.6)
Petrochemical - 3 major products	21 584.6 (-1.0)	21 252.7 (-1.5)	19 463.6 (-1.6)	1 730.5 (-5.3)	1 769.1 (3.8)	1 649.7 (-1.3)	21 037.4 (8.1)	1 984.6 (14.7)	1 882.8 (6.4)	1 885.1 (14.3)
The number of cars	3 948.1 (-2.1)	3 506.8 (-11.2)	3 209.9 (-11.1)	342.5 (23.2)	336.3 (-4.3)	324.5 (-6.3)	3 143.3 (-2.1)	229.4 (-33.0)	263.7 (-21.6)	303.0 (-6.6)

Note: p means provisional

Source: Monthly Energy Statistics, Korea Petrochemical Industry Association, Automobile Manufacturers Association

International Energy Prices

	2019	2020				2021				
		M1~11	M9	M10	M11	M1~11	M9	M10	M11	
Crude oil (USD/bbl)										
WTI	57.0 (-11.9)	39.4 (-30.9)	38.7 (-31.8)	39.6 (-30.4)	39.6 (-26.8)	41.4 (-27.5)	67.6 (74.6)	71.5 (80.5)	81.2 (105.4)	78.7 (90.2)
Dubai	63.5 (-8.5)	42.2 (-33.6)	41.5 (-34.5)	41.5 (-32.1)	40.7 (-31.5)	43.4 (-30.0)	68.9 (65.9)	72.6 (75.0)	81.6 (100.7)	80.3 (84.9)
Brent	64.2 (-10.3)	43.2 (-32.7)	42.6 (-33.6)	41.9 (-32.8)	41.5 (-30.4)	44.0 (-29.9)	70.4 (65.4)	74.9 (78.8)	83.8 (101.7)	80.9 (83.8)
Unit value of import (C&F)	65.5 (-8.2)	44.8 (-31.7)	44.6 (-31.9)	44.5 (-29.4)	43.4 (-32.4)	42.7 (-33.7)	68.9 (54.5)	73.7 (65.6)	78.1 (80.3)	82.1 (92.3)
LNG										
From Indonesia (USD/MMBTU)	10.6 (-1.0)	8.3 (-21.3)	8.4 (-21.1)	5.9 (-42.0)	6.2 (-38.1)	6.9 (-31.7)	10.3 (23.6)	11.4 (94.4)	12.4 (100.3)	15.3 (122.5)
Unit value of import (USD/ton, CIF)	505.4 (-4.0)	390.2 (-22.8)	393.0 (-22.9)	263.4 (-48.3)	275.7 (-42.4)	312.1 (-31.3)	519.7 (32.2)	571.0 (116.8)	668.7 (142.6)	805.5 (158.1)
Bituminous coal (USD/ton)										
From Australia	77.9 (-27.2)	60.8 (-22.0)	58.8 (-25.6)	54.6 (-17.2)	58.4 (-15.6)	64.4 (-3.9)	135.2 (130.0)	185.7 (240.1)	224.5 (284.4)	157.5 (144.5)
Unit value of import (CIF)	100.7 (-11.3)	77.7 (-22.9)	78.2 (-23.5)	68.4 (-19.5)	70.4 (-23.5)	70.9 (-19.0)	108.5 (38.8)	126.2 (84.5)	142.3 (102.1)	176.4 (148.9)
Petroleum product (USD/bbl)										
Gasoline	72.5 (-9.3)	46.7 (-35.7)	46.0 (-36.3)	47.2 (-36.8)	46.0 (-37.9)	46.8 (-38.7)	79.6 (73.0)	84.1 (78.0)	98.7 (114.6)	95.0 (103.1)
Kerosene	77.3 (-8.9)	44.7 (-42.1)	43.9 (-43.1)	39.3 (-49.4)	41.6 (-44.8)	45.7 (-39.0)	74.3 (69.3)	79.9 (103.1)	93.1 (123.5)	89.2 (95.2)
Diesel	78.2 (-7.9)	49.4 (-36.8)	48.9 (-37.5)	44.2 (-43.4)	43.9 (-43.0)	47.6 (-37.4)	76.9 (57.4)	83.0 (87.7)	95.5 (117.5)	91.6 (92.5)
Bunker-C	57.5 (-11.8)	39.2 (-31.9)	38.5 (-34.7)	39.6 (-35.4)	41.2 (-13.0)	43.7 (10.9)	64.3 (67.1)	73.5 (85.4)	77.6 (88.2)	71.1 (62.9)
Propane	434.6 (-19.8)	397.1 (-8.6)	392.3 (-9.6)	365.0 (4.3)	375.0 (-10.7)	430.0 -	634.5 (61.8)	665.0 (82.2)	800.0 (113.3)	870.0 (102.3)
Butane	441.7 (-18.1)	403.8 (-8.6)	398.6 (-9.5)	355.0 (-1.4)	380.0 (-12.6)	440.0 (-1.1)	618.6 (55.2)	665.0 (87.3)	795.0 (109.2)	830.0 (88.6)
Naphtha	56.9 (-15.1)	40.5 (-28.9)	39.8 (-29.3)	43.0 (-20.4)	41.7 (-26.6)	40.6 (-31.8)	70.0 (75.9)	75.0 (74.5)	84.3 (101.9)	84.0 (107.1)

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

	2019	2020				2021				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Petroleum product										
Gasoline (won/liter)	1 471.9 (-6.9)	1 381.6 (-6.1)	1 382.8 (-5.6)	1 352.5 (-11.6)	1 333.3 (-13.5)	1 319.6 (-14.1)	1 585.4 (14.6)	1 642.7 (21.5)	1 712.3 (28.4)	1 737.4 (31.7)
Diesel (won/liter)	1 340.1 (-3.7)	1 189.8 (-11.2)	1 191.8 (-10.8)	1 154.5 (-16.3)	1 134.0 (-18.3)	1 119.6 (-18.9)	1 384.2 (16.1)	1 437.2 (24.5)	1 509.3 (33.1)	1 549.7 (38.4)
Bunker-C (won/liter)	743.9 (1.2)	573.6 (-22.9)	578.6 (-23.0)	575.2 (-23.0)	533.0 (-32.7)	520.0 (-26.1)	720.1 (24.5)	768.2 (33.6)	813.4 (52.6)	867.4 (66.8)
Propane (won/kg)	1 869.7 (-2.6)	1 850.7 (-1.0)	1 849.4 (-1.0)	1 821.0 (-0.6)	1 822.1 (-0.6)	1 822.2 (-3.0)	2 063.7 (11.6)	2 160.1 (18.6)	2 163.4 (18.7)	2 312.3 (26.9)
Butane (won/liter)	806.2 (-7.8)	791.1 (-1.9)	790.6 (-1.8)	771.5 (-1.7)	771.4 (-1.6)	770.6 (-4.9)	917.7 (16.1)	980.5 (27.1)	981.2 (27.2)	1 053.8 (36.7)
City gas(won/MJ)										
Residential	15.6 (3.9)	15.1 (-3.6)	15.2 (-2.9)	14.2 (-10.7)	14.2 (-10.7)	14.2 (-10.7)	14.2 (-6.2)	14.2 -	14.2 -	14.2 -
General(1)	15.6 (4.9)	14.9 (-4.7)	14.9 (-4.0)	13.8 (-12.2)	13.8 (-12.3)	13.8 (-12.3)	13.9 (-7.1)	13.8 (-0.0)	13.8 -	13.8 -
Commercial	16.1 (4.4)	15.1 (-6.4)	15.2 (-5.3)	13.7 (-16.9)	12.7 (-22.7)	12.7 (-23.2)	16.6 (9.3)	18.1 (32.2)	18.8 (47.8)	21.4 (68.9)
Industry	13.8 (6.0)	12.6 (-8.4)	12.7 (-7.2)	10.8 (-22.0)	9.9 (-28.8)	9.9 (-29.3)	13.8 (8.3)	14.8 (36.9)	15.6 (57.0)	18.2 (84.2)
Heat(won/Mccl)										
Residential	65.7 (1.8)	66.2 (0.7)	66.3 (1.1)	65.2 (-2.8)	65.2 (-2.8)	65.2 (-2.8)	65.2 (-1.6)	65.2 -	65.2 -	65.2 -
Commercial	85.3 (1.8)	85.9 (0.7)	86.0 (1.1)	84.7 (-2.8)	84.7 (-2.8)	84.7 (-2.8)	84.7 (-1.6)	84.7 -	84.7 -	84.7 -
Public	74.5 (1.9)	75.1 (0.7)	75.2 (1.1)	74.0 (-2.9)	74.0 (-2.9)	74.0 (-2.9)	74.0 (-1.6)	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 -	83.6 -	65.2 -	65.2 -	92.3 -	78.6 (-6.0)	60.2 (-7.7)	60.2 (-7.7)	87.3 (-5.4)
Industry	96.0 -	96.0 -	94.9 -	78.5 -	78.5 -	108.5 -	89.9 (-5.3)	73.5 (-6.4)	73.5 (-6.4)	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) I , 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)

	2019	2020p					2021p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal (Mton)	133.0	116.6	106.5	10.6	9.0	8.9	106.3	9.7	9.1	9.8
	(-5.7)	(-12.4)	(-12.7)	(-7.8)	(-22.3)	(-18.3)	(-0.2)	(-8.6)	(1.2)	(10.1)
- Coking coal excluded	98.0	82.8	75.8	7.8	6.0	6.1	74.0	6.8	6.3	6.9
	(-7.9)	(-15.6)	(-15.9)	(-10.2)	(-30.1)	(-23.8)	(-2.3)	(-13.1)	(4.2)	(14.0)
Oil (Mbbbl)	927.1	872.4	796.8	71.3	69.6	70.8	843.7	79.3	78.2	76.9
	(-0.5)	(-5.9)	(-5.4)	(-1.4)	(-8.1)	(-10.7)	(5.9)	(11.2)	(12.4)	(8.5)
- Non-energy oil excluded	451.8	423.6	386.2	34.4	34.7	39.3	387.2	35.1	34.9	35.1
	(1.4)	(-6.2)	(-5.5)	(7.5)	(-10.0)	(-0.5)	(0.3)	(2.1)	(0.4)	(-10.7)
LNG (Mton)	41.0	42.1	36.7	2.8	3.1	3.8	40.7	2.9	3.3	3.9
	(-3.1)	(2.7)	(1.9)	(17.1)	(12.9)	(3.2)	(11.0)	(1.5)	(5.5)	(2.9)
Hydro (TWh)	6.2	7.1	6.7	0.9	0.5	0.4	6.2	0.6	0.5	0.4
	(-14.1)	(14.4)	(15.7)	(55.6)	(-13.2)	(-5.9)	(-6.5)	(-34.7)	(6.9)	(1.9)
Nuclear (TWh)	145.9	160.2	145.1	9.3	13.5	14.0	141.5	12.2	13.5	13.6
	(9.3)	(9.8)	(7.6)	(-10.0)	(27.1)	(37.4)	(-2.5)	(31.0)	(-0.0)	(-3.4)
Others (Mtoe)	17.7	19.0	17.3	1.7	1.6	1.6	18.4	1.6	1.6	1.5
	(3.3)	(7.3)	(6.8)	(18.2)	(12.6)	(12.9)	(6.2)	(-1.7)	(-4.1)	(-2.8)
TPES (Mtoe)	303.1	292.1	264.2	23.1	23.1	24.3	275.6	24.2	24.4	25.5
	(-1.5)	(-3.6)	(-4.0)	(0.1)	(-4.2)	(-4.1)	(4.3)	(4.7)	(5.6)	(5.0)
- Non-energy oil excluded	244.0	236.1	213.0	18.5	18.7	20.3	218.5	18.7	19.0	20.2
	(-1.3)	(-3.2)	(-3.7)	(2.5)	(-4.0)	(-0.2)	(2.6)	(0.8)	(1.3)	(-0.3)
- Non-energy oil&coal excluded	219.6	212.5	191.5	16.5	16.6	18.3	196.0	16.6	17.0	18.2
	(-1.5)	(-3.2)	(-3.7)	(2.8)	(-4.5)	(0.2)	(2.3)	(0.5)	(2.1)	(-0.6)

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

Share of TPES by Sources

(unit: %)

	2019	2020p					2021p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal	27.1	24.7	25.0	28.4	24.4	22.9	24.0	24.9	23.2	23.8
- Coking coal excluded	19.1	16.7	16.9	19.8	15.4	14.7	15.8	16.4	15.1	15.9
Oil	38.7	37.7	38.1	38.9	38.1	37.3	38.7	41.5	40.6	38.3
- non-energy oil excluded	19.2	18.6	18.7	19.0	19.2	20.9	17.9	18.6	18.3	17.6
LNG	17.7	18.8	18.1	16.1	17.6	20.7	19.3	15.6	17.6	20.3
Hydro	0.4	0.5	0.5	0.8	0.4	0.4	0.5	0.5	0.4	0.4
Nuclear	10.3	11.7	11.7	8.6	12.4	12.3	10.9	10.7	11.8	11.3
Others	5.8	6.5	6.6	7.2	7.1	6.5	6.7	6.8	6.4	6.0
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)

	2019	2020p					2021p				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11	
Industry	142.9 (-0.4)	138.0 (-3.5)	125.7 (-3.5)	11.6 (-0.7)	11.2 (-3.6)	10.9 (-9.7)	134.7 (7.1)	12.5 (8.6)	12.3 (9.6)	12.3 (13.0)	
Transport	43.0 (0.0)	39.4 (-8.2)	36.2 (-7.9)	3.3 (12.4)	3.2 (-11.9)	3.6 (1.0)	36.0 (-0.4)	3.3 (2.3)	3.2 (-0.5)	3.3 (-10.0)	
Residential	22.6 (-3.6)	23.2 (2.6)	19.9 (1.4)	1.2 (8.7)	1.4 (10.7)	2.1 (4.1)	20.5 (3.0)	1.1 (-5.6)	1.4 (-0.2)	2.1 (-0.2)	
commercial	17.5 (-2.3)	16.7 (-4.3)	15.0 (-4.6)	1.3 (-2.7)	1.1 (-6.9)	1.3 (-1.1)	15.9 (6.1)	1.3 (3.3)	1.3 (12.3)	1.4 (3.7)	
Public	5.4 (-3.2)	5.3 (-2.6)	4.7 (-2.8)	0.4 (6.8)	0.4 (-2.7)	0.4 (-0.5)	4.9 (4.4)	0.4 (-3.5)	0.4 (5.9)	0.4 (2.3)	
TFC	231.4 (-0.9)	222.6 (-3.8)	201.5 (-3.9)	17.8 (2.1)	17.4 (-4.5)	18.4 (-5.5)	212.1 (5.2)	18.8 (5.8)	18.6 (7.1)	19.5 (6.0)	
Coal (Mton)	48.2 (-2.2)	45.8 (-4.9)	41.5 (-6.0)	4.0 (10.6)	4.0 (-5.3)	3.8 (-6.6)	43.7 (5.4)	4.0 (1.0)	3.9 (-1.3)	4.2 (10.1)	
Oil (Mbbbl)	918.5 (-0.2)	865.8 (-5.7)	791.2 (-5.2)	70.6 (-1.9)	69.2 (-8.1)	69.9 (-11.3)	836.4 (5.7)	78.7 (11.4)	77.6 (12.1)	76.1 (8.9)	
Electricity (TWh)	520.5 (-1.1)	509.3 (-2.2)	464.2 (-2.4)	45.1 (3.3)	39.1 (-3.8)	41.1 (0.1)	486.2 (4.7)	44.8 (-0.6)	41.8 (7.1)	42.8 (4.1)	
City gas (Bm ³)	23.3 (-4.1)	22.4 (-3.5)	19.4 (-5.0)	1.1 (-0.7)	1.4 (3.2)	2.0 (0.9)	20.6 (6.3)	1.1 (0.6)	1.5 (4.1)	2.1 (5.2)	
Heat-others (1 000 toe)	11.6 (-2.0)	12.3 (6.1)	10.9 (5.5)	0.9 (14.2)	0.9 (10.7)	1.0 (6.8)	11.2 (2.5)	0.9 (-2.7)	0.9 (-4.3)	1.0 (-2.7)	

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

Share of the Total Final Consumption by Sources

(unit: %)

	2019	2020p					2021p				
			M1~11	M9	M10	M11	M1~11	M9	M10	M11	
Industry	61.8	62.0	62.4	65.0	64.7	59.1	63.5	66.7	66.2	63.0	
Transport	18.6	17.7	17.9	18.4	18.4	19.8	17.0	17.8	17.1	16.8	
Residential	9.8	10.4	9.9	6.8	8.2	11.4	9.7	6.0	7.6	10.8	
Commercial	7.6	7.5	7.5	7.3	6.6	7.3	7.5	7.1	6.9	7.1	
Public	2.3	2.4	2.4	2.5	2.2	2.3	2.3	2.3	2.2	2.3	
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	13.7	13.7	14.8	15.2	13.8	13.7	14.2	13.9	14.0	
Oil	50.2	49.1	49.5	50.1	50.3	48.5	49.8	53.0	52.7	49.4	
Electricity	19.3	19.7	19.8	21.8	19.3	19.2	19.7	20.5	19.3	18.9	
City gas	11.6	12.0	11.5	8.1	10.1	12.9	11.5	7.6	9.5	12.5	
Heat-others	5.0	5.5	5.4	5.2	5.1	5.7	5.3	4.8	4.6	5.2	

Note: p means provisional
Source: Monthly energy statistics

Statistics on Energy Production Facilities

	2018	2019	2020	2021					
				M9	M10	M11			
Total capacity (GW)	119.1 (1.9)	125.3 (5.2)	129.2 (3.1)	128.6 (5.0)	128.2 (3.4)	128.6 (3.4)	132.1 (2.8)	133.5 (4.1)	133.9 (4.1)
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)	36.4 (-0.2)	37.4 (2.7)	37.4 (2.7)
Gas	37.9 (-0.0)	39.6 (4.5)	41.2 (4.1)	41.2 (7.5)	41.2 (5.1)	41.2 (4.1)	41.2 -	41.2 -	41.2 -
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

Statistics on Energy Consumption

	2018	2019	2020	2021					
				M9	M10	M11			
The number of household demanding city gas (mil)	19.1 (3.1)	19.7 (2.8)	20.1 (2.3)	19.9 (2.6)	19.9 (2.5)	20.0 (2.5)	20.2 (1.7)	20.3 (2.0)	20.4 (2.0)
Registered cars (mil)	23.2 (3.0)	23.7 (2.0)	24.4 (2.9)	24.2 (2.7)	24.3 (2.8)	24.3 (2.9)	24.8 (2.4)	24.8 (2.3)	24.9 (2.2)
- gasoline	10.6 (2.5)	11.0 (3.1)	11.4 (4.1)	11.3 (4.2)	11.3 (4.1)	11.4 (4.1)	11.7 (3.3)	11.7 (3.2)	11.7 (3.1)
- diesel	9.9 (3.7)	10.0 (0.3)	10.0 (0.3)	10.0 (-0.1)	10.0 (0.2)	10.0 (0.4)	9.9 (-0.8)	9.9 (-1.0)	9.9 (-1.2)
- LPG	2.0 (-3.3)	2.0 (-1.5)	2.0 (-1.3)	2.0 (-0.8)	2.0 (-0.9)	2.0 (-1.1)	2.0 (-1.9)	2.0 (-1.9)	1.9 (-1.8)
- hybrid	0.4 (30.9)	0.5 (26.1)	0.6 (33.1)	0.6 (29.0)	0.6 (29.9)	0.6 (32.0)	0.8 (37.0)	0.8 (36.9)	0.9 (35.4)

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

Source: Monthly energy statistics