

KEEI

MONTHLY KOREA ENERGY TRENDS

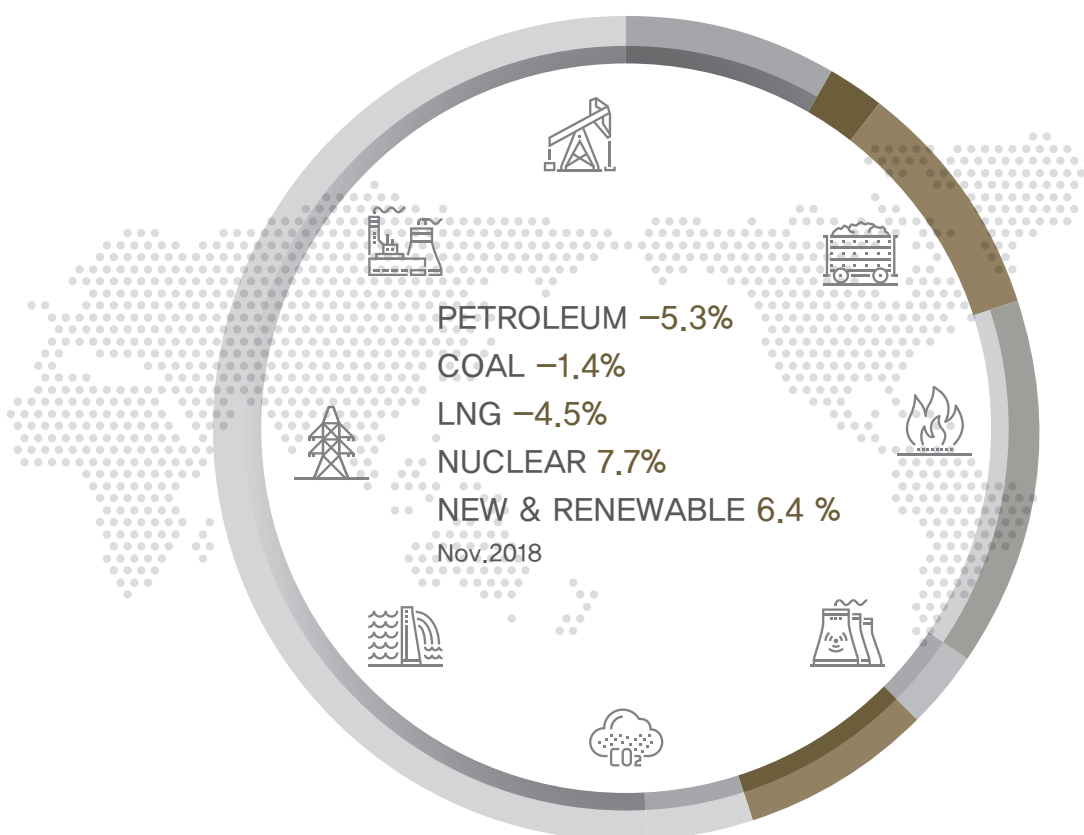


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1. The Economy and the Industry

- **The manufacturing production index increased by 1.3% year-on-year in November, led by the semi-conductor, iron & steel and automobile sectors.**
 - The production index of semi-conductors went up by 26.5%, as expanded memory capacity of IT devices and the build-up of new data centers drove up global demand for semi-conductors, leading to the increased export.
 - The production index of automobiles was up 2.7% encouraged by growing domestic sales and export of SUVs including the latest model.
 - The production index of iron & steel products rose by 2.7% despite decreased export volume, owing to the base effect of decreased production during the same month last year.
- **The service production index grew at slower pace (1.1%), owing to the slower production growth in large energy consuming businesses such as the restaurant & accommodation and wholesale & retail businesses.**

► Trend in major economic and industrial indicators

	2016	2017	2018			2018		
			M9	M10	M11	M9	M10	M11
GDP (trillion won)	1 509.8 (2.9)	1 556.0 (3.1)	392.6 (3.8)	- -	- -	400.3 (2.0)	- -	- -
Total export (\$billion, customs clearance basis)	495.4 (-5.9)	573.7 (15.8)	55.1 (34.9)	44.8 (6.7)	49.7 (9.7)	50.7 (-8.1)	54.9 (22.5)	51.5 (3.6)
Industrial production index (2015=100)	102.4 (2.4)	104.0 (1.5)	110.0 (10.6)	99.5 (-6.2)	107.7 (-1.9)	100.0 (-9.1)	111.6 (12.2)	109.1 (1.3)
Semi-conductors	130.7 (30.7)	135.7 (3.9)	142.1 (0.6)	148.1 (-1.5)	133.2 (-10.1)	163.3 (14.9)	176.5 (19.2)	167.3 (25.6)
Basic compound	104.8 (4.8)	110.4 (5.4)	111.3 (7.5)	113.5 (10.4)	108.2 (3.0)	111.1 (-0.2)	108.7 (-4.2)	104.4 (-3.5)
Steel	100.2 (0.2)	100.7 (0.4)	101.8 (4.3)	102.4 (0.5)	96.5 (-5.5)	94.5 (-7.2)	101.4 (-1.0)	99.1 (2.7)
Cars	97.7 (-2.3)	94.9 (-2.9)	98.7 (26.5)	80.2 (-17.3)	103.1 (-6.5)	83.6 (-15.3)	103.6 (29.2)	105.9 (2.7)
Mining and manufacturing production index (2015=100)	98.2 (-1.8)	97.1 (-1.2)	101.9 (8.9)	92.0 (-7.1)	100.2 (-2.7)	93.6 (-8.1)	104.6 (13.7)	102.3 (2.1)
Service production index (2015=100)	102.6 (2.6)	104.5 (1.8)	107.5 (4.8)	102.1 (-1.4)	106.5 (3.1)	105.9 (-1.5)	107.9 (5.7)	107.7 (1.1)
Restaurant & Accommodation	102.3 (2.4)	100.4 (-1.9)	100.2 (1.6)	97.4 (-5.5)	97.0 (-0.5)	96.3 (-3.9)	98.9 (1.5)	97.2 (0.2)
Wholesale & Retail	102.6 (2.6)	103.3 (0.7)	107.9 (6.4)	102.0 (-4.6)	108.2 (2.8)	103.0 (-4.5)	107.8 (5.7)	108.9 (0.6)

Note: Figures are based on the real price of 2010, P means provisional, () is year-on-year growth rates (%)

Source: Korea International Trade Association, Korea Statistical Information Service

2. Energy Prices

Global energy prices

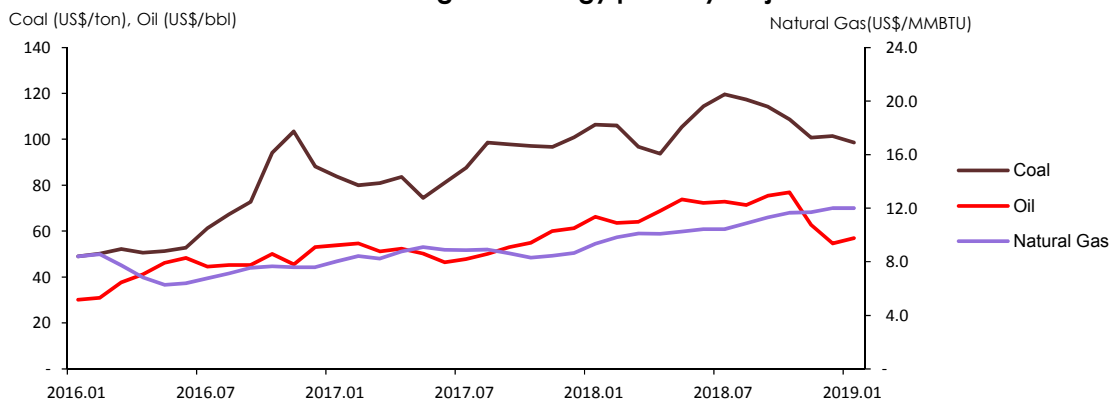
- **Global oil price rose by 4.2% in January 2019 from the previous month due to oil producing countries' output reduction and an expectation of improved trade relations between the U.S. and China.**
 - An expectation of decreased crude oil supply has grown, following several announcements including OPEC's oil output reduction, Saudi Arabia's plan of reducing crude oil export and additional output cuts by OPEC+ countries.
 - The U.S. and China held a vice-ministerial meeting (2019.1.7~9) in order to address trade disputes and it received positive feedback, raising expectations that the global economy and oil demand would recover.
 - Meanwhile, the U.S. crude and petroleum inventories went up from 441.4mbbl to 445.9mbbl in a month and from 240.0mbbl (18.12.28) to 257.4mbbl (19.1.25), offsetting the oil price increase.

► Trend in global energy prices

	2017			2018			2019	
		M1~12	M11	M12		M11	M12	M1
Crude oil (US\$/bbl)	53.0	68.6	62.7	54.7	66.3	62.7	54.7	57.0
	(22.4)	(29.5)	(4.4)	(-10.7)	(23.0)	(4.4)	(-10.7)	(-14.1)
Natural gas (US\$/MMBTU)	8.6	10.7	11.7	12.0	9.3	11.7	12.0	12.0
	(16.8)	(24.0)	(38.5)	(38.7)	(16.2)	(38.5)	(38.7)	(28.4)
Coal (US\$/ton)	88.6	107.0	100.7	101.4	106.5	100.7	101.4	98.6
	(33.8)	(20.9)	(4.2)	(0.6)	(27.1)	(4.2)	(0.6)	(-7.4)

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)

► Trend in global energy price by major sources



Domestic energy prices

☐ **Gasoline and diesel prices dropped by 5.7% and 5.6% respectively from the previous month due to the sharp decline in global oil prices.**

- Gasoline and diesel prices have continued a downward spiral over the last three months, which was attributed to the government's fuel tax cut that went into effect in November and rapidly decreasing global oil prices.

☐ **Propane and butane prices went down by 4.6% and 7.2% respectively in January than a month earlier after the global prices plunged.**

- Global prices of propane and butane fell by 17.6% and 19.8% in November and by 17.6% and 21.0% in December, causing a drop in domestic LPG price.

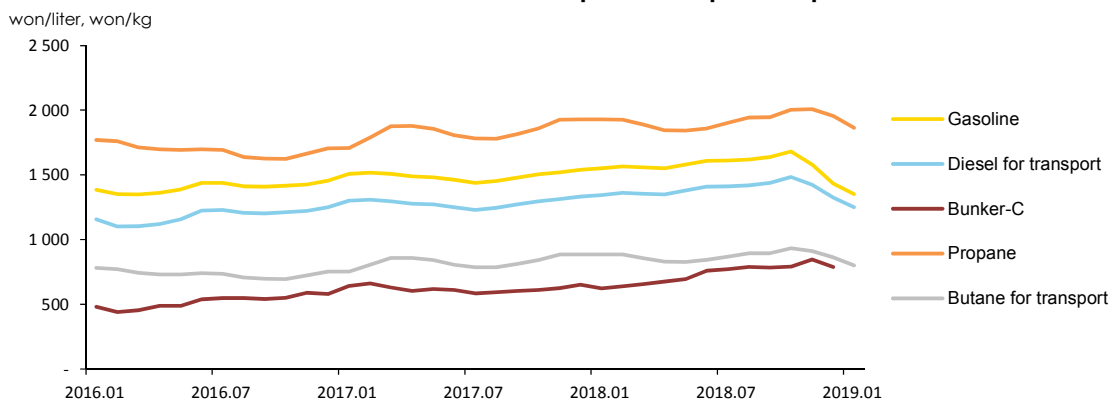
► Trend in domestic energy prices

	2017			2018				2019
		M1~12	M11	M12		M11	M12	M1
Gasoline (won/liter)	1 491.3 (6.3)	1 581.3 (6.0)	1 580.9 (3.9)	1 433.1 (-7.0)	1 551.8 (2.9)	1 580.9 (3.9)	1 433.1 (-7.0)	1 351.1 (-12.9)
Diesel for transport (won/liter)	1 282.5 (8.4)	1 391.9 (8.5)	1 424.7 (8.5)	1 324.1 (-0.6)	1 344.9 (3.4)	1 424.7 (8.5)	1 324.1 (-0.6)	1 249.4 (-7.1)
Bunker-C (won/liter)	619.3 (18.9)	735.0 (18.7)	846.5 (35.6)	789.3 (21.0)	621.7 (-3.3)	846.5 (35.6)	789.3 (21.0)	-
Propane (won/kg)	1 833.8 (8.5)	1 920.5 (4.7)	2 008.6 (4.3)	1 954.7 (1.3)	1 929.2 (13.0)	2 008.6 (4.3)	1 954.7 (1.3)	1 864.4 (-3.4)
Butane for transport (won/liter)	826.5 (12.6)	874.6 (5.8)	910.5 (2.9)	863.4 (-2.5)	885.3 (17.7)	910.5 (2.9)	863.4 (-2.5)	801.3 (-9.5)

Note: Gasoline, diesel and butane prices are based on charging station prices, Bunker-C price is based on dealership prices, propane price is based on sales shop prices. () is year-on-year growth rates (%)

Source: www.opinet.co.kr

► Trend in domestic petroleum product prices



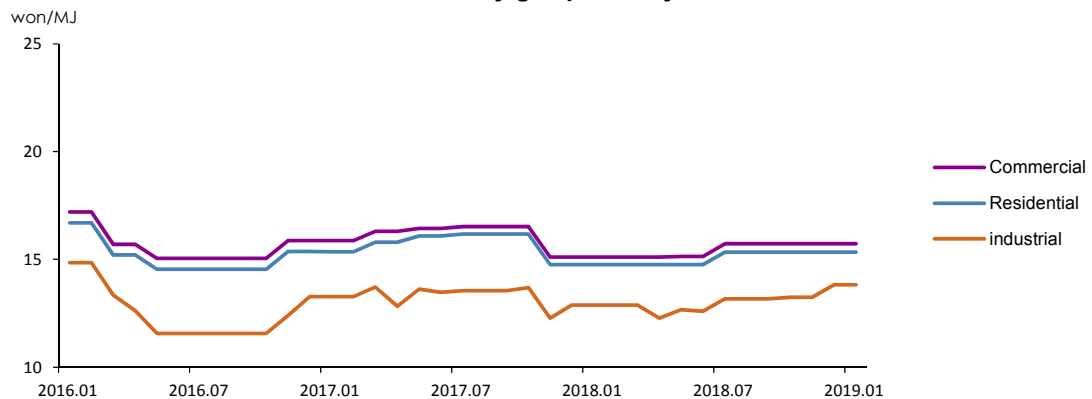
☐ **City gas price was fixed in January at the previous month's level, marking seven consecutive months of stagnant prices.**

- Global LNG prices, which reflect global oil prices in a few months' interval, steadily increased recently. However, city gas price was fixed again in January in order to stabilize prices and reduce economic burden on people, and accordingly, heat energy price was also unchanged from the previous month.

☐ **Heat energy price was the same as the previous month, as city gas price was fixed.**

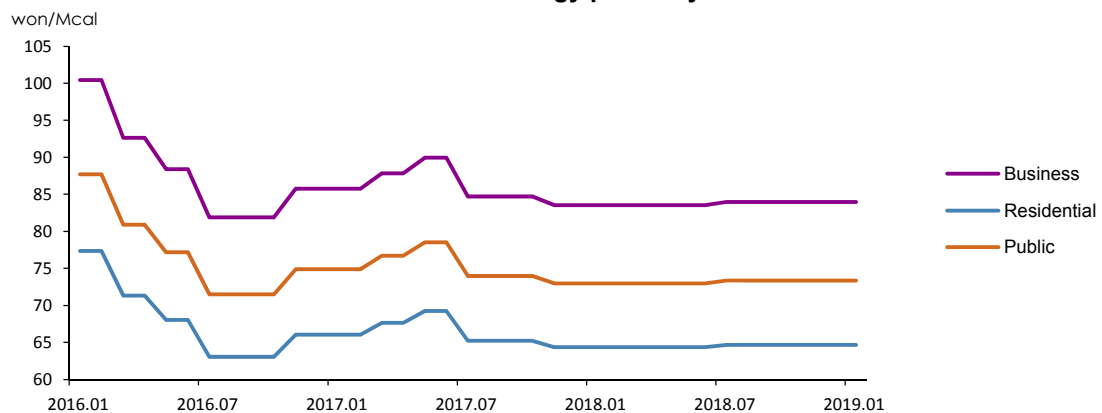
- Korea District Heating Corporation's heat energy price is linked to city gas price according to the fuel cost pass-through scheme, and the actual fuel cost is reflected in the heat energy price once a year (LNG for over 100MW, city gas for under 100MW).

► Trend in city gas prices by end-use sectors



Note: Instead of volume(M³), calorie(MJ) has been used as the unit of measurement in the city gas rate system since July 2012. Figures before that are converted based on standard calorie(additional tax, base charge excluded)

► Trend in heat energy prices by end-use sectors



Note: The prices are based on flat rate for heating (additional tax, base charge excluded)

Source: Korea District Heating Corporation.

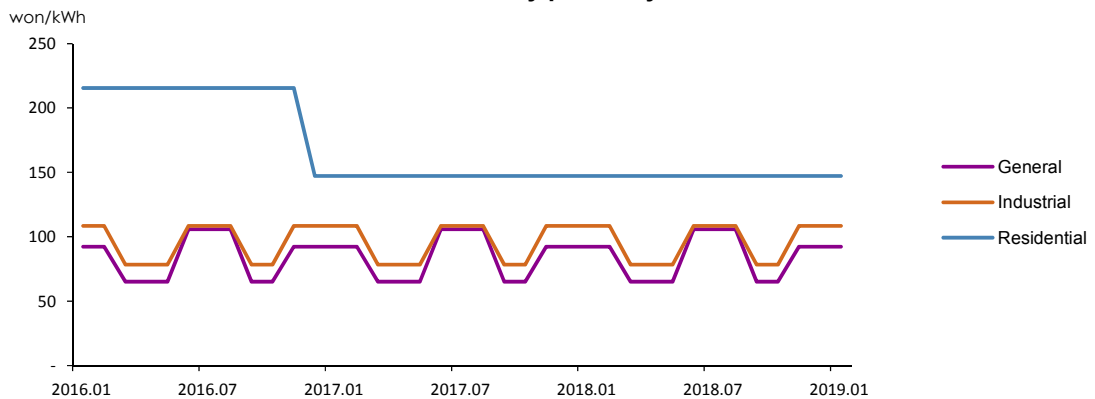
□ Electricity prices ¹have been flat after the prices for industrial and general consumers dramatically increased in November, adjusted for the winter season.

- Electricity prices for industrial and general consumers rose by 38.2% and 41.6% respectively in November from the previous month, according to the seasonal pricing from spring/autumn (Mar-May, Sept-Oct) to winter (Nov-Feb).
- Electricity price for residential consumers has been flat since the progressive pricing scheme was reformed after 2016's recording heatwaves.

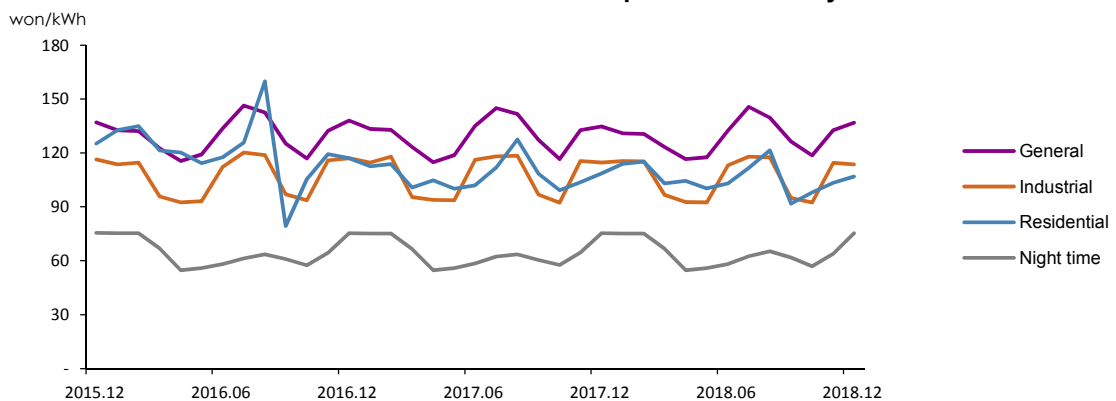
□ The unit sales price of electricity for general and residential use rose by 3.1% and 3.3% respectively in December than a month earlier, while that for industrial use fell by 0.7%.

- The unit sales price of residential electricity, which is subject to the progressive pricing, increased due to growing power demand for heating, entering the height of winter.

► Trend in electricity prices by end-use sectors



► Trend in unit sales price of electricity



¹ The electricity prices by end-use sectors refer to the prices for residential use ([high voltage], the 2nd stage electricity rates), general use ([A], low voltage) and Industrial use ([B], high voltage B middle load).

3. Energy Supply

□ The total energy Import volume was up 9.8% year-on-year in November, as the import of all major energy sources increased.

- The import volume of crude oil increased, and the inventory level rose by over 20%, though crude input to refineries decreased due to lower operating rates.
- The import volume of petroleum products rose by 17.7%, as LPG import grew by 26.1% due to lower price level along with growing naphtha and bunker-C imports.
- The import volume of LNG increased, backed by around 40% import growth from the U.S., which is attributed to the U.S. government's policy effort to expand share gas export.
- The foreign energy dependence including nuclear energy fell by 0.3%p to 93.7% year-on-year partly because of the increased renewable generation, and the energy share of the total import value went up by 6.4%p to 29.2% due to increased unit import prices.

► Trend in energy trade and domestic production

	2016	2017p			2018p		
			M1~11	M11	M1~11	M10	M11
Import volume							
Crude oil (Mbbl)	1 078.1 (5.1)	1 118.2 (3.7)	1 018.3 (4.1)	94.7 (3.3)	1 023.3 (0.5)	97.8 (5.3)	95.3 (0.7)
Petroleum product (Mbbl)	334.6 (8.7)	314.5 (-6.0)	288.3 (-6.1)	24.2 (-16.7)	309.1 (7.2)	27.8 (4.3)	28.5 (17.7)
Bituminous coal (Mton)	118.5 (-0.8)	131.5 (11.0)	120.5 (14.0)	10.0 (1.1)	121.1 (0.6)	10.1 (3.7)	11.7 (16.7)
Anthracite (Mton)	9.4 (5.4)	7.0 (-25.7)	6.4 (-27.3)	0.6 (-37.4)	7.4 (15.0)	0.7 (118.3)	0.9 (44.9)
LNG (Mton)	33.5 (0.3)	37.5 (12.2)	33.4 (13.4)	3.3 (-2.9)	39.3 (17.8)	3.8 (37.2)	3.9 (17.5)
Import volume (Mtoe)	321.9 (2.7)	339.7 (5.5)	308.9 (6.2)	28.0 (0.4)	322.5 (4.4)	29.4 (5.2)	30.7 (9.8)
Import value (billion US\$, CIF)	80.9 (-21.2)	109.5 (35.2)	98.4 (36.9)	9.6 (15.3)	133.5 (35.7)	13.6 (52.5)	13.7 (42.6)
Energy share of total import	19.9	22.9	22.7	22.8	27.2	28.1	29.2
Foreign energy dependence (%)*	94.6	93.9	93.9	94.0	93.4	93.2	93.7
Domestic production							
Hydropower (TWh)	6.6 (14.5)	7.0 (5.5)	6.5 (6.1)	0.5 (2.9)	6.7 (2.3)	0.5 (-9.9)	0.5 (17.2)
Anthracite (Mton)	1.7 (-2.2)	1.5 (-14.0)	1.4 (-13.5)	0.1 (-22.6)	1.1 (-17.7)	0.1 (-7.5)	0.1 (-22.0)
Natural gas (Mton)	0.1 (-18.0)	0.3 (120.5)	0.2 (156.0)	0.0 (-2.7)	0.2 (-9.7)	0.0 (-42.8)	0.0 (-22.0)
Renewable energy (Mtoe)	13.6 (5.7)	15.8 (16.7)	14.4 (16.5)	1.3 (16.8)	19.9 (37.6)	1.8 (43.8)	1.7 (31.6)

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

4. Energy Consumption

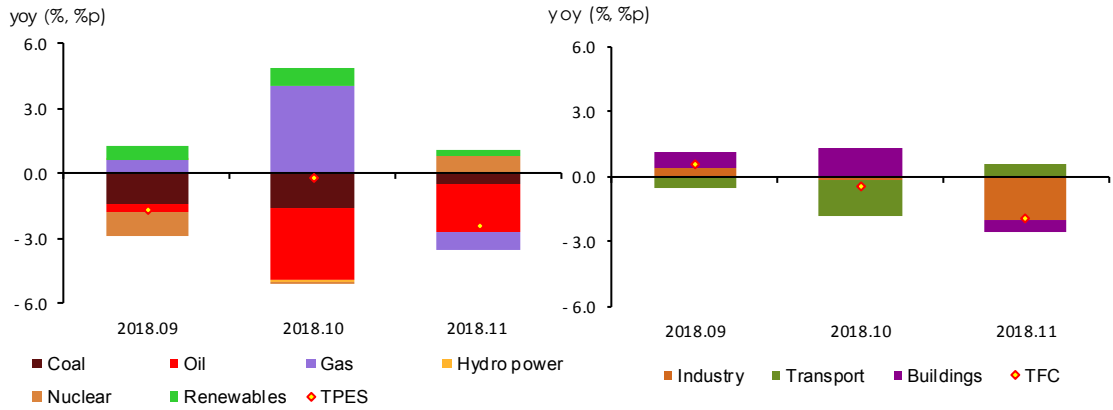
- **Total Primary Energy Supply (“TPES”) declined by 2.4% year-on-year in November, although nuclear energy use rebounded, because petroleum, gas and coal use all declined.**
 - Coal use fell by 1.4% year-on-year due to decreased use of bituminous coal for steelmaking and coal for power generation amid increased preventive maintenance.
 - Petroleum use rapidly decreased in the petrochemical sector, especially naphtha, leading the downward trend in TPES, although the transport sector used more petroleum as a result of the six-month fuel tax cut (2018.11.6)
 - Gas consumption fell by 4.3% year-on-year, as the consumption started to decline in the power generation sector due to falling power demand and increased baseload generation in addition to the decreased number of heating degree days and no more effect of the completion of Kogas’s collection of accounts receivable.
- **Total Final Consumption (“TFC”) dropped by 2.0% year-on-year in November, owing to the decreased consumption in the industrial and buildings sectors, although the transport sector consumed more energy.**
 - Industrial energy consumption decreased by 3.2% year-on-year, especially in the petrochemical and primary metals industries, leading the downward trend in TFC.
 - Transport energy use rose by 3.2% led by the road transport sector, despite increased global oil prices, partly because of the 15% temporary tax cut on gasoline, diesel, LPG and butane.
 - Energy consumption in buildings fell by 2.7% due to decreased number of heating degree days (-17.5%, -65.0degree days) and increased city gas and heat energy prices.

► Energy consumption trend

	2016	2017p			2018p		
			M1~11	M11	M1~11	M10	M11
Total energy (Mtoe)	293.4	302.1	273.0	26.1	278.5	24.1	25.5
	(2.4)	(2.9)	(2.7)	(4.3)	(2.0)	(-0.1)	(-2.4)
- Non-energy oil&coal excluded	212.0	215.4	194.0	18.7	200.0	17.0	18.6
	(3.2)	(1.6)	(1.2)	(3.6)	(3.1)	(2.7)	(-0.5)
Final energy (Mtoe)	225.1	233.9	211.5	20.2	215.8	18.5	19.8
	(3.3)	(3.9)	(3.9)	(4.4)	(2.0)	(-0.5)	(-2.0)

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

► The growth rates of total and final energy consumption & energy consumption trend by energy source and end-use sectors



5. Coal

□ Coal consumption declined by 1.4% year-on-year in November despite growing industrial consumption, because the power generation sector consumed less amount of coal.

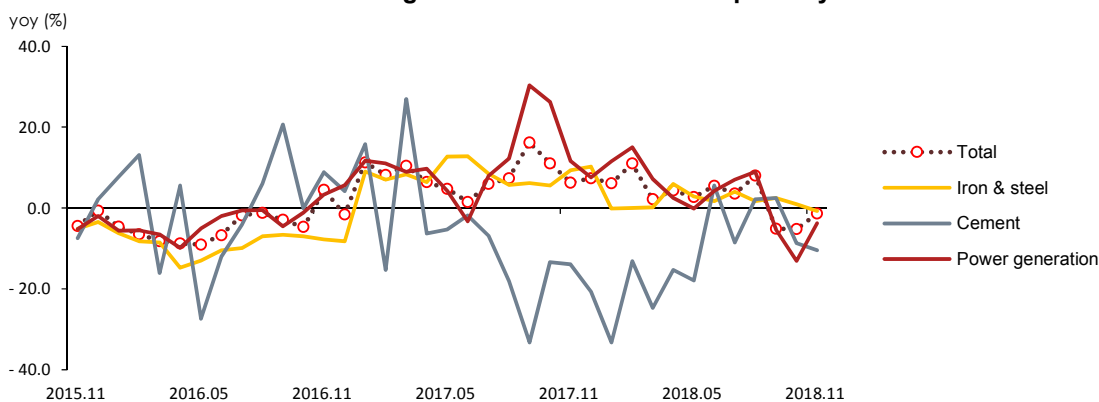
- Coal consumption declined in the power generation sector, as the average capacity factor fell by 2.4%p due to increased preventive maintenance (51.2%, 3.0GW) and restrictions on the coal-based generation (2018.11.7).
- Industrial coal consumption increased backed by growing anthracite use (40.6%), although bituminous coal consumption was down 0.7% year-on-year in the steelmaking sector due to reduced pig iron production and fell by 10.5% in the cement sector owing to the continuously sluggish construction market and accordingly decreased demand for cement.

► Coal consumption trend

	2016	2017p		2018p			
			M1~11	M11	M1~11	M10	M11
Coal (Mton)	129.3	139.8	126.9	11.8	130.5	11.0	11.6
	(-4.3)	(8.1)	(8.1)	(6.3)	(2.8)	(-5.2)	(-1.4)
Industry	47.8	49.3	45.0	4.2	46.1	4.2	4.4
	(-6.6)	(3.2)	(2.7)	(-1.4)	(2.6)	(9.8)	(4.4)
Buildings	1.3	1.1	0.9	0.2	0.8	0.2	0.2
	(-14.8)	(-14.0)	(-12.3)	(-2.4)	(-15.5)	(6.0)	(-30.0)
Power generation	80.3	89.4	81.0	7.3	83.6	6.6	7.0
	(-2.7)	(11.3)	(11.7)	(11.6)	(3.1)	(-13.1)	(-3.8)

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 consumption dropped by 5.3% year-on-year in November because of a steep decline in industrial naphtha use, although the consumption rebounded in the transport sector.**

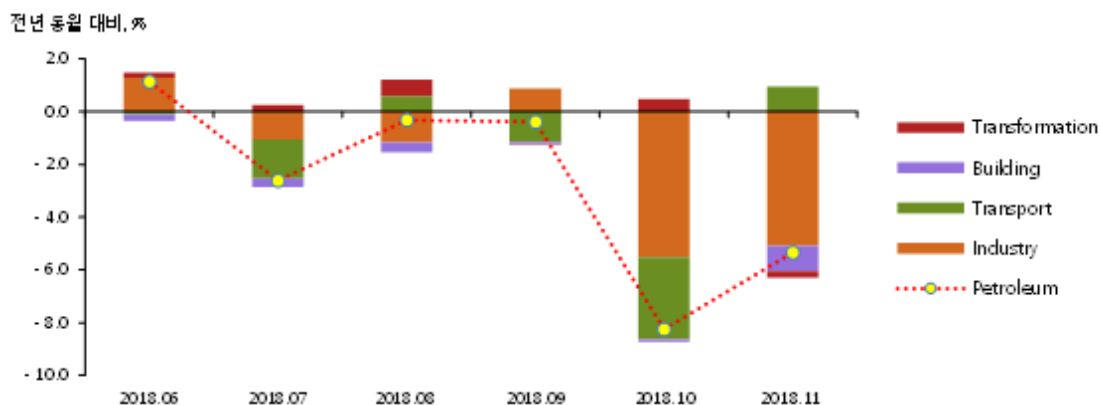
- Industrial petroleum consumption decreased by 8.4%, as naphtha consumption fell by almost 10% due to the scheduled maintenance at petrochemical facilities and sharply narrowed naphtha-ethylene spread.
- Petroleum consumption increased by 3.0% year-on-year in the transport sector, because the six-month fuel tax cut and the consequent effect on price led to increased use of gasoline and diesel (6.8%, 7.1%) which take a large share of the total consumption, even though the use of other petroleum products declined.

► Trend in petroleum product consumption by end-use sectors

	2016	2017p		2018p			
			M1~11	M11	M1~11	M10	M11
Petroleum (Mbbbl)	921.1 (8.0)	937.1 (1.7)	852.0 (2.0)	80.2 (0.8)	846.0 (-0.7)	73.3 (-8.3)	75.9 (-5.3)
Industry	542.6 (8.3)	567.0 (4.5)	516.5 (4.9)	48.3 (1.7)	513.0 (-0.7)	45.8 (-8.8)	44.2 (-8.4)
-naphtha	430.1 (4.7)	458.4 (6.6)	417.5 (6.7)	38.8 (4.8)	412.4 (-1.2)	36.3 (-11.2)	35.1 (-9.5)
Transport	300.5 (5.8)	303.2 (0.9)	277.4 (1.3)	25.4 (1.9)	273.1 (-1.6)	22.5 (-10.0)	26.2 (3.0)
Buildings	56.3 (5.2)	56.4 (0.3)	49.2 (0.2)	5.7 (0.5)	49.2 (-0.1)	4.2 (-1.8)	5.0 (-13.7)

NOTE: p means provisional, () is year-on-year growth rates (%)
Source: Monthly Energy Statistics

► The growth rates of petroleum product consumption & consumption by end-use sectors



7. Gas

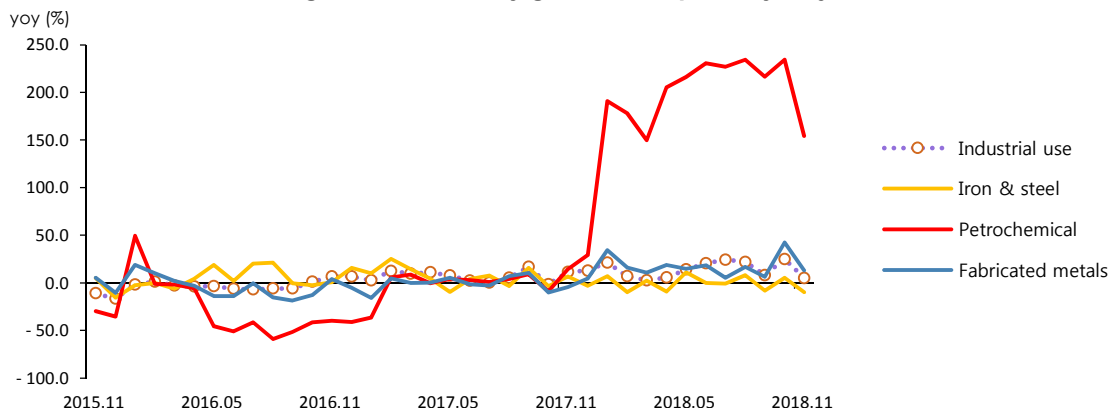
- **Natural gas consumption declined both in the power generation and gas production sectors in November, and as a result, the total consumption fell by 4.5% on a year-on-year basis.**
 - Gas consumption for power generation showed a downward trend after four consecutive months of increase owing to the slower growth in power use in addition to the increased base load generation (nuclear + coal). Gas consumption for city gas production decreased for the first time since March 2018.
- **City gas consumption fell slightly in the buildings sector, while it increased in the industrial sector, and the total consumption rose by 1.3% on a year-on-year basis.**
 - Industrial gas consumption increased, led by the petrochemical and fabricated metals sectors, although the consumption decreased in the primary metals sector.
 - City gas consumption decreased in the buildings sector, as the consumption fell by 6.6% in commercial buildings, though it increased in residential buildings that account for the largest share of the total consumption.

► **Trend in natural gas and city gas consumption**

	2016	2017p		2018p		M1~11	M10	M11
LNG (Mton)	34.9	36.4	31.4	3.7	36.2	2.9	3.5	
	(4.4)	(4.3)	(1.6)	(3.7)	(15.4)	(34.4)	(-4.5)	
Power generation	15.5	15.6	13.7	1.5	16.4	1.4	1.4	
	(6.4)	(0.6)	(-2.0)	(-6.5)	(19.1)	(46.8)	(-7.9)	
City gas production	17.4	18.4	15.6	1.9	17.1	1.4	1.8	
	(2.7)	(5.8)	(3.5)	(10.1)	(9.7)	(27.4)	(-4.2)	
City gas (bm³)	21.3	22.6	19.5	2.1	21.3	1.5	2.1	
	(2.3)	(6.3)	(4.6)	(8.2)	(9.2)	(22.3)	(1.3)	
Industry	7.2	7.8	7.0	0.7	7.9	0.7	0.8	
	(-1.4)	(7.7)	(7.2)	(11.3)	(13.4)	(24.9)	(5.0)	
Buildings	12.8	13.6	11.4	1.3	12.3	0.7	1.2	
	(5.0)	(6.0)	(3.5)	(7.0)	(7.6)	(22.9)	(-0.6)	

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

► **The growth rate of city gas consumption by major industries**



8. Electricity

□ Electricity consumption grew by mere 1.5% year-on-year in November, as the growth of the industrial electricity consumption was offset by consumption decline in the primary metals sector.

- Industrial power consumption increased, led by the fabricated metals and petrochemical sectors, though the growth was slower compared to the previous month.
- Commercial use of electricity was driven up by production activities in the restaurant & accommodation and wholesale & retail businesses, while residential use of electricity fell slightly on a year-on-year basis amid deceased number of heating degree days.

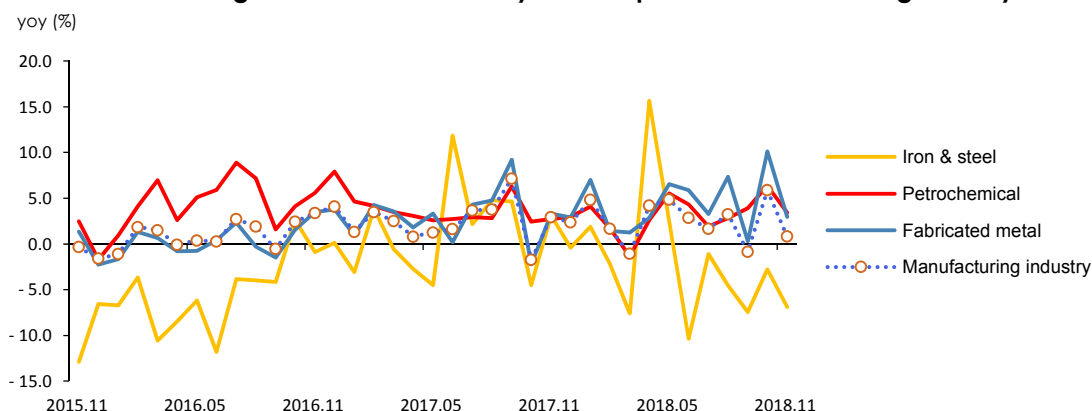
► Trend in electricity consumption by end-use sectors

	2016	2017p			2018p		
			M1~11	M11	M1~11	M10	M11
Electricity (TWh)	497.0	507.7	462.0	41.3	480.8	40.0	41.9
	(2.8)	(2.2)	(1.9)	(2.6)	(4.1)	(4.2)	(1.5)
Industry	270.0	276.7	252.4	23.4	259.3	23.1	23.6
	(1.6)	(2.5)	(2.5)	(3.1)	(2.7)	(6.0)	(1.1)
Transport	2.7	2.9	2.6	0.2	2.7	0.2	0.2
	(21.3)	(6.5)	(5.6)	(13.0)	(4.2)	(0.9)	(-1.6)
Buildings	224.4	228.2	206.9	17.7	218.8	16.7	18.1
	(4.0)	(1.7)	(1.1)	(1.8)	(5.7)	(1.9)	(2.0)
Residential	66.2	66.5	60.8	5.3	64.9	5.1	5.4
	(3.7)	(0.5)	(0.2)	(1.0)	(6.8)	(2.6)	(2.7)
Commercial	127.4	130.4	117.9	9.9	124.5	9.3	10.1
	(4.0)	(2.3)	(1.6)	(2.2)	(5.6)	(1.9)	(2.0)

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

Source: Monthly energy statistics

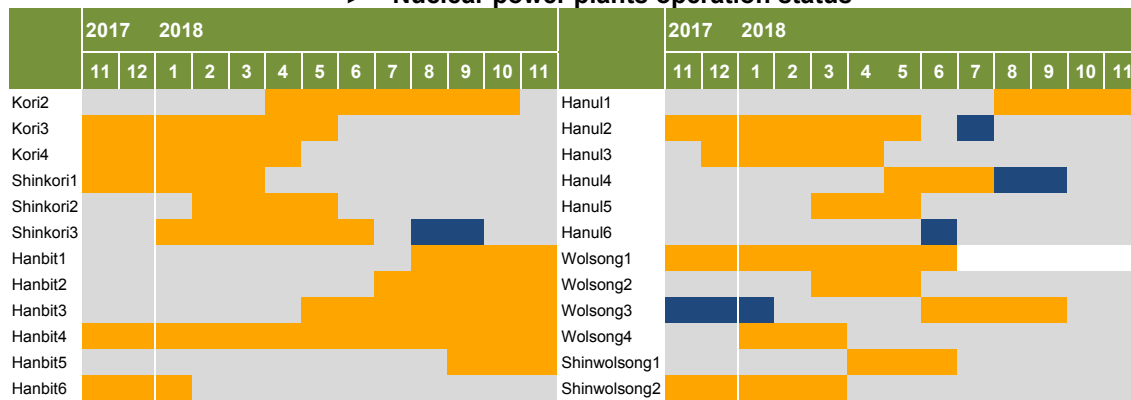
► The growth rate of electricity consumption in manufacturing industry



9. Nuclear

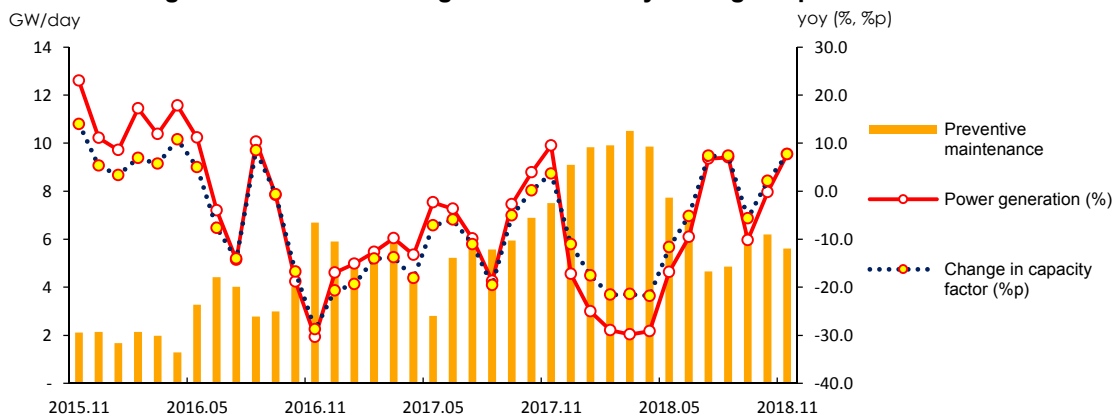
- The total nuclear generation posted a year-on-year growth of 7.7% in November, as capacity factors increased amid decreased preventive maintenance.
 - The daily average of preventive maintenance decreased, because the number of nuclear power plants that are undergoing scheduled preventive maintenance declined, and the operation of Hanbit unit1 was resumed, while Wolsong unit1 was shut down (-1.9GW, 25.1%).
 - Therefore, the capacity factor went up by 7.7%p year-on-year to 77.3%, and the total generation also rebounded after falling for three months.

► Nuclear power plants operation status



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

► The growth rate of nuclear generation & daily average of preventive maintenance



10. Heat and Renewable energy

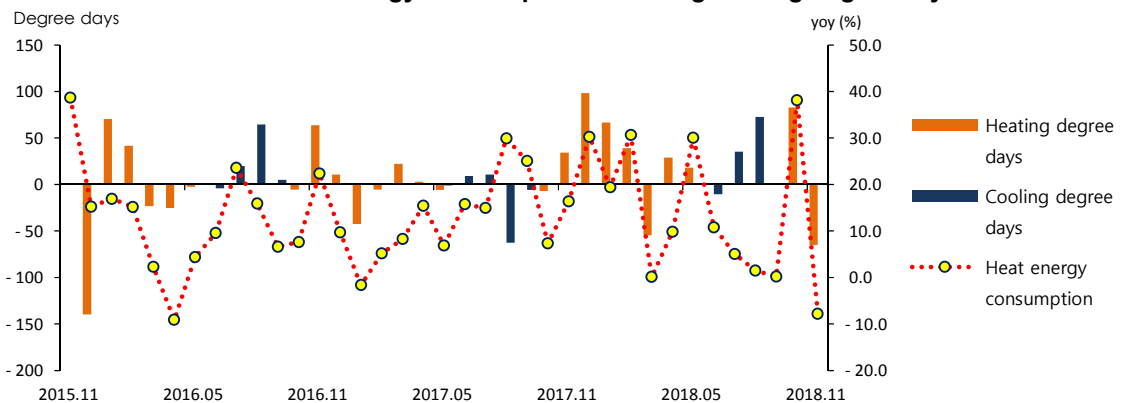
□ **Heat energy consumption fell by 7.8% year-on-year in November, because the consumption for heating purposes declined due to warm weather.**

- Heat energy consumption declined for the first time in 22 months (since Feb, 2017), because a higher average temperature (2.2°C) and decreased number of heating degree days (65.0degree days, -17.5%) led to lower heating demand in all types of buildings.

□ **Renewable & other energy consumption went up by 7.1% year-on-year (in November) especially in the power generation and industrial sectors on the back of the government support for renewable development.**

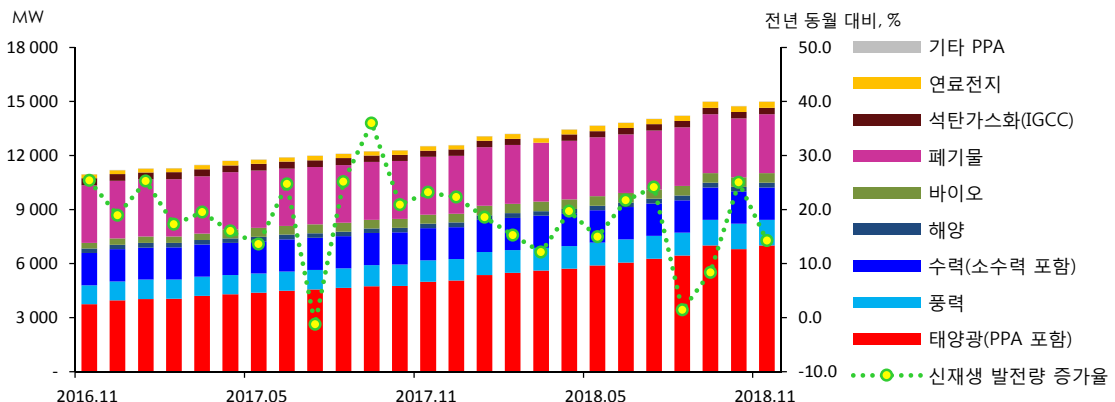
- The total renewable generation rose by 14.2%, despite decreased wind power generation, because solar PV and IGCC power plants generated more power.
- The final renewable energy consumption steadily increased in the buildings and transport sectors, while grew more slowly in the industrial sector, and consequently, the total final renewable energy use grew at slower late of 5.2% on a year-on-year basis.

► Heat energy consumption & heating/cooling degree days



Note: The total heat energy consumption is estimated based on the total supply from district heating & cooling companies (KEA's collective energy business). Previously, the figure reflected the monthly supply data of only three energy companies (KDHC, GS Power, SH Corp.).

► Trend in renewable and other energy consumption



11. Industry

- Industrial energy consumption decreased by 3.2% year-on-year in November as a result of decreased consumption in the petrochemical and primary metals sectors.
 - Energy consumption declined in the petrochemical sector, particularly naphtha, and it also continued to drop sharply in the primary metals sector due to the base effect of a surge in the same month last year. Meanwhile, the consumption grew decently in the fabricated metals sector owing to the export of semi-conductors and automobiles.

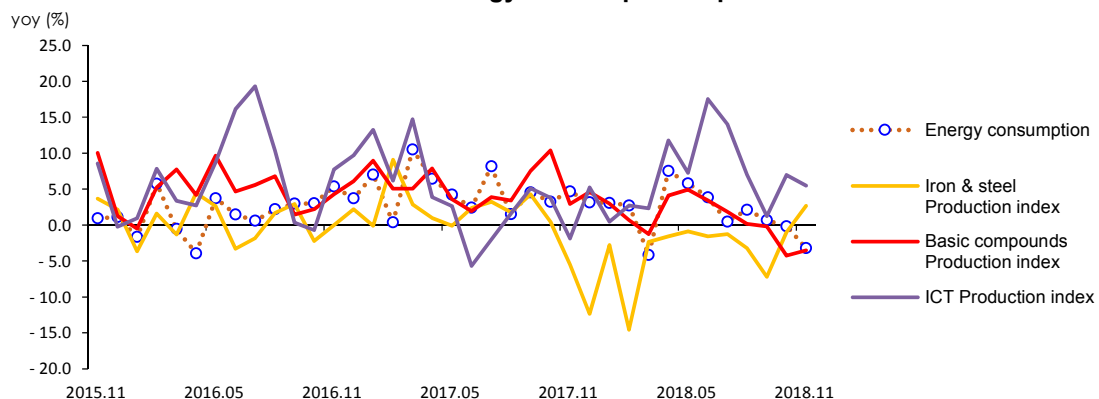
► Industrial energy consumption trend

	2016	2017p	2018p		2018p	M1~11	M10	M11
			M1~11	M11				
Industry (Mtoe)	137.8	144.3	131.4	12.4	133.5	12.0	12.0	12.0
	(1.9)	(4.7)	(4.8)	(4.7)	(1.6)	(-0.2)	(-3.2)	(-3.2)
Petrochemical	65.9	70.4	64.1	5.9	65.2	5.8	5.6	5.6
	(6.7)	(6.7)	(6.9)	(4.0)	(1.7)	(-7.3)	(-4.9)	(-4.9)
- Naphtha	52.7	56.2	51.2	4.8	50.5	4.5	4.3	4.3
	(4.7)	(6.6)	(6.7)	(4.8)	(-1.2)	(-11.2)	(-9.5)	(-9.5)
Iron & Steel	28.1	35.0	32.0	2.9	27.8	2.6	2.5	2.5
	(-8.0)	(24.4)	(24.2)	(25.8)	(-13.1)	(-12.9)	(-15.9)	(-15.9)
-Coking coal	23.4	25.3	23.1	2.1	23.5	2.2	2.1	2.1
	(-9.0)	(8.0)	(7.8)	(8.9)	(1.7)	(1.0)	(-0.7)	(-0.7)
Fabricated metal	10.6	10.8	9.8	0.9	10.4	0.9	1.0	1.0
	(0.4)	(1.9)	(1.9)	(1.6)	(6.1)	(15.0)	(4.4)	(4.4)
Share of feedstock (%)	58.8	59.9	60.0	59.5	58.7	58.8	57.1	57.1

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

Source: Monthly Energy Statistics

► Industrial energy consumption & production index



12. Transport

□ **Transport energy consumption rose by 3.2% year-on-year in November, as the consumption surged in the road transport sector due to the effect of fuel tax cut.**

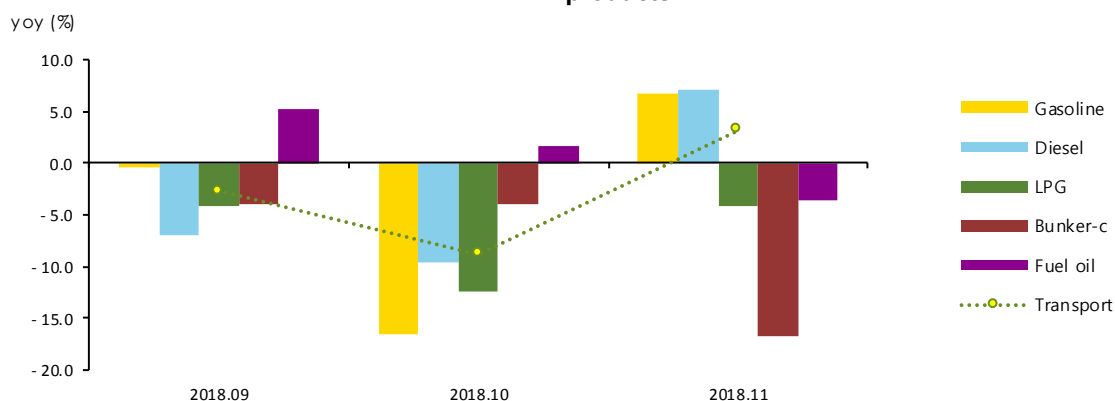
- Energy consumption increased in the road transport sector, especially the most consumed fuels such as gasoline and diesel following the government's fuel tax cut.
- Energy consumption has been down in the domestic navigation sector for 15 consecutive months since Sep, 2017, and it declined faster amid the sharply decreased coastal transport (-9.7%) and the surging price of bunker-C (35.6%).
- Energy consumption started a downward slide in the aviation sector due to decreased number of domestic passengers and cargo volume, although they increased in the case of the international routes.

► The growth rate of petroleum consumption in the transport sector

	2016	2017p	2018p				
			M1~11	M11	M1~11	M10	M11
Transport (Mtoe)	42.3	42.8	39.2	3.6	38.8	3.2	3.7
	(6.1)	(1.2)	(1.6)	(2.5)	(-0.9)	(-8.8)	(3.2)
Road	33.9	34.1	31.1	2.9	31.0	2.5	3.0
	(4.9)	(0.5)	(0.7)	(0.9)	(-0.3)	(-10.9)	(6.5)
Navigation	3.4	3.5	3.3	0.3	2.9	0.3	0.3
	(13.8)	(5.8)	(8.0)	(14.1)	(-12.7)	(-4.5)	(-18.5)
Aviation	4.7	4.8	4.4	0.4	4.6	0.4	0.4
	(9.1)	(3.2)	(4.2)	(5.4)	(3.8)	(1.6)	(-3.7)
Rail	0.3	0.3	0.3	0.0	0.3	0.0	0.0
	(8.3)	(2.5)	(1.1)	(13.1)	(4.4)	(4.8)	(4.8)

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

► The growth rate of energy consumption in the transport sector & major petroleum products



13. Buildings

□ **Energy consumption in buildings fell by 2.7% year-on-year in November, because the heating demand declined amid decreased number of heating degree days.**

- Energy consumption in buildings fell for the first time in 22 months, especially coal (-30.0%), petroleum (-13.7%) and heat energy (-7.8%), owing to the warmer weather than last year and decreased heating degree days, although electricity use increased (2.0%).
- Energy consumption in residential buildings decreased, despite increased use of city gas and electricity (1.3%, 2.7%), as kerosene, LPG and heat energy use declined (-26.3%, -3.2%, -7.4%), driving down the total consumption in buildings.
- Energy consumption in commercial buildings decreased after eight consecutive months of growth, because the use of major heating and cooking fuels (LPG, city gas and kerosene) declined except electricity (2.0%) as a result of slower production growth in wholesale & retail and restaurant & accommodation businesses and increased number of heating degree days.

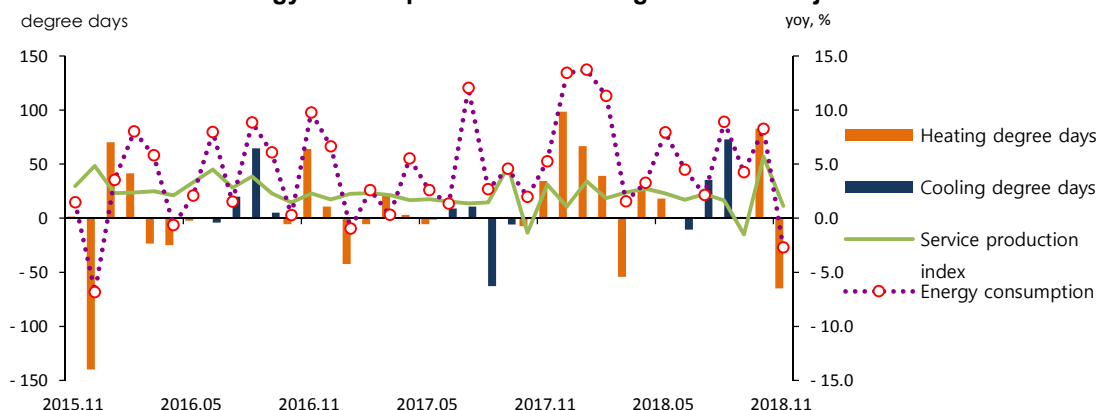
► Energy consumption trend in the buildings sector

	2016	2017p	M1~11	M11	2018p	M1~11	M10	M11
Buildings (Mtoe)	276.8	228.0	222.8	3.6	323.0	2.7	3.5	
	(46.6)	(-17.6)	(-18.1)	(4.0)	(44.9)	(8.1)	(-3.3)	
Residential	21.7	22.5	19.1	2.2	20.4	1.5	2.1	
	(5.5)	(3.7)	(1.8)	(5.6)	(6.8)	(12.6)	(-4.2)	
Commercial	17.1	17.4	15.6	1.4	16.4	1.2	1.4	
	(3.5)	(2.2)	(1.6)	(1.6)	(4.9)	(3.1)	(-1.9)	
Public-others	6.2	6.9	6.2	0.6	6.7	0.5	0.6	
	(8.7)	(11.0)	(10.4)	(14.0)	(7.6)	(8.9)	(1.0)	
Heating degree days	2 589.7	2 687.6	2 069.8	371.2	2 186.6	154.6	306.2	
	(5.3)	(3.8)	(-0.0)	(10.2)	(5.6)	(115.0)	(-17.5)	
Cooling degree days	238.1	188.1	188.1	-	286.2	-	-	
	(56.9)	(-21.0)	(-21.0)	-	(52.2)	-	-	

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

Source: Monthly Energy Statistics

► Energy consumption in the buildings sector & major indicators



14. Transformation

□ The total energy input for power generation fell by 1.3% year-on-year in November due to decreased gas-fired generation, although nuclear generation rebound.

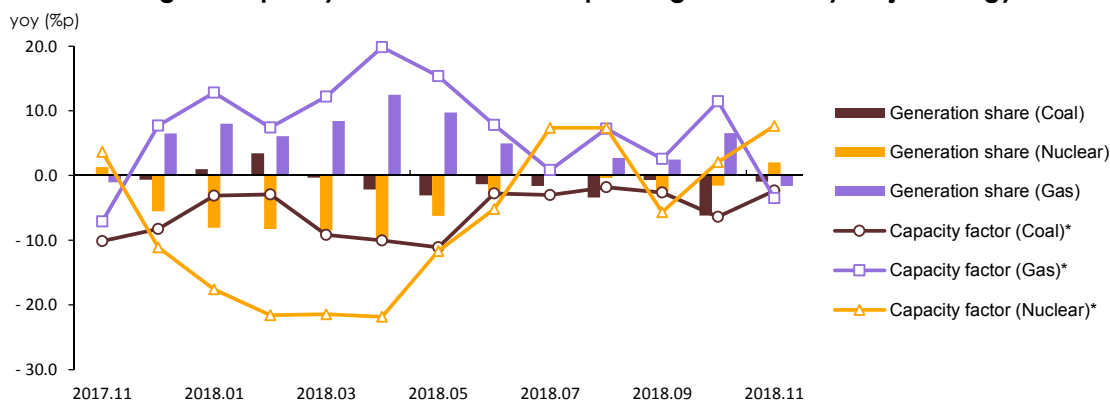
- Baseload generation slightly increased from the same month last year, despite decreased coal-fired generation, because nuclear generation bounced back. Gas generation showed a downward trend, hit by decreased electricity consumption and increased baseload generation.
- As for the power generation mix, coal accounted for the largest share (40.1%), followed by nuclear energy (26.6%), gas (25.9%), renewable & other energy (7.0%) and petroleum products (0.5%).
- The average capacity factors stood at 77.3%, 68.9% and 43.6% respectively at nuclear, coal and gas power plants.

► Energy consumption in the power generation sector

	2016	2017p		2018p		M1~11	M10	M11
Input (Mtoe)	110.9	111.2	101.0	9.2	103.0	8.9	9.1	
	(0.8)	(0.2)	(0.0)	(4.1)	(2.1)	(1.3)	(-1.3)	
Coal	49.2	52.8	47.9	4.3	49.4	3.9	4.2	
	(-2.8)	(7.4)	(7.8)	(7.9)	(3.2)	(-13.1)	(-3.9)	
Oil	3.0	1.2	1.0	0.1	1.2	0.1	0.0	
	(50.1)	(-59.5)	(-62.7)	(-62.4)	(18.4)	(136.1)	(-35.6)	
Gas	20.5	20.7	18.3	2.0	21.7	1.8	1.8	
	(6.3)	(0.9)	(-1.7)	(-6.1)	(19.1)	(46.5)	(-7.8)	
Nuclear	34.2	31.6	29.4	2.4	25.8	2.6	2.6	
	(-1.7)	(-7.5)	(-6.8)	(10.5)	(-12.3)	(-0.2)	(7.7)	
Hydro/other renewables	4.0	4.8	4.4	0.4	4.9	0.5	0.4	
	(17.4)	(19.3)	(19.4)	(19.6)	(11.6)	(16.8)	(12.4)	

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

► Change in capacity factor and share of power generation by major energy sources



*Capacity factor is the ratio of actual energy produced to the amount of energy produced from continuous operation at full rated power

<Appendix> Major Indicators & Statistics of Energy Supply and Demand

Major Statistics & Indicators of the Economy

	2015	2016	2017				2018		
				1Q	2Q	3Q	1Q	2Q	3Q
GDP (trillion won)	1 466.8 (2.8)	1 113.3 (3.1)	1 556.0 (3.1)	366.2 (2.9)	389.6 (2.8)	392.6 (3.8)	376.4 (2.8)	400.6 (2.8)	400.3 (2.0)
Private consumption	707.5 (2.2)	540.9 (2.9)	744.3 (2.6)	185.8 (2.1)	181.0 (2.4)	186.8 (2.6)	192.4 (3.5)	186.1 (2.8)	191.5 (2.5)
Facilities investment	140.3 (4.7)	101.5 (-2.5)	159.1 (14.6)	37.3 (16.1)	42.0 (17.9)	39.1 (16.3)	40.1 (7.3)	40.8 (-3.0)	36.2 (-7.4)
Construction investment	211.5 (6.6)	168.3 (9.7)	251.1 (7.6)	49.5 (11.3)	67.1 (8.5)	67.0 (8.0)	50.4 (1.8)	66.1 (-1.5)	61.0 (-8.9)
Consumer price index (2015=100)	100.0	100.8	102.9	102.8	102.7	103.2	103.9	104.3	104.8
USD to KRW exchange rate (won)	1 131.0	1 162.2	1 131.0	1 154.9	1 129.4	1 132.3	1 072.7	1 079.0	1 121.5
Benchmark rate (%)	1.6	1.4	1.3	1.3	1.3	1.3	1.5	1.5	1.5
Coincident composite index (2015=100)	100.0	102.8	107.0	105.9	106.8	107.4	108.5	109.1	109.2
Mining & manufacturing production index (2015=100)	100.0	100.3	104.2	103.2	104.3	104.8	100.9	105.0	102.9
Manufacturing operation ratio index (2015=100)	100.0	97.2	97.1	95.9	98.3	98.1	92.7	99.2	96.3
Average temperature	13.6	15.4	13.0	1.4	18.9	25.0	0.8	18.1	26.0
- year-on-year difference	0.2	0.2	- 0.6	0.1	- 0.2	- 0.8	- 0.6	- 0.8	1.0
Heating degree days	2 459.1 (-1.7)	1 654.4 (3.9)	2 687.6 (3.8)	1 487.5 (-1.7)	138.6 (-1.6)	0.6 (100.0)	1 538.9 (3.5)	185.4 (33.8)	1.5 (150.0)
Cooling degree days	151.8 (21.1)	238.1 (56.9)	188.1 (-21.0)	- (-)	18.2 (78.4)	169.9 (-25.5)	- (-)	7.7 (-57.7)	278.5 (63.9)
Energy intensity	0.20 (-1.2)	0.20 (-0.6)	0.19 (-0.1)	0.22 (-0.7)	0.18 (-0.6)	0.19 (-0.6)	0.22 (-0.3)	0.18 (0.9)	0.19 (0.2)
Per capita consumption									
oil (bbl)	16.7 (3.7)	13.2 (7.7)	18.2 (1.4)	4.6 (1.3)	4.3 (1.6)	4.5 (2.1)	4.6 (-0.0)	4.4 (2.6)	4.5 (-1.5)
Electricity (MWh)	9.5 (0.7)	7.3 (2.0)	9.9 (1.8)	2.6 (1.0)	2.3 (0.7)	2.5 (3.4)	2.7 (4.1)	2.4 (3.3)	2.7 (4.5)
City gas (1 000 m ³)	0.4 (-6.4)	0.3 (-0.1)	0.4 (5.9)	0.2 (3.4)	0.1 (5.0)	0.1 (4.8)	0.2 (9.7)	0.1 (7.6)	0.1 (8.1)
Total energy (toe)	5.6 (1.0)	4.2 (1.9)	5.9 (2.6)	1.5 (1.8)	1.3 (1.9)	1.4 (2.8)	1.6 (2.1)	1.4 (3.4)	1.5 (1.8)

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

The Index of Production & Operating Ratio by Sectors

(2015=100)

	(2013=100)									
	2016	2017					2018			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industrial production index										
All industry	103.1 (3.2)	105.5 (2.3)	104.6 (2.6)	109.4 (7.4)	101.3 (-3.0)	107.8 (1.4)	105.7 (1.0)	104.0 (-4.9)	108.7 (7.3)	108.4 (0.6)
Mining & manufacturing	102.3 (2.3)	104.2 (1.8)	104.0 (2.4)	108.9 (10.0)	99.0 (-5.6)	107.8 (-1.1)	104.2 (0.2)	99.5 (-8.6)	110.8 (11.9)	109.0 (1.1)
Iron & steel	100.2 (0.2)	100.7 (0.4)	101.4 (1.7)	101.8 (4.3)	102.4 (0.5)	96.5 (-5.5)	98.3 (-3.0)	94.5 (-7.2)	101.4 (-1.0)	99.1 (2.7)
Cement	108.3 (8.3)	109.9 (1.4)	110.2 (2.5)	120.5 (16.7)	100.0 (-14.7)	119.0 (-5.6)	100.6 (-8.7)	92.9 (-22.9)	111.6 (11.6)	110.2 (-7.4)
Basic compound	104.8 (4.8)	110.4 (5.4)	109.8 (5.5)	111.3 (7.5)	113.5 (10.4)	108.2 (2.9)	110.7 (0.8)	111.1 (-0.2)	108.7 (-4.2)	104.4 (-3.5)
Transport equipment	97.7 (-2.3)	94.9 (-2.9)	96.0 (0.0)	98.7 (26.5)	80.2 (-17.3)	103.1 (-6.5)	92.5 (-3.6)	83.6 (-15.3)	103.6 (29.2)	105.9 (2.7)
Electric & electronic	103.3 (3.3)	106.4 (3.0)	106.0 (3.7)	116.1 (11.8)	101.9 (-7.2)	120.2 (5.6)	103.4 (-2.5)	99.4 (-14.4)	111.0 (8.9)	113.7 (-5.4)
Service	102.6 (2.6)	104.5 (1.8)	103.6 (1.9)	107.5 (4.8)	102.1 (-1.4)	106.5 (3.1)	105.8 (2.1)	105.9 (-1.5)	107.9 (5.7)	107.7 (1.1)
Operating ratio index										
Manufacturing	98.2 (-1.8)	97.1 (-1.2)	97.2 (-0.7)	101.9 (8.9)	92.0 (-7.1)	100.2 (-2.7)	97.4 (0.2)	93.6 (-8.1)	104.6 (13.7)	102.3 (2.1)
Iron & steel	99.9 (-0.1)	101.0 (1.0)	101.1 (1.7)	101.5 (4.3)	102.1 (0.7)	96.1 (-5.5)	98.5 (-2.6)	93.5 (-7.9)	100.5 (-1.6)	98.4 (2.4)
Cement	107.0 (7.0)	107.6 (0.5)	107.8 (1.5)	117.7 (15.8)	97.6 (-15.4)	117.9 (-5.0)	109.4 (1.5)	102.7 (-12.7)	123.4 (26.4)	122.8 (4.2)
Basic compound	103.6 (3.6)	107.2 (3.4)	106.7 (3.5)	107.8 (5.4)	109.4 (8.3)	104.3 (0.9)	106.1 (-0.6)	106.1 (-1.6)	104.0 (-4.9)	100.0 (-4.1)
Transport equipment	94.2 (-5.8)	89.7 (-4.8)	90.8 (-2.1)	93.4 (24.7)	75.8 (-18.4)	96.6 (-9.2)	90.4 (-0.4)	82.0 (-12.2)	101.4 (33.8)	103.6 (7.2)
Electric & electronic	102.2 (2.2)	102.8 (0.5)	102.8 (1.5)	111.5 (8.9)	98.2 (-9.7)	114.7 (1.6)	97.2 (-5.5)	91.9 (-17.6)	103.7 (5.6)	106.9 (-6.8)

Note: p means provisional
Source: Monthly energy statistics

International Energy Prices

	2016	2017			2018				2019
			M11	M12	M1		M11	M12	M1
Crude oil (USD/bbl)									
WTI	43.3	51.0	56.7	58.0	63.7	64.8	56.7	49.0	51.6
	(-11.2)	(17.6)	(23.8)	(11.1)	(21.0)	(27.1)	(0.1)	(-15.5)	(-19.0)
Dubai	41.2	53.2	60.8	61.6	66.2	69.4	65.6	57.3	59.1
	(-18.8)	(28.9)	(38.5)	(18.3)	(23.3)	(30.5)	(7.8)	(-7.0)	(-10.7)
Brent	45.0	54.8	62.9	64.1	69.1	71.5	66.0	57.7	60.2
	(-16.0)	(21.7)	(33.5)	(16.7)	(24.6)	(30.5)	(4.9)	(-10.0)	(-12.8)
Unit value of import (C&F)	41.0	53.3	57.9	62.1	64.9	71.4	76.2	66.6	61.7
	(-23.0)	(29.9)	(21.9)	(29.4)	(23.6)	(33.9)	(31.5)	(7.2)	(-4.8)
LNG									
From Indonesia	7.4	8.6	8.5	8.6	9.3	10.7	11.7	12.0	12.0
(USD/MMBTU)	(-32.6)	(16.7)	(11.3)	(13.9)	(16.2)	(24.0)	(38.5)	(38.7)	(28.4)
Unit value of import	356.7	416.3	400.3	430.0	453.2	526.3	584.2	574.2	585.0
(USD/ton, CIF)	(-35.0)	(16.7)	(3.1)	(13.5)	(9.8)	(26.4)	(45.9)	(33.5)	(29.1)
Bituminous coal (USD/ton)									
From Australia	66.1	88.5	96.6	100.8	106.5	107.0	100.7	101.4	98.6
	(12.2)	(33.9)	(-6.6)	(14.4)	(27.1)	(20.9)	(4.2)	(0.6)	(-7.4)
Unit value of import (CIF)	68.9	104.3	107.1	101.2	111.3	113.6	111.2	114.0	106.3
	(-6.8)	(51.5)	(12.6)	(1.3)	(6.8)	(8.9)	(3.9)	(12.7)	(-4.4)
Petroleum product (USD/bbl)									
Gasoline	56.2	68.1	75.7	75.4	78.7	79.9	68.6	60.0	61.0
	(-19.1)	(21.2)	(28.2)	(13.1)	(13.2)	(17.4)	(-9.3)	(-20.4)	(-22.4)
Kerosene	52.8	65.3	74.0	75.5	81.0	84.8	82.9	71.1	71.8
	(-18.3)	(23.6)	(30.9)	(17.7)	(24.3)	(29.8)	(12.0)	(-5.8)	(-11.3)
Diesel	53.0	66.4	74.1	75.9	81.9	84.9	82.3	70.0	72.6
	(-20.4)	(25.2)	(29.9)	(18.2)	(24.1)	(27.9)	(11.1)	(-7.8)	(-11.3)
Bunker-C	35.4	49.7	56.7	56.4	58.9	65.2	68.3	56.5	57.8
	(-21.6)	(40.2)	(33.1)	(12.2)	(15.9)	(31.3)	(20.4)	(0.2)	(-1.8)
Propane	323.3	467.5	575.0	590.0	590.0	542.1	540.0	445.0	430.0
	(-22.3)	(44.6)	(47.4)	(55.3)	(35.6)	(16.0)	(-6.1)	(-24.6)	(-27.1)
Butane	355.8	501.7	580.0	570.0	570.0	539.2	525.0	415.0	420.0
	(-18.5)	(41.0)	(31.8)	(35.7)	(15.2)	(7.5)	(-9.5)	(-27.2)	(-26.3)
Naphtha	42.5	53.8	64.4	65.0	66.1	67.0	56.8	51.7	51.7
	(-19.0)	(26.6)	(38.4)	(26.9)	(19.4)	(24.5)	(-11.9)	(-20.4)	(-21.9)

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

Total Primary Energy Supply (TPES)

	2016	2017p					2018p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal (Mton)	129.3 (-4.3)	139.8 (8.1)	126.9 (8.1)	12.2 (16.2)	11.6 (11.1)	11.8 (6.3)	130.5 (2.8)	11.6 (-5.1)	11.0 (-5.2)	11.6 (-1.4)
- Coking coal excluded	95.8 (-2.5)	103.5 (7.9)	93.8 (8.1)	9.2 (19.9)	8.5 (13.2)	8.8 (5.3)	96.8 (3.2)	8.5 (-7.7)	7.9 (-7.4)	8.6 (-1.6)
Oil (Mbbbl)	921.1 (8.0)	937.1 (1.7)	852.0 (2.0)	77.0 (2.9)	79.9 (3.1)	80.2 (0.8)	846.0 (-0.7)	76.7 (-0.4)	73.3 (-8.3)	75.9 (-5.3)
- Non-energy oil excluded	454.9 (11.3)	443.7 (-2.5)	402.7 (-2.1)	36.7 (-0.5)	36.3 (-5.6)	37.9 (-3.6)	403.0 (0.1)	35.5 (-3.2)	33.7 (-7.0)	37.7 (-0.6)
LNG (Mton)	34.9 (4.4)	36.4 (4.3)	31.4 (1.6)	2.0 (-3.9)	2.2 (-14.6)	3.7 (3.7)	36.2 (15.4)	2.2 (5.5)	2.9 (34.4)	3.5 (-4.5)
Hydro (TWh)	6.6 (14.5)	7.0 (5.5)	6.5 (6.1)	0.7 (7.7)	0.6 (20.2)	0.5 (2.9)	6.7 (2.3)	0.7 (5.8)	0.5 (-9.9)	0.5 (17.2)
Nuclear (TWh)	162.0 (-1.7)	148.4 (-8.4)	138.0 (-7.6)	12.3 (-2.8)	12.1 (3.9)	11.3 (9.5)	121.1 (-12.3)	11.1 (-10.2)	12.1 (-0.2)	12.2 (7.7)
Others (Mtoe)	13.6 (5.7)	15.8 (16.7)	14.4 (16.5)	1.3 (21.5)	1.2 (12.4)	1.3 (16.8)	16.0 (11.1)	1.5 (10.7)	1.4 (16.1)	1.4 (6.4)
TPES (Mtoe)	293.4 (2.4)	302.1 (2.9)	273.0 (2.7)	24.1 (5.9)	24.1 (3.0)	26.1 (4.3)	278.5 (2.0)	23.7 (-1.6)	24.1 (-0.1)	25.5 (-2.4)
- Non-energy oil excluded	235.5 (1.8)	240.7 (2.2)	217.1 (1.9)	19.1 (5.8)	18.7 (0.8)	20.9 (4.1)	223.5 (2.9)	18.6 (-2.5)	19.2 (2.5)	20.7 (-0.5)
- Non-energy oil&coal excluded	212.0 (3.2)	215.4 (1.6)	194.0 (1.2)	17.0 (5.8)	16.6 (0.3)	18.7 (3.6)	200.0 (3.1)	16.5 (-3.1)	17.0 (2.7)	18.6 (-0.5)

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

Share of TPES by Sources

(unit: %)

	2016	2017p					2018p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Coal	27.7	28.5	28.7	31.2	29.8	27.7	28.9	30.3	28.2	27.9
- Coking coal excluded	19.7	20.2	20.2	22.4	20.9	19.6	20.4	21.1	19.2	19.7
Oil	40.1	39.5	39.8	40.7	42.1	39.3	38.6	41.0	38.8	38.0
- non-energy oil excluded	20.3	19.2	19.3	19.9	19.6	19.1	18.9	19.5	18.3	19.3
LNG	15.5	15.7	15.0	11.0	11.8	18.4	17.0	11.8	15.9	18.0
Hydro	0.5	0.5	0.5	0.6	0.5	0.4	0.5	0.6	0.5	0.4
Nuclear	11.6	10.5	10.8	10.9	10.7	9.2	9.3	9.9	10.7	10.2
Others	4.6	5.2	5.3	5.6	5.1	5.0	5.8	6.3	5.9	5.5
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)

	2016	2017p					2018p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industry	137.8 (1.9)	144.3 (4.7)	131.4 (4.8)	11.9 (4.6)	12.1 (3.3)	12.4 (4.7)	133.5 (1.6)	12.0 (0.7)	12.0 (-0.2)	12.0 (-3.2)
Transport	42.3 (6.1)	42.8 (1.2)	39.2 (1.6)	3.7 (3.6)	3.5 (0.1)	3.6 (2.5)	38.8 (-0.9)	3.6 (-2.7)	3.2 (-8.8)	3.7 (3.2)
Residential-commercial	38.7 (4.6)	39.9 (3.0)	34.7 (1.7)	2.4 (3.2)	2.5 (1.2)	3.6 (4.0)	36.8 (5.9)	2.4 (2.3)	2.7 (8.1)	3.5 (-3.3)
Public	6.2 (8.7)	6.9 (11.0)	6.2 (10.4)	0.5 (11.2)	0.5 (6.1)	0.6 (14.0)	6.7 (7.6)	0.6 (12.8)	0.5 (8.9)	0.6 (1.0)
TFC	225.1 (3.3)	233.9 (3.9)	211.5 (3.9)	18.5 (4.4)	18.5 (2.4)	20.2 (4.4)	215.8 (2.0)	18.6 (0.6)	18.5 (-0.5)	19.8 (-2.0)
Coal (Mton)	49.0 (-6.8)	50.4 (2.7)	45.9 (2.3)	4.1 (-4.5)	4.0 (-9.4)	4.5 (-1.5)	46.9 (2.2)	3.9 (-4.6)	4.4 (9.6)	4.6 (2.5)
Oil (Mbbl)	899.3 (7.3)	926.6 (3.0)	843.2 (3.4)	76.6 (3.6)	79.5 (4.6)	79.5 (1.7)	835.3 (-0.9)	76.3 (-0.4)	72.6 (-8.8)	75.4 (-5.2)
Electricity (TWh)	497.0 (2.8)	507.7 (2.2)	462.0 (1.9)	42.3 (2.7)	38.4 (-0.5)	41.3 (2.6)	480.8 (4.1)	43.7 (3.3)	40.0 (4.2)	41.9 (1.5)
City gas (Bm ³)	21.3 (2.3)	22.6 (6.3)	19.5 (4.6)	1.1 (11.7)	1.3 (0.8)	2.1 (8.2)	21.3 (9.2)	1.2 (2.8)	1.5 (22.3)	2.1 (1.3)
Heat-others (1 000 toe)	13.1 (4.2)	15.0 (14.0)	13.4 (13.3)	1.1 (17.0)	1.1 (9.8)	1.3 (14.8)	14.8 (10.4)	1.2 (10.0)	1.2 (14.9)	1.3 (2.4)

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

Share of the Total Final Consumption by Sources

(unit: %)

	2016	2017p					2018p			
			M1~11	M9	M10	M11	M1~11	M9	M10	M11
Industry	61.2	61.7	62.1	64.3	65.1	61.4	61.9	64.4	65.3	60.6
Transport	18.8	18.3	18.5	19.8	19.0	17.8	18.0	19.2	17.4	18.7
Residential-commercial	17.2	17.1	16.4	13.0	13.3	17.9	17.1	13.2	14.4	17.7
Public	2.8	3.0	2.9	2.9	2.6	2.9	3.1	3.3	2.9	3.0
Final energy	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Coal	14.3	14.3	14.4	14.8	14.6	14.4	14.4	14.2	15.8	15.0
Oil	50.8	50.4	50.7	52.9	54.5	50.4	49.1	52.2	50.0	48.6
Electricity	19.0	18.7	18.8	19.7	17.8	17.6	19.2	20.3	18.6	18.2
City gas	10.1	10.3	9.8	6.6	7.4	11.0	10.5	6.8	9.0	11.4
Heat-others	5.8	6.4	6.3	6.0	5.7	6.5	6.8	6.6	6.6	6.8

Note: p means provisional
Source: Monthly Energy Statistics

Statistics on Energy Production Facilities

	2016	2017	2018p			M9	M10	M11
			M9	M10	M11			
Total capacity (GW)	105.9 (8.4)	116.9 (19.7)	115.2 (19.0)	115.9 (18.9)	116.3 (19.1)	118.0 (15.7)	118.0 (14.5)	118.3 (14.5)
Nuclear	23.1 (6.4)	22.5 (3.7)	22.5 (3.7)	22.5 (3.7)	22.5 (3.7)	21.9 (0.6)	21.9 (0.6)	21.9 (0.6)
Bituminous coal	30.9 -	36.1 (16.8)	36.2 (25.6)	36.2 (21.2)	36.2 (21.2)	36.4 (0.4)	36.4 (0.4)	36.4 (0.4)
Gas	32.6 -	37.9 (16.0)	36.7 (12.4)	37.1 (13.8)	37.5 (14.9)	37.9 (3.3)	37.9 (2.0)	37.9 (1.0)
Refinery capacity (mil BPSD)	3.1 -	3.1 (0.2)	3.1 (0.2)	3.1 (0.2)	3.1 (0.2)	3.1 (0.2)	3.1 (0.2)	3.1 (0.2)

Note: () is year-on-year growth rates (%)
Source: The monthly report on major electric power statistics

Statistics on Energy Consumption

	2016	2017	2018p			M9	M10	M11
			M9	M10	M11			
The number of household demanding city gas (mil)	18.0 (3.4)	18.6 (3.3)	18.2 (3.3)	18.3 (3.1)	18.4 (3.0)	18.8 (3.0)	18.9 (3.3)	19.0 (3.2)
Registered cars (mil)	21.8 (3.9)	22.5 (3.3)	22.4 (3.5)	22.4 (3.4)	22.5 (3.4)	23.0 (3.0)	23.1 (3.0)	23.2 (3.0)
- gasoline	10.1 (2.9)	10.4 (2.7)	10.3 (2.9)	10.3 (2.9)	10.4 (2.9)	10.6 (2.4)	10.6 (2.5)	10.6 (2.5)
- diesel	9.2 (6.4)	9.6 (4.4)	9.5 (4.8)	9.5 (4.7)	9.5 (4.6)	9.9 (3.9)	9.9 (3.8)	9.9 (3.7)
- LPG	2.2 (-4.0)	2.1 (-2.9)	2.1 (-3.1)	2.1 (-3.0)	2.1 (-2.9)	2.1 (-3.2)	2.0 (-3.3)	2.0 (-3.3)
- hybrid	0.2 (37.6)	0.3 (37.6)	0.3 (36.4)	0.3 (36.2)	0.3 (37.6)	0.4 (30.8)	0.4 (31.3)	0.4 (31.2)

Note: () is year-on-year growth rates (%)
Source: Monthly energy statistics

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This report is written by the Energy Demand and Supply Division of the Center for Energy Information and Statistics in cooperation with the Energy Statistics Research Division of KEEI and other related research divisions.

The energy economic indicators included in this report will be constantly updated until further confirmation.

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