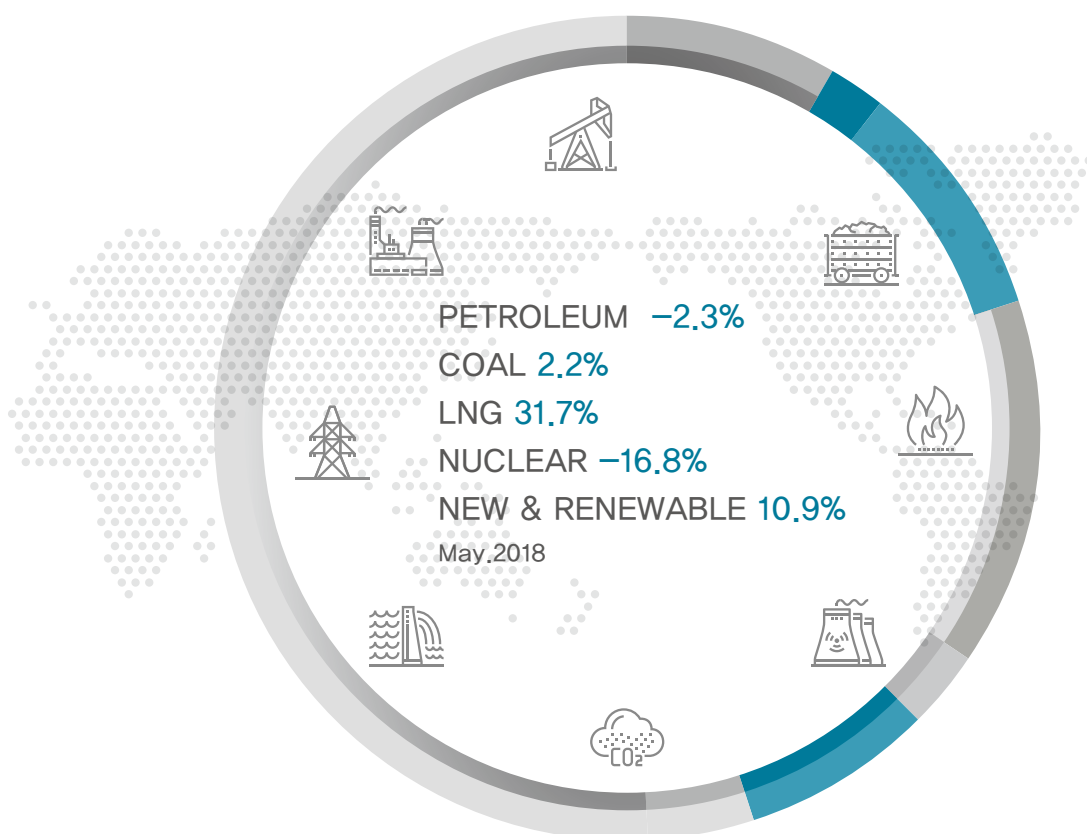


# KEEI

## MONTHLY KOREA ENERGY TRENDS

KOREA ENERGY ECONOMICS INSTITUTE

2018 / 08



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# 1. The Economy and the Industry

- **The total export value went up by 12.9% year-on-year in May due to the strongest performance of the semiconductor industry and picking up export in the petroleum & petrochemical product industries.**
  - The export value of semiconductors rose by 44.4% and crossed \$10 billion mark once again— setting an all-time high record and taking up 21.4% of the total export value— backed by continuously strong demand for sever DRAM and the launch of the up-to-date product, with the great China region and Southeast Asia being the main source of demand.
  - The export value of petrochemical products was up 27.3%, which was attributable to higher unit prices, the commissioning of new naphtha cracking centers (2017.6, 330,000tons) and accordingly increased outputs and picking up export to China. In the case of petroleum products, the export value rose by 41.6%, as the unit prices of petroleum products increased in line with rising oil prices.
  - The export value of marine vessels fell by 66.3%, owing to the base effect of a surge in the same month last year (27.6%) and the reduced backlog of orders.
  - The export value of iron & steel products fell slightly (-0.8%) despite increased global prices, due to the base effect of the steel structure export in the same month last year.
- **The production index of mining & manufacturing industries rose by 1.2%, with the ICT & basic chemical materials sectors taking the lead, and the service industry production index was up 2.3%.**
  - The production index of mining and manufacturing industries continued to grow moderately, helped by slower production decline in the automobile (-0.2%) and iron & steel sectors (-0.9%) in addition to the growth in the ICT (7.0%) and basic chemical materials (4.6%) sectors, although the index has been steadily falling in the cement sector (-11.0%).
  - The service industry production index maintained the growth rate of around 2%, with the help of the wholesale & retail (2.2%) and financial & insurance (7.1%) sectors, even though the index declined in the restaurant & accommodations (-1.8%) and art & sports & leisure (-2.3%) sectors.

► Trend in major economic and industrial indicators

	2016	2017p	2018p			M3	M4	M5
			M3	M4	M5			
GDP (trillion won)	1 509.8	1 556.0	366.2	-	-	376.4	-	-
	(2.9)	(3.1)	(2.9)	-	-	(2.8)	-	-
Total export (\$billion, customs clearance basis)	495.4	573.7	48.6	50.8	44.9	51.3	49.9	50.7
	(-5.9)	(15.8)	(13.1)	(23.8)	(13.1)	(5.5)	(-1.9)	(12.9)
Semi-conductors	62.9	62.2	5.6	5.7	5.6	8.8	9.7	9.5
	(0.4)	(-1.1)	(2.5)	(-2.6)	(1.7)	(56.7)	(69.9)	(69.6)
Petroleum products	26.5	35.0	3.0	2.5	2.8	3.1	4.0	3.9
	(-17.3)	(32.3)	(59.3)	(3.8)	(28.2)	(1.6)	(58.3)	(41.6)
Petrochemicals	36.2	44.7	4.1	3.7	3.4	4.1	4.1	4.3
	(-4.3)	(23.6)	(35.4)	(25.3)	(13.2)	(0.6)	(11.9)	(27.3)
Ships, marine structures & components	34.3	42.2	2.9	7.1	2.4	2.0	1.8	0.8
	(-14.6)	(23.1)	(11.5)	(102.7)	(27.6)	(-31.0)	(-75.1)	(-66.3)
Mining and manufacturing production index (2015=100)	102.3	104.2	110.6	103.3	104.3	106.3	104.3	105.5
	(2.3)	(1.8)	(5.0)	(3.7)	(1.8)	(-3.9)	(1.0)	(1.2)
ICT	107.0	110.9	112.2	101.9	108.4	114.8	113.9	116.0
	(7.0)	(3.6)	(14.7)	(3.9)	(2.7)	(2.3)	(11.8)	(7.0)
Service industry performance index (2015=100)	102.6	104.5	105.6	103.1	104.5	108.1	105.9	106.9
	(2.6)	(1.8)	(2.1)	(1.7)	(1.8)	(2.4)	(2.7)	(2.3)

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

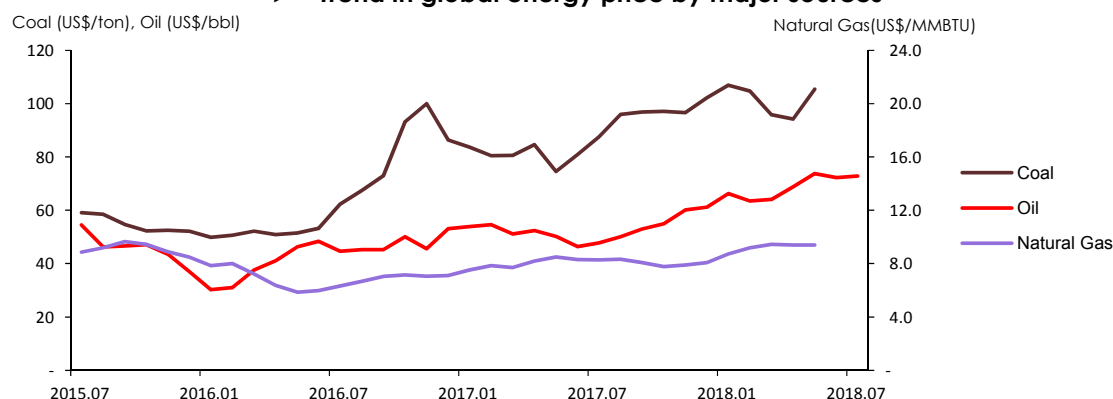
- **Global oil price inched up by 0.8% in July from the previous month amid growing geopolitical instability in the Middle East in addition to the reduced crude inventory levels in the U.S.**
  - Global oil price was driven up by a number of factors such as geopolitical instability that stemmed from escalating tensions between the U.S. and Iran and drawdown of the U.S. crude inventory.
  - Meanwhile, the intensifying trade dispute between the U.S. and China has been raising concerns over its adverse effect on the global economy and possible growth in petroleum demand, which consequently offset the oil price increase.
- **Global coal price soared in May to over \$100 per ton, while natural gas price has been flat at around \$9/MMBTU<sup>1</sup>.**
  - Global coal price went up by 11.9% from the previous month because of growing coal demand from China especially for power generation amid unusually hot weather in May.

#### ► Trend in global energy prices

	2016	2017				2018			
			M5	M6	M7	M5	M6	M7	
Crude oil (US\$/bbl)	43.3	53.0	50.2	46.4	47.8	73.8	72.3	72.9	
	(-15.2)	(22.4)	(8.6)	(-4.0)	(7.1)	(47.0)	(55.8)	(52.5)	
Natural gas (US\$/MMBTU)	6.9	8.0	8.5	8.3	8.3	9.4	-	-	
	(-32.6)	(16.9)	(45.1)	(38.6)	(31.2)	(10.6)	-	-	
Coal (US\$/ton)	65.9	88.4	74.5	81.0	87.5	105.5	-	-	
	(14.7)	(34.1)	(44.8)	(52.3)	(40.5)	(41.5)	-	-	

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)

#### ► Trend in global energy price by major sources



<sup>1</sup> World Bank's monthly price data was not updated in June and July, and the latest available data was for May.

## Domestic energy prices

- The prices of gasoline and diesel were almost the same as the previous month in July along with the stagnant global oil price.
  - Global oil price has been nearly flat in recent months (↓2.0% in June, ↑0.8% in July), and accordingly, domestic prices of gasoline and diesel were up mere 1.8 won/liter in July than a month ago.
- The prices of propane and butane increased by 2.3% and 3.0% respectively in July compared to the previous month in line with the global price hikes.
  - The global prices of propane and butane (Saudi Aramco's supply price), which are the basis for the domestic LPG price in the following month, were up 12.0% and 10.9% respectively to \$560/ton in June than a month ago.

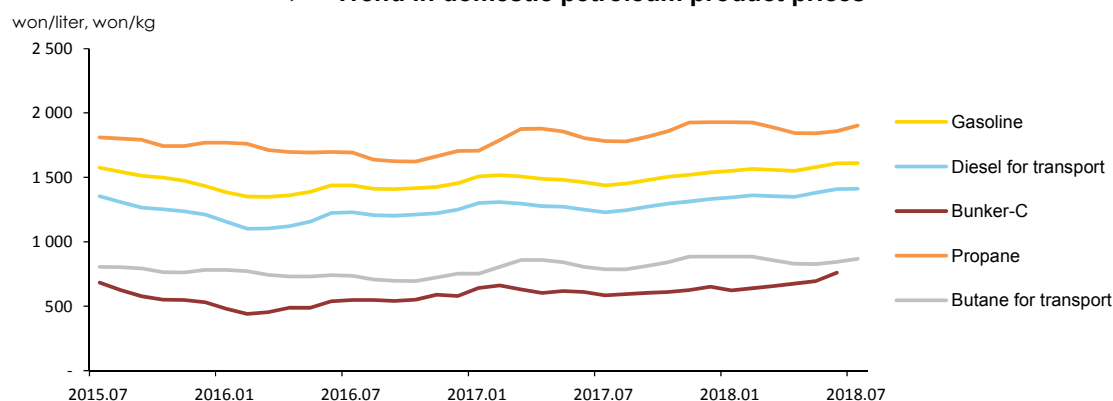
### ► Trend in domestic energy prices

	2016	2017				2018		
			M5	M6	M7	M5	M6	M7
Gasoline (won/liter)	1 402.9 (-7.1)	1 491.4 (6.3)	1 481.2 (6.7)	1 461.6 (1.7)	1 438.6 (0.1)	1 580.3 (6.7)	1 609.1 (10.1)	1 610.9 (12.0)
Diesel for transport (won/liter)	1 182.9 (-9.0)	1 282.6 (8.4)	1 271.4 (9.8)	1 251.5 (2.1)	1 229.8 (0.1)	1 380.2 (8.6)	1 410.0 (12.7)	1 411.9 (14.8)
Bunker-C (won/liter)	521.1 (-14.9)	619.4 (18.9)	617.6 (26.3)	610.4 (13.4)	584.6 (6.8)	695.9 (12.7)	759.5 (24.4)	-
Propane (won/kg)	1 689.7 (-6.2)	1 833.7 (8.5)	1 857.1 (9.7)	1 805.9 (6.4)	1 780.9 (5.2)	1 842.2 (-0.8)	1 860.0 (3.0)	1 902.9 (6.9)
Butane for transport (won/liter)	733.9 (-9.0)	826.4 (12.6)	842.3 (15.2)	804.7 (8.6)	786.6 (6.9)	826.9 (-1.8)	843.7 (4.8)	869.1 (10.5)

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

Source: www.opinet.co.kr

### ► Trend in domestic petroleum product prices



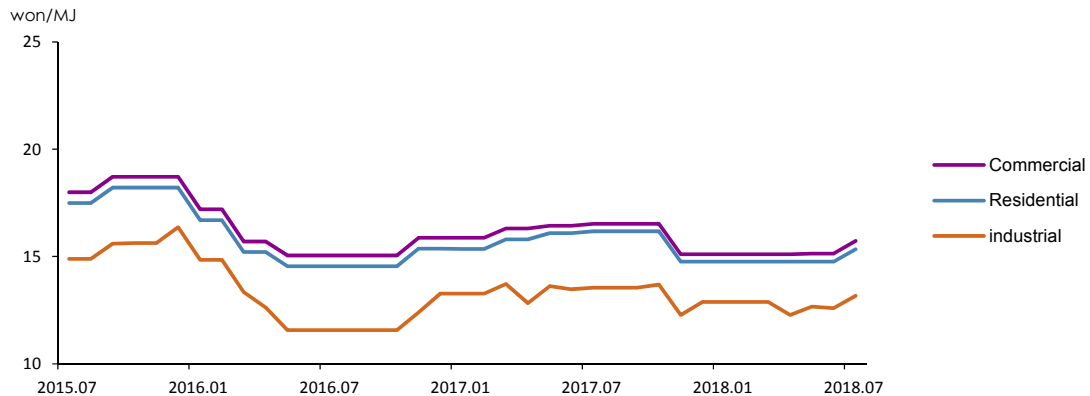
□ **City gas price increased by around 4% in July than a month ago, reflecting the recent rise in LNG price.**

- City gas price for commercial, residential and industrial use went up by 3.9%, 4.0% and 4.7% respectively in July from the previous month after eight months of stagnant prices, as LNG import price went up, affected by the upward trend of global oil prices in the 1<sup>st</sup> half of 2018.

□ **Heat energy price rose by 0.53% for all end-users as a result of the city gas price adjustment and yearly calculation of fuel costs.**

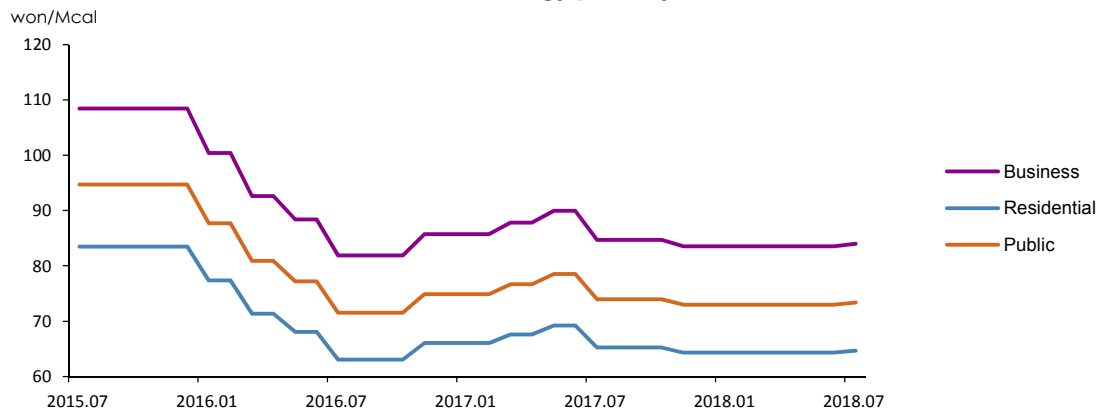
- Korea District Heating Corporation's heat energy price is linked to city gas price according to the fuel cost pass-through scheme, and the actual fuel cost is reflected in the heat energy price once a year (LNG for over 100MW, city gas for under 100MW).

### ► Trend in city gas price by end-use sectors



Note: Instead of volume(M<sup>3</sup>), 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 price by end-use sectors

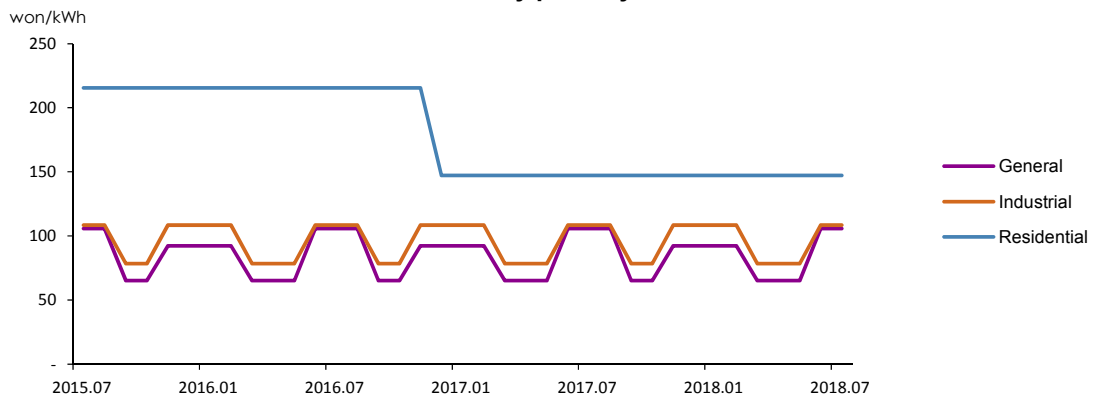


Note: The rates are based on flat rate for heating (additional tax, base charge excluded)

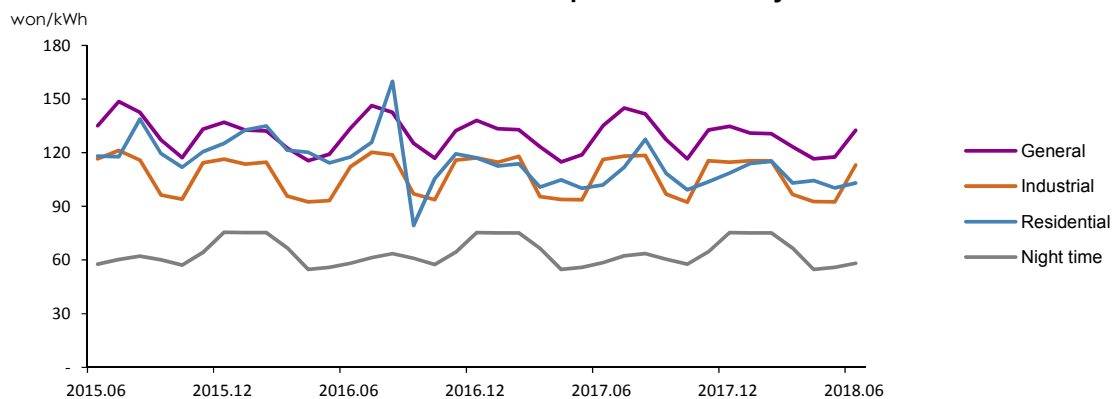
Source: Korea District Heating Corporation.

- **Electricity price increased sharply<sup>2</sup> after the prices for industrial and general use were seasonally adjusted in June from spring to summer.**
  - Electricity prices for industrial and general use change based on season and the time of day, and the prices increased by 38.2% and 62.1% respectively (in June) following the price adjustment from spring/autumn (Mar-May, Sep-Oct) to summer (Jun-Aug).
- **The unit prices of electricity for industrial and general use rose dramatically in June due to the seasonal price adjustment.**
  - The unit prices of electricity for general and industrial use jumped by 12.8% and 22.2% from the previous month after the prices were adjusted for summer, while that of residential electricity, which does not change by season, rose by no more than 2.8%.

► **Trend in electricity price by end-use sectors**



► **Trend in unit price of electricity**



<sup>2</sup> The electricity prices by end-use sectors refer to the prices for residential use ([high voltage], the 2<sup>nd</sup> 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 recorded a year-on-year growth of 6.3% in May, as the import of major energy commodities all increased.**
  - The import price of crude oil rose by 36.0% year-on-year in May to \$71.2/bbl, LNG up 17.9% to \$510.1/ton and bituminous coal up 1.7% to \$114.7/ton.
  - The crude oil import grew by 2.7% with bigger input to refineries (6.0%), and that was more from Asia and the Americas and less from the Middle East due to its oil output reduction policy.
  - The import volume of petroleum products rose by 2.5% year-on-year, as the construction of new NCCs led to increased naphtha consumption and thus more import demand, although the LPG import volume declined thanks to the increased domestic production.
  - The LNG import was up 11.7% coming more from Qatar, Indonesia and the U.S., and the import volume of bituminous coal, used as raw material and fuel, has been up for two straight months
  - The foreign energy dependence including nuclear energy fell by 0.5%p to 93.5% partly because of increased renewable generation. The energy share of the total import value rose by 3.6%p to 25.8%, affected by higher energy prices.

#### ► Trend in energy trade and domestic production

	2016	2017p			2018p		
			M1~5	M5	M1~5	M4	M5
Import volume							
Crude oil (Mbbbl)	1 078.1 (5.1)	1 118.2 (3.7)	455.4 (1.7)	92.7 (-0.1)	459.4 (0.9)	87.2 (3.1)	95.2 (2.7)
Petroleum product (Mbbbl)	334.6 (8.7)	314.8 (-5.9)	131.7 (-2.0)	27.2 (6.1)	139.6 (6.1)	26.8 (5.4)	27.9 (2.5)
Bituminous coal (Mton)	118.5 (-0.8)	131.5 (11.0)	54.1 (14.5)	9.8 (13.6)	55.7 (3.0)	12.3 (17.8)	9.9 (1.8)
Anthracite (Mton)	9.4 (5.4)	7.0 (-25.7)	3.3 (-5.8)	0.6 (-28.1)	3.3 (0.3)	0.7 (16.6)	0.8 (34.1)
LNG (Mton)	33.5 (0.3)	37.6 (12.3)	16.2 (14.2)	2.5 (12.1)	19.0 (17.0)	3.2 (38.0)	2.8 (11.7)
Import volume (Mtoe)	323.1 (2.7)	339.3 (5.0)	140.8 (6.2)	26.8 (5.6)	147.7 (4.9)	29.0 (12.9)	28.5 (6.3)
Import value (billion US\$, CIF)	80.9 (-21.2)	109.5 (35.2)	45.6 (52.7)	8.7 (37.5)	56.6 (24.2)	10.7 (30.5)	11.4 (30.9)
Domestic production							
Hydropower (TWh)	6.6 (14.5)	7.0 (5.4)	2.7 (6.6)	0.6 (-4.4)	2.7 (0.4)	0.5 (-2.8)	0.8 (29.9)
Anthracite (Mton)	1.7 (-2.2)	1.5 (-13.9)	0.7 (-7.0)	0.1 (-17.5)	0.6 (-12.8)	0.1 (-11.9)	0.1 (-5.1)
Natural gas (Mton)	0.1 (-18.0)	0.3 (120.5)	0.1 (179.2)	0.0 (167.4)	0.1 (-7.1)	0.0 (-7.1)	0.0 (-5.6)
Renewable energy (Mtoe)	13.6 (5.7)	15.0 (10.2)	6.2 (10.1)	1.2 (12.0)	7.0 (12.0)	1.4 (14.3)	1.4 (10.9)

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

## 4. Energy Consumption

□ **Total Primary Energy Supply (“TPES”) made a year-on-year growth of 3.8% in May despite decreased nuclear generation, as coal, petroleum and gas consumption all increased.**

- Coal consumption was up 2.2%, backed by solid consumption growth in the industrial sector, especially the use of bituminous coal for steelmaking and other industrial use. Meanwhile, the consumption grew more slowly, as the temporary shutdown of old coal-fired power plants in spring led to decreased coal use for power generation.
- Petroleum consumption rose by 2.3%, marking two consecutive months of increase; LPG consumption grew, as the prices of petroleum products stayed stable at low level, and naphtha consumption surged due to the commissioning of new NCCs and reduced regular maintenance.
- Gas consumption has been growing fast for seven months in a row, led by the power generation and city gas production sectors.
- The total nuclear generation fell by 16.8%, as the average capacity factor declined by 11.7%p year-on-year to 67.8%, owing to the delayed power plant restart, the closure of Wolsong unit1, and thus much increased preventive maintenance (4.9GW, 175.0%).

□ **Total Final Consumption (“TFC”) recorded a year-on-year growth of 4.2% despite less energy use in the transport sector, because the energy consumption increased in the industrial and buildings sectors.**

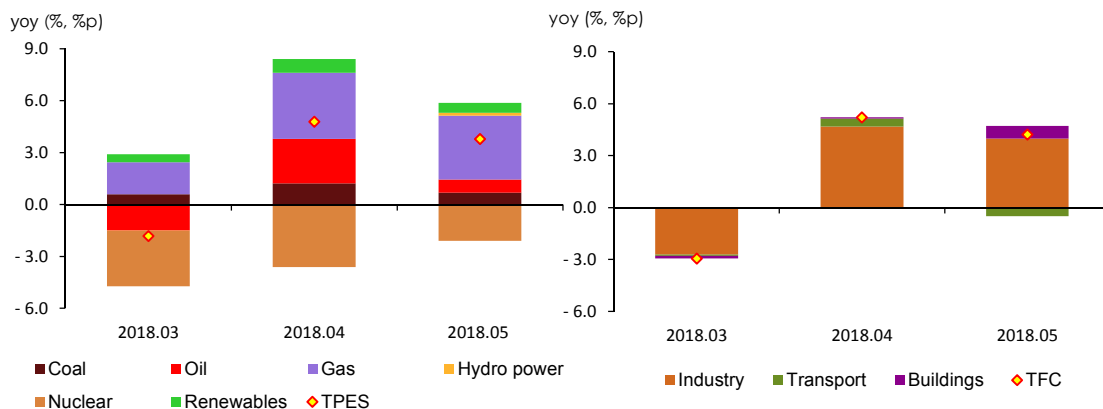
- Industrial energy consumption grew by over 6% for two straight months, driven by increased use of naphtha and electricity with the construction of new petrochemical and iron & steel facilities, more work days (0.5) and reduced regular maintenance at NCCs.
- Transport energy consumption was down 2.5% mostly in the road transport sector due to rapidly growing fuel prices, although the aviation sector consumed more energy.
- Energy consumption in buildings increased by 4.9%, especially in residential buildings, affected by lower heat energy price and increased number of heating degree days.
- The total electricity consumption rose by 4.6%; the consumption increased in the buildings sector with stronger service production and higher temperature; the industrial power use also increased with more work days (0.5) and bigger outputs of semiconductors, petrochemical products and electric furnace steel.

### ► Energy consumption trend

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>Total energy (Mtoe)</b>	<b>294.6</b> (2.4)	<b>301.1</b> (2.2)	<b>125.6</b> (1.6)	<b>23.4</b> (1.4)	<b>129.6</b> (3.2)	<b>24.1</b> (4.8)	<b>24.3</b> (3.8)
<b>Final energy (Mtoe)</b>	<b>225.5</b> (3.3)	<b>232.5</b> (3.1)	<b>98.2</b> (3.2)	<b>18.2</b> (2.7)	<b>101.4</b> (3.2)	<b>19.2</b> (5.2)	<b>19.0</b> (4.2)

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

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



## 5. Coal

☐ Coal consumption grew at slower pace in May, as it started to decline in the transformation sector, although the industrial coal consumption maintained a rapid growth.

- Coal consumption had increased in the transformation sector for ten consecutive months (17.7~18.4) with much increased installed capacity. The consumption, however, started to decline in May following the temporary shutdown of old coal-fired power plants in spring months.
- Industrial coal consumption posted a year-on-year growth of 7.2% due to the surge in industrial anthracite use and decent consumption growth in the steelmaking sector that takes up a large part of the total industrial coal consumption. Meanwhile, coal use for cement production has been falling by double-digits for 10 months in a row.

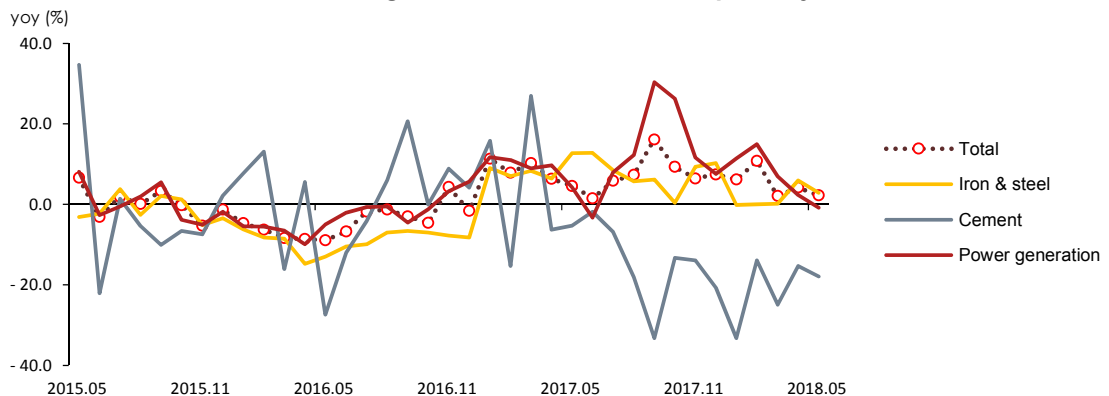
► Coal consumption trend

	2016	2017p		2018p		M1~5	M4	M5
Coal (Mton)	129.4	139.6	56.2	10.7	59.0	10.7	10.9	
	(-4.3)	(7.9)	(8.2)	(4.6)	(5.1)	(4.2)	(2.2)	
Industry	47.9	49.2	20.4	4.1	20.7	4.2	4.4	
	(-6.6)	(2.7)	(7.0)	(5.3)	(1.5)	(7.3)	(7.0)	
Buildings	1.3	1.1	0.4	0.0	0.3	0.0	0.0	
	(-14.8)	(-14.1)	(-17.6)	(-29.2)	(-10.8)	(-8.3)	(17.6)	
Power generation	80.3	89.4	35.4	6.6	38.0	6.5	6.5	
	(-2.7)	(11.3)	(9.2)	(4.3)	(7.3)	(2.4)	(-0.8)	

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 went up by 2.3% in May despite less use of gasoline, diesel and bunker-C oil, as naphtha, LPG and jet oil consumption all increased.**

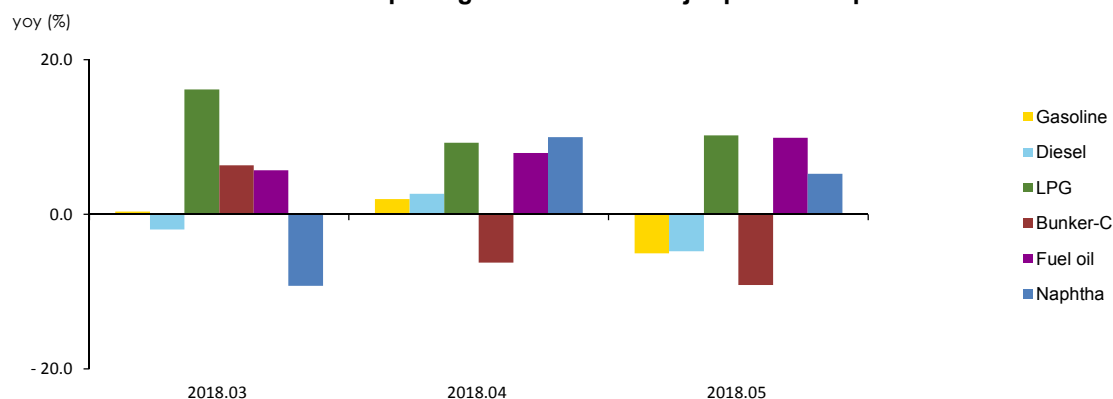
- The industrial sector posted a 5.7% growth in petroleum consumption, especially naphtha and LPG, and it led the growth of the total consumption.
- Petroleum consumption fell by 3.2% in the transport sector due to the consumption decline in the road transport and domestic navigation sectors, although the aviation sector consumed more.
- Petroleum consumption in buildings has grown for two straight months despite higher prices of major petroleum products except LPG, due to increased number of heating degree days, vigorous service production and lower LPG price and thus increased LPG use (18.1%).

### ► Trend in petroleum product consumption by end-use sectors

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>Petroleum (Mbbbl)</b>	<b>924.2</b> (7.9)	<b>938.2</b> (1.5)	<b>383.9</b> (1.4)	<b>76.8</b> (1.1)	<b>391.9</b> (2.1)	<b>76.7</b> (6.7)	<b>78.6</b> (2.3)
Industry	542.6 (8.3)	566.8 (4.5)	230.6 (6.3)	46.3 (2.4)	235.5 (2.1)	47.0 (9.3)	48.9 (5.7)
Transport	303.6 (5.7)	304.4 (0.3)	123.0 (-0.7)	26.3 (2.1)	123.3 (0.2)	25.0 (1.9)	25.5 (-3.2)
Buildings	56.3 (5.2)	56.9 (1.1)	24.9 (-4.6)	3.6 (1.3)	26.7 (7.2)	4.3 (10.1)	3.7 (4.9)
Power generation	21.8 (48.7)	10.1 (-53.6)	5.3 (-54.2)	0.6 (-58.4)	6.3 (20.8)	0.4 (-8.9)	0.4 (-29.8)

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

### ► The consumption growth rates of major petroleum products



## 7. Gas

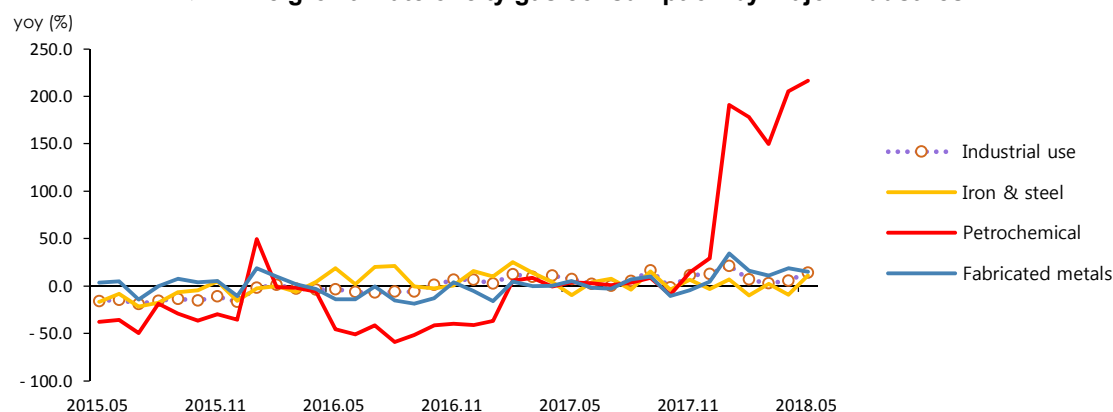
- **Natural gas consumption grew faster in MAY, as it surged in the power generation sector amid sharply decreased baseload generation and growing power demand.**
  - Gas use for power generation posted the largest growth since November 2016 (60.4%), because baseload generation declined with sharply decreased nuclear generation, while electricity consumption grew decently.
- **City gas consumption went up by 7.7% year-on-year (in May), as the consumption soared in the industrial sector and started to increase in the buildings sector.**
  - Industrial city gas use has been up for seven months in a row, driven up by the petrochemical sector where the city gas consumption surged with stronger price competitiveness.
  - City gas use in buildings rebounded despite a sharp fall in commercial buildings, because city gas use increased in residential buildings that takes up a large part of the total consumption.

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

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>LNG (Mton)</b>	<b>34.9</b>	<b>36.1</b>	<b>16.2</b>	<b>2.1</b>	<b>19.4</b>	<b>3.1</b>	<b>2.7</b>
	(4.4)	(3.5)	(3.2)	(0.1)	(19.6)	(27.3)	(31.7)
Power generation	15.5	15.4	6.1	1.0	8.0	1.5	1.4
	(6.4)	(-0.6)	(4.2)	(-1.9)	(31.1)	(54.0)	(45.1)
City gas production	17.4	18.4	9.1	1.0	10.1	1.4	1.1
	(2.7)	(5.8)	(2.6)	(1.5)	(10.4)	(6.3)	(14.8)
<b>City gas (bm<sup>3</sup>)</b>	<b>21.3</b>	<b>22.6</b>	<b>11.7</b>	<b>1.3</b>	<b>12.4</b>	<b>1.8</b>	<b>1.4</b>
	(2.3)	(6.2)	(4.4)	(3.1)	(6.1)	(-2.9)	(7.7)
Industry	7.2	7.8	3.5	0.6	3.8	0.7	0.7
	(-1.4)	(7.6)	(8.5)	(7.5)	(10.2)	(5.8)	(14.1)
Buildings	12.8	13.6	7.7	0.6	8.1	1.0	0.7
	(5.0)	(6.0)	(3.0)	(-0.3)	(4.7)	(-8.4)	(3.2)

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

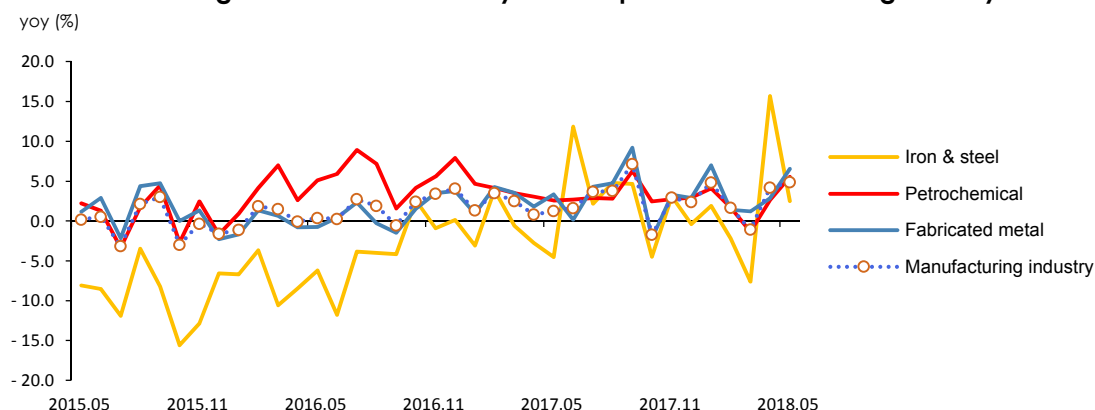
- **Electricity consumption rose by 4.6% year-on-year in May, and the consumption increased in both of the industrial and buildings sectors.**
  - Industrial electricity consumption rose by around 4%, as the consumption grew fast in the three largest electricity consuming businesses in the manufacturing sector due to growing export demand for semiconductors, more work days (0.5) and the facility extension.
  - Electricity consumption in buildings grew fast by over 4% (in May), owing to the increased service production and temperature effect.

### ► Trend in electricity consumption by end-use sectors

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>Electricity (TWh)</b>	<b>497.0</b>	<b>507.7</b>	<b>211.7</b>	<b>38.7</b>	<b>220.6</b>	<b>42.0</b>	<b>40.5</b>
	(2.8)	(2.2)	(1.4)	(1.3)	(4.2)	(3.0)	(4.6)
Industry	270.0	276.7	114.4	22.3	117.7	23.5	23.3
	(1.6)	(2.5)	(2.0)	(1.5)	(3.0)	(3.9)	(4.6)
Transport	2.7	2.8	1.1	0.2	1.2	0.2	0.2
	(21.3)	(4.9)	(1.4)	(5.3)	(9.0)	(8.3)	(4.3)
Buildings	224.4	228.3	96.3	16.2	101.7	18.3	17.0
	(4.0)	(1.7)	(0.7)	(1.0)	(5.6)	(1.8)	(4.6)

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

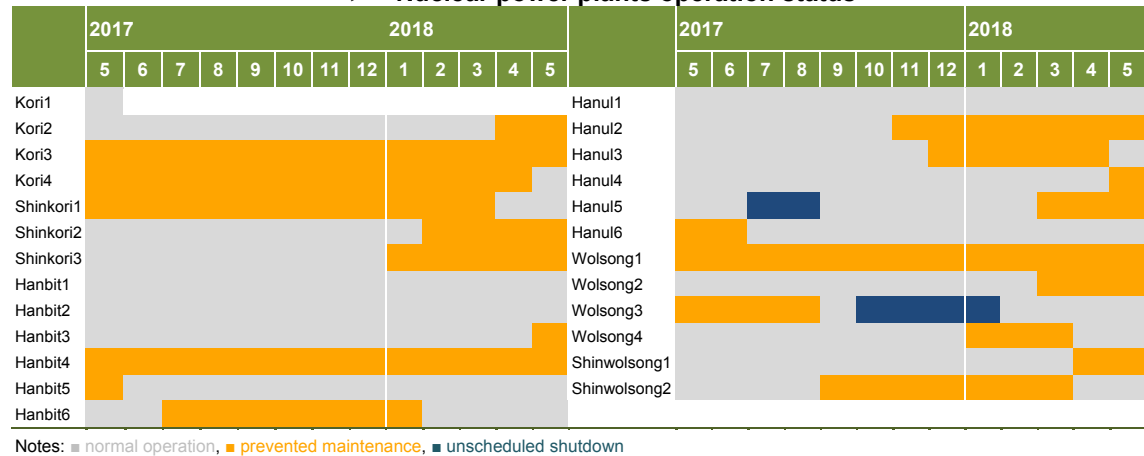
### ► The growth rate of electricity consumption in manufacturing industry



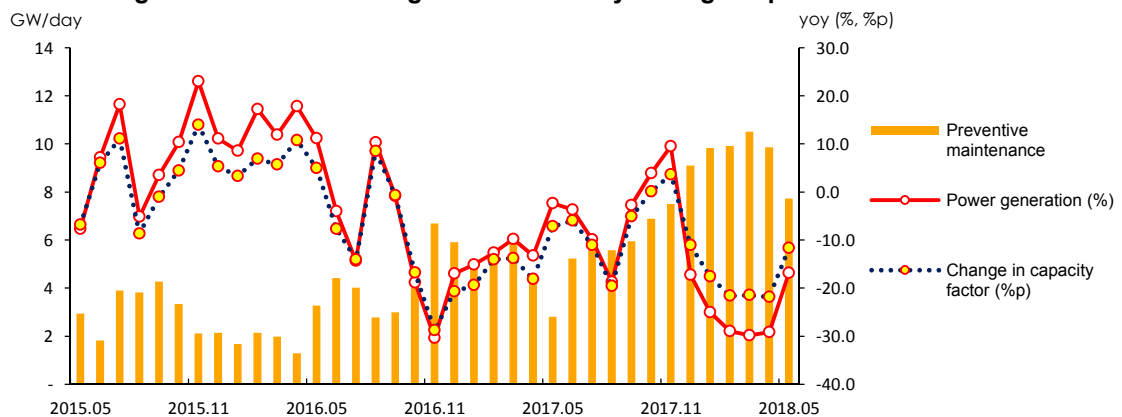
## 9. Nuclear

- The total nuclear generation fell by 16.8% year-on-year in May because of the intensified safety inspections at nuclear power plants and the closure of wolsong unit1.
- The average capacity factor declined by 11.7%p to 67.8% due to the stronger safety checks and consequently delayed permission for power plant restart in addition to the shutdown of wolsong unit1.

### ► Nuclear power plants operation status



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



## 10. Heat and Renewable energy

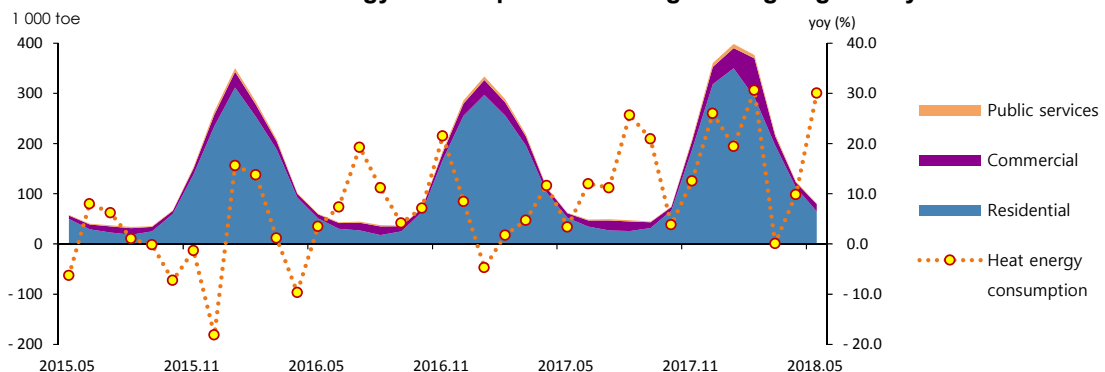
□ **Heat energy use jumped by 30.0% in May on a year-on-year basis according to the increased number of heating degree days and the commissioning of a new CHP plant.**

- Several factors caused a sudden growth in heat energy consumption, including lower average temperature (-1.3°C), increased heating degree days (18.1degree days, 127.5%), the commissioning of a new CHP plant and lower heat energy price (-7.1%) due to the base effect of price increase in the same month last year.

□ **Renewable & other energy consumption rose by 12.7% amid increased hydropower & renewable generation and constantly growing renewables' share of TFC.**

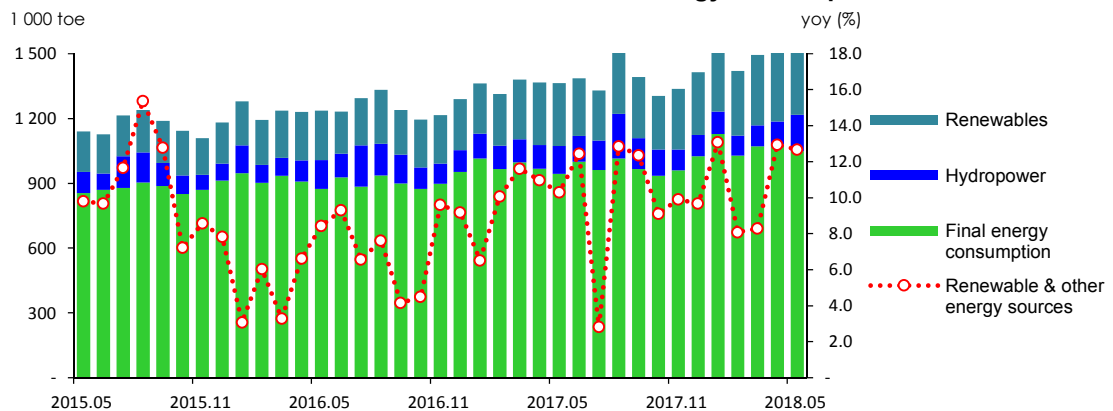
- Renewable generation increased by 11.5% with solar PV, wind energy and fuel cells taking the lead, although waste energy and bioenergy generation declined. The renewables' share of TFC also grew by 11.5%, as the consumption grew in the industrial and buildings sectors.
- Hydropower generation was up 29.9% to 787.6GWh (in May) based on heavier rainfall(123.7mm) compared to the same month last year (28.5mm).

### ► Heat energy consumption & heating/cooling degree days



Note: The heat energy consumption is based on the supply of KDHC, GS Power, SH Corp. In accordance with the heating/cooling degree days of the meteorological agency, base temperature of heating degree days is set at 18°C and that of cooling degree days was revised from 18°C to 24°C.

### ► Trend in renewable and other energy consumption



# 11. Industry

□ Industrial energy consumption recorded a year-on-year growth of 6.2% in May, as the consumption was recovered in large energy consuming businesses.

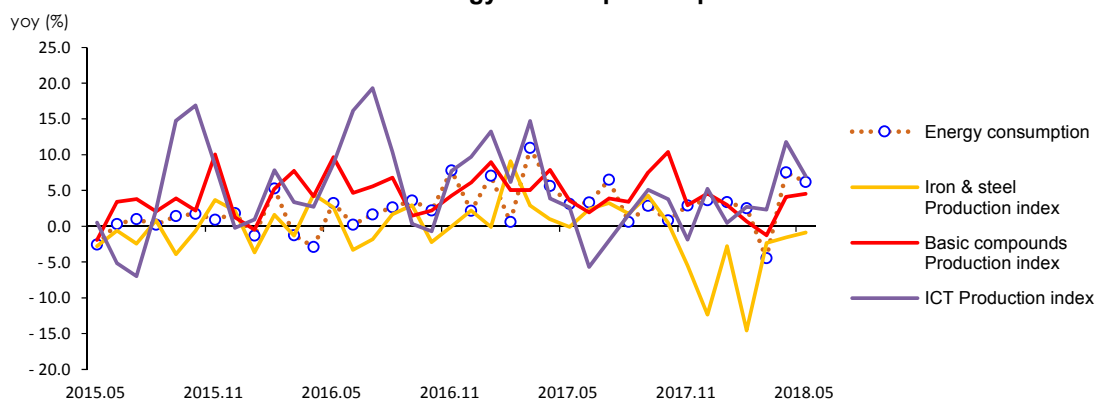
- Industrial energy consumption grew fast, especially in the petrochemical and primary metals sectors, due to the increased number of work days (0.5) and the build-up of new facilities.

## ► Trend in the industrial energy consumption

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>Industry (Mtoe)</b>	<b>138.3</b>	<b>143.8</b>	<b>59.2</b>	<b>11.7</b>	<b>61.0</b>	<b>12.2</b>	<b>12.5</b>
	(1.9)	(4.0)	(5.5)	(3.1)	(2.9)	(7.6)	(6.2)
Petrochemical	65.9	68.6	28.2	5.6	29.6	5.8	6.1
	(6.8)	(4.1)	(5.8)	(2.3)	(5.1)	(12.3)	(9.4)
- Naphtha	52.7	56.2	23.0	4.5	23.3	4.6	4.8
	(4.7)	(6.6)	(6.6)	(3.3)	(1.5)	(10.0)	(5.3)
Iron & Steel	28.1	30.0	12.3	2.5	12.5	2.5	2.6
	(-8.0)	(6.7)	(6.9)	(8.8)	(1.6)	(6.1)	(2.9)
-Coking coal	23.4	25.2	10.2	2.1	10.4	2.0	2.1
	(-9.0)	(7.5)	(8.3)	(12.2)	(1.7)	(5.9)	(2.9)
Fabricated metal	10.6	10.9	4.6	0.9	4.8	0.9	0.9
	(0.4)	(3.0)	(2.9)	(4.9)	(4.9)	(3.2)	(5.3)
Share of feedstock (%)	58.7	59.9	59.2	60.1	58.3	58.4	59.0

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

## ► Industrial energy consumption & production index



## 12. Transport

□ Transport energy consumption went down by 2.5% in May on a year-on-year basis because of the consumption decline in the road transport and domestic navigation sectors, although the aviation sector consumed more energy.

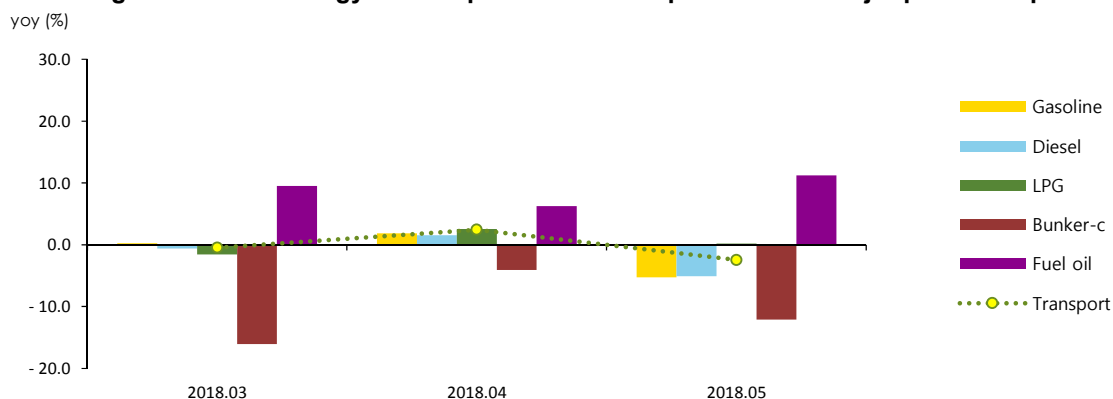
- Energy consumption started to decline in the road transport sector with less use of diesel and gasoline, even though LPG and renewable energy were more consumed.
- Energy consumption has been down for four consecutive months in the domestic navigation sector despite increased export volume (18.4%), because of higher bunker-C price and reduced coastal transport (-16.0%).
- Energy consumption in the aviation sector has grown for three straight months, partially offsetting the consumption decline in the transport sector, as the number of international flights, domestic passengers going abroad and travelers visiting China all increased, although domestic flights & air cargo and the number of passengers visiting Jeju island decreased.

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

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>Transport (Mtoe)</b>	<b>42.7</b>	<b>43.0</b>	<b>17.4</b>	<b>3.7</b>	<b>17.5</b>	<b>3.6</b>	<b>3.6</b>
	(6.0)	(0.7)	(-0.3)	(2.7)	(0.6)	(2.4)	(-2.5)
Road	34.4	34.4	13.9	3.0	13.9	2.9	2.9
	(4.9)	(0.2)	(-0.8)	(3.3)	(0.3)	(2.4)	(-3.4)
Navigation	3.4	3.4	1.5	0.3	1.3	0.3	0.3
	(13.8)	(2.0)	(7.1)	(-0.8)	(-8.0)	(-3.2)	(-11.5)
Aviation	4.7	4.8	1.9	0.4	2.1	0.4	0.4
	(9.1)	(3.2)	(-1.1)	(0.1)	(9.3)	(6.2)	(11.1)
Rail	0.3	0.3	0.1	0.0	0.1	0.0	0.0
	(8.3)	(2.5)	(-2.9)	(1.4)	(6.9)	(6.9)	(4.9)

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 went up by 4.9% year-on-year in May, influenced by higher heating degree days and lower energy prices.

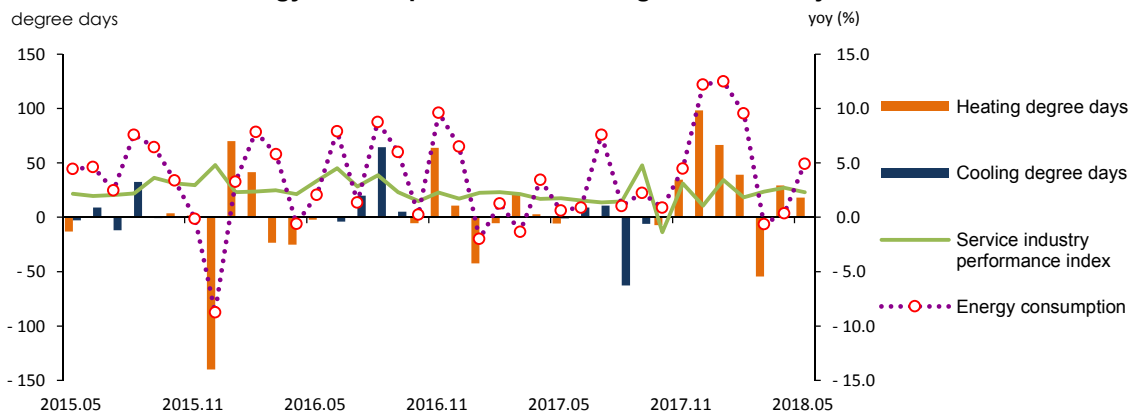
- Energy consumption in buildings increased, particularly in residential buildings, because of the increased heating degree days and rapidly decreased energy prices due to the base effect of price increase in the same month last year.
- Energy consumption in residential buildings rose by 12.2% amid the increased heating degree days; city gas, LPG and heat energy were the driving force behind the consumption growth (21.5%, 19.4% and 24.5%); electricity consumption also increased by 3.2%.
- Energy consumption in commercial buildings fell slightly despite increased use of petroleum & electricity (14.1%, 5.1%), because city gas consumption plunged. Meanwhile, the pace of decline was slower than the previous month.

### ► Energy consumption trend in the buildings sector

	2016	2017p			2018p		
			M1~5	M5	M1~5	M4	M5
Buildings (Mtoe)	44.5	45.7	21.6	2.8	22.9	3.5	2.9
	(5.1)	(2.6)	(0.1)	(0.6)	(6.1)	(0.4)	(4.9)
Residential	21.3	21.9	11.2	1.1	12.3	1.7	1.3
	(5.6)	(3.0)	(-0.4)	(-1.8)	(9.4)	(2.7)	(12.2)
Commercial	17.0	17.4	7.7	1.2	7.8	1.2	1.2
	(3.3)	(2.4)	(0.6)	(1.2)	(1.4)	(-5.7)	(-0.7)
Public:others	6.2	6.4	2.7	0.5	2.9	0.5	0.5
	(8.4)	(1.9)	(1.2)	(5.5)	(6.0)	(8.6)	(1.1)

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 posted a year-on-year growth of 1.3% in May, and gas accounted for the majority part of the growth.
  - Gas use increased in the power generation sector in order to fill the gap left behind plunged baseload generation (coal + nuclear).
  - Gas has been taking up a bigger share of the total generation compare to that of nuclear energy since November 2017.

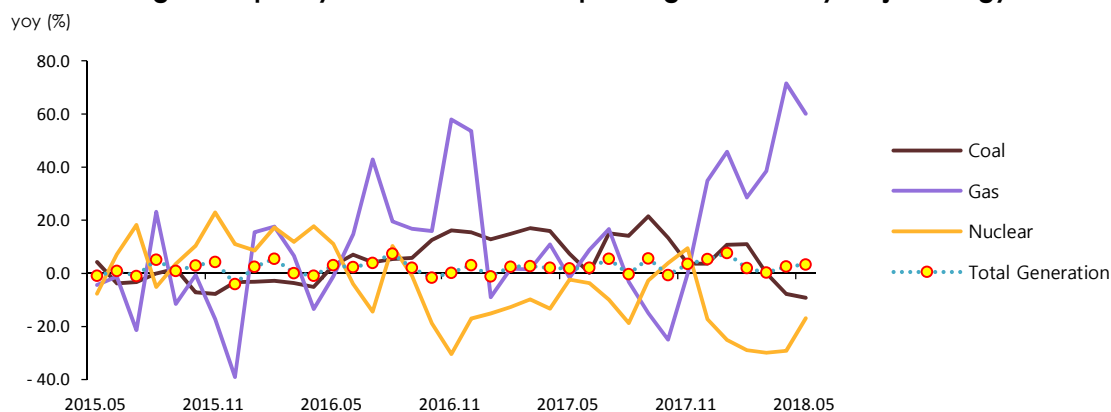
### ► Energy consumption in the power generation sector

	2016	2017p	2018p				
			M1~5	M5	M1~5	M4	M5
<b>Input (Mtoe)</b>	<b>110.9</b>	<b>110.9</b>	<b>45.5</b>	<b>8.6</b>	<b>46.2</b>	<b>8.4</b>	<b>8.7</b>
	(0.8)	(-0.0)	(-1.8)	(-1.3)	(1.7)	(0.3)	(1.3)
Coal	49.2	52.8	20.9	3.9	22.5	3.8	3.8
	(-2.8)	(7.4)	(5.2)	(0.6)	(7.6)	(2.5)	(-0.6)
Oil	3.0	1.2	0.6	0.1	0.7	0.0	0.0
	(50.1)	(-59.7)	(-60.6)	(-67.1)	(5.7)	(-22.9)	(-29.5)
Gas	20.5	20.5	8.1	1.3	10.6	2.0	1.9
	(6.3)	(-0.0)	(4.7)	(-1.2)	(30.7)	(53.1)	(44.3)
Nuclear	34.2	31.6	14.0	2.9	10.4	2.0	2.4
	(-1.7)	(-7.5)	(-9.9)	(-1.4)	(-25.9)	(-29.2)	(-16.8)
Hydro/other renewables	4.0	4.7	1.9	0.4	2.2	0.5	0.5
	(17.4)	(16.4)	(17.7)	(15.7)	(14.8)	(16.3)	(15.9)

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		2019	2020
		1Q	2Q	3Q	4Q	1Q	2Q		
GDP (trillion won)	1 466.8 (2.8)	1 509.8 (2.9)	378.3 (2.7)	396.5 (2.6)	366.2 (2.9)	1 556.0 (3.1)	392.6 (3.8)	407.6 (2.8)	376.4 (2.8)
Private consumption	707.5 (2.2)	725.4 (2.5)	182.1 (2.8)	184.5 (1.4)	185.8 (2.1)	744.3 (2.6)	186.8 (2.6)	190.7 (3.4)	192.4 (3.5)
Facilities investment	140.3 (4.7)	138.8 (-1.0)	33.6 (-2.5)	37.4 (3.3)	37.3 (16.1)	159.1 (14.6)	39.1 (16.3)	40.6 (8.6)	40.1 (7.3)
Construction investment	211.5 (6.6)	233.4 (10.3)	62.0 (11.0)	65.1 (11.9)	49.5 (11.3)	251.1 (7.6)	67.0 (8.0)	67.6 (3.8)	50.4 (1.8)
Consumer price index (2015=100)	100.0	101.0	101.0	101.5	102.7	102.9	103.3	103.1	104.0
USD to KRW exchange rate (won)	1 131.0	1 160.8	1 121.1	1 156.4	1 154.9	1 131.0	1 132.3	1 107.5	1 072.7
Benchmark rate (%)	1.6	1.4	1.3	1.3	1.3	1.3	1.3	1.4	1.5
Coincident composite index (2015=100)	100.0	103.3	103.9	104.5	105.9	107.0	107.4	107.9	108.5
Mining & manufacturing production index (2015=100)	100.0	102.3	100.2	108.4	103.2	104.2	104.8	104.3	100.9
Manufacturing operation ratio index (2015=100)	100.0	98.2	95.5	101.4	95.9	97.1	98.1	96.0	92.7
Average temperature	13.6	13.6	25.8	8.0	1.4	13.0	25.0	6.7	0.8
- year-on-year difference	0.2	- 0.0	0.9	- 0.6	0.1	- 0.6	- 0.8	- 1.3	- 0.6
Heating degree days	2 459.1 (-1.7)	2 589.7 (5.3)	0.3 n.a	935.3 (8.0)	1 487.5 (-1.7)	2 687.6 (3.8)	0.6 (100.0)	1 060.9 (13.4)	1 538.9 (3.5)
Cooling degree days	151.8 (21.1)	238.1 (56.9)	227.9 (64.8)	- n.a	- n.a	188.1 (-21.0)	169.9 (-25.5)	- n.a	- n.a
Energy intensity	0.20 (-1.1)	0.20 (-0.5)	0.19 (0.6)	0.19 (-0.2)	0.22 (-1.2)	0.19 (-0.9)	0.19 (-1.5)	0.19 (0.4)	0.22 (-0.2)
Per capita consumption									
oil (bbl)	16.8 (3.7)	18.0 (7.4)	4.5 (7.8)	4.8 (6.7)	4.6 (1.1)	18.2 (1.2)	4.6 (1.9)	4.8 (0.4)	4.6 (0.3)
Electricity (MWh)	9.5 (0.7)	9.7 (2.3)	2.5 (3.7)	2.4 (3.0)	2.6 (1.0)	9.9 (1.8)	2.5 (3.4)	2.4 (2.2)	2.7 (4.1)
City gas (1 000 m <sup>3</sup> )	0.4 (-6.4)	0.4 (1.8)	0.1 (-2.6)	0.1 (7.2)	0.2 (3.4)	0.4 (5.8)	0.1 (4.7)	0.1 (10.5)	0.2 (7.4)
Total energy (toe)	5.6 (1.1)	5.7 (1.9)	1.4 (2.7)	1.5 (1.9)	1.5 (1.3)	5.9 (1.8)	1.4 (1.9)	1.5 (2.9)	1.6 (2.2)

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)

	2016	2017					2018			
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Industrial production index										
All industry	103.1 (3.2)	105.5 (2.3)	103.2 (3.4)	109.4 (4.2)	104.0 (3.2)	105.0 (2.4)	104.4 (1.2)	108.7 (-0.6)	106.0 (1.9)	106.7 (1.6)
Mining & manufacturing	102.3 (2.3)	104.2 (1.8)	103.4 (3.9)	110.6 (5.0)	103.3 (3.7)	104.3 (1.8)	102.5 (-0.9)	106.3 (-3.9)	104.3 (1.0)	105.5 (1.2)
Iron & steel	100.2 (0.2)	100.7 (0.4)	100.7 (2.4)	102.5 (2.9)	101.4 (1.0)	104.3 (-0.1)	96.3 (-4.3)	100.1 (-2.3)	99.8 (-1.6)	103.4 (-0.9)
Cement	108.3 (8.3)	109.9 (1.4)	111.6 (11.9)	128.2 (13.4)	121.7 (4.3)	128.7 (8.2)	96.8 (-13.2)	108.0 (-15.8)	110.1 (-9.5)	114.6 (-11.0)
Basic compound	104.8 (4.8)	110.4 (5.4)	109.1 (6.1)	112.4 (5.0)	106.7 (7.9)	109.6 (3.6)	111.6 (2.2)	111.0 (-1.2)	111.1 (4.1)	114.6 (4.6)
Transport equipment	97.7 (-2.3)	94.9 (-2.9)	98.7 (-0.4)	111.1 (-1.1)	102.7 (2.2)	97.1 (-2.7)	91.4 (-7.4)	97.4 (-12.3)	97.2 (-5.4)	96.9 (-0.2)
Electric & electronic	103.3 (3.3)	106.4 (3.0)	102.4 (3.0)	110.4 (1.3)	103.9 (6.2)	105.4 (5.4)	100.9 (-1.5)	106.0 (-4.0)	103.0 (-0.9)	102.9 (-2.4)
Service	102.6 (2.6)	104.5 (1.8)	102.1 (2.0)	105.6 (2.1)	103.1 (1.7)	104.5 (1.8)	104.6 (2.5)	108.1 (2.4)	105.9 (2.7)	106.9 (2.3)
Operating ratio index										
Manufacturing	98.2 (-1.8)	97.1 (-1.2)	96.6 (-0.6)	103.3 (0.7)	97.0 (-0.7)	98.4 (-2.7)	95.2 (-1.4)	98.9 (-4.3)	97.9 (0.9)	100.2 (1.8)
Iron & steel	99.9 (-0.1)	101.0 (1.0)	100.4 (2.3)	102.2 (2.9)	101.1 (1.0)	103.9 (-0.1)	97.9 (-2.4)	98.9 (-3.2)	97.9 (-3.2)	101.5 (-2.3)
Cement	107.0 (7.0)	107.6 (0.5)	109.1 (10.3)	125.5 (11.8)	119.1 (2.7)	125.2 (6.6)	103.0 (-5.6)	117.4 (-6.5)	120.5 (1.2)	125.8 (0.5)
Basic compound	103.6 (3.6)	107.2 (3.4)	106.7 (4.3)	109.8 (3.2)	104.1 (6.1)	107.1 (2.1)	107.1 (0.4)	106.4 (-3.1)	106.5 (2.3)	110.1 (2.8)
Transport equipment	94.2 (-5.8)	89.7 (-4.8)	93.5 (-2.8)	104.8 (-3.4)	96.9 (-0.2)	91.7 (-5.2)	88.9 (-4.9)	95.3 (-9.1)	96.0 (-0.9)	95.3 (3.9)
Electric & electronic	102.2 (2.2)	102.8 (0.5)	100.1 (1.4)	108.0 (0.7)	100.9 (3.5)	101.7 (0.8)	95.0 (-5.1)	98.7 (-8.6)	97.2 (-3.7)	99.0 (-2.7)

Note: p means provisional  
Source: Monthly Energy Statistics

## International Energy Prices

	2016	2017					2018			
		M1~7	M5	M6	M7	M1~7	M5	M6	M7	
Crude oil (USD/bbl)										
WTI	43.3 (-11.2)	51.0 (17.6)	49.6 (23.2)	48.5 (3.7)	45.2 (-7.5)	46.7 (4.2)	66.1 (33.3)	70.0 (44.2)	67.3 (48.9)	70.6 (51.2)
Dubai	41.2 (-18.8)	53.2 (28.9)	50.9 (35.5)	50.7 (14.6)	46.5 (0.4)	47.6 (11.9)	68.7 (35.0)	74.4 (46.7)	73.6 (58.4)	73.1 (53.7)
Brent	45.0 (-16.0)	54.8 (21.7)	52.3 (25.0)	51.4 (7.8)	47.6 (-4.8)	49.2 (5.6)	71.6 (37.0)	77.0 (49.9)	75.9 (59.7)	75.0 (52.5)
Unit value of import (C&F)	41.0 (-23.0)	53.3 (29.9)	52.0 (38.2)	52.4 (27.3)	50.0 (11.1)	47.5 (3.2)	69.0 (32.7)	71.2 (36.0)	74.1 (48.4)	75.1 (58.1)
LNG										
From Indonesia (USD/MMBTU)	6.9 (-32.6)	8.0 (16.8)	8.1 (18.3)	8.5 (45.1)	8.3 (38.6)	8.3 (31.2)	6.6 (-18.1)	9.4 (10.6)	- -	- -
Unit value of import (USD/ton, CIF)	356.7 (-35.0)	416.3 (16.7)	413.7 (18.2)	432.5 (39.0)	407.5 (37.4)	408.4 (33.7)	497.5 (20.3)	510.1 (17.9)	509.7 (25.1)	519.6 (27.2)
Bituminous coal (USD/ton)										
From Australia	65.9 (14.5)	88.4 (34.2)	81.8 (54.5)	74.5 (44.8)	81.0 (52.3)	87.5 (40.5)	72.4 (-11.4)	105.5 (41.5)	- -	- -
Unit value of import (CIF)	68.9 (-6.8)	104.3 (51.5)	107.7 (77.0)	112.8 (82.1)	116.4 (92.1)	101.6 (63.2)	113.4 (5.3)	114.7 (1.7)	114.2 (-1.9)	112.3 (10.5)
Petroleum product (USD/bbl)										
Gasoline	56.2 (-19.1)	68.1 (21.2)	65.4 (22.7)	64.8 (9.6)	59.8 (1.2)	61.8 (19.2)	81.2 (24.2)	87.6 (35.2)	83.6 (39.7)	83.1 (34.6)
Kerosene	52.8 (-18.3)	65.3 (23.6)	62.2 (26.4)	61.1 (10.7)	57.0 (-2.2)	59.8 (9.6)	84.2 (35.5)	89.9 (47.3)	86.9 (52.4)	87.4 (46.2)
Diesel	53.0 (-20.4)	66.4 (25.1)	63.3 (28.7)	62.0 (10.6)	58.4 (-1.2)	61.5 (11.7)	83.9 (32.5)	90.5 (46.0)	87.4 (49.7)	86.9 (41.3)
Bunker-C	35.4 (-21.6)	49.7 (40.2)	47.6 (57.3)	47.3 (37.9)	45.3 (22.6)	46.1 (23.7)	63.1 (32.5)	68.1 (43.7)	69.2 (52.7)	70.4 (52.7)
Propane	323.3 (-22.3)	468.8 (45.0)	424.3 (35.6)	385.0 (18.5)	385.0 (16.7)	345.0 (16.9)	526.4 (24.1)	500.0 (29.9)	560.0 (45.5)	555.0 (60.9)
Butane	355.8 (-18.5)	500.8 (40.7)	475.7 (37.0)	390.0 (2.6)	390.0 (6.8)	365.0 (17.7)	520.7 (9.5)	505.0 (29.5)	560.0 (43.6)	570.0 (56.2)
Naphtha	42.5 (-19.0)	53.8 (26.6)	50.5 (25.1)	48.6 (10.6)	44.8 (-1.2)	45.7 (9.8)	67.8 (34.1)	74.5 (53.2)	70.7 (57.7)	72.1 (57.8)

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			
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Coal (Mton)	129.4 (-4.3)	139.6 (7.9)	56.2 (8.2)	11.6 (10.3)	10.3 (6.3)	10.7 (4.6)	59.0 (5.1)	11.8 (2.1)	10.7 (4.2)	10.9 (2.2)
- Coking coal excluded	96.0 (-2.5)	103.5 (7.8)	41.5 (8.0)	8.6 (10.9)	7.5 (6.3)	7.7 (1.7)	44.1 (6.3)	8.9 (2.7)	7.8 (3.5)	7.8 (2.0)
Oil (Mbbbl)	924.2 (7.9)	938.2 (1.5)	383.9 (1.4)	80.6 (5.5)	71.9 (1.6)	76.8 (1.1)	391.9 (2.1)	77.7 (-3.6)	76.7 (6.7)	78.6 (2.3)
- Non-energy oil excluded	458.0 (11.2)	446.3 (-2.5)	183.3 (-2.7)	37.2 (-5.1)	34.8 (-4.9)	36.8 (-0.2)	188.8 (3.0)	38.3 (3.1)	36.1 (3.7)	36.7 (-0.2)
LNG (Mton)	34.9 (4.4)	36.1 (3.5)	16.2 (3.2)	3.5 (6.2)	2.5 (10.3)	2.1 (0.1)	19.4 (19.6)	3.9 (10.6)	3.1 (27.3)	2.7 (31.7)
Hydro (TWh)	6.6 (14.5)	7.0 (5.4)	2.7 (6.6)	0.5 (27.0)	0.5 (9.8)	0.6 (-4.4)	2.7 (0.4)	0.5 (-8.0)	0.5 (-2.8)	0.8 (29.9)
Nuclear (TWh)	162.0 (-1.7)	148.4 (-8.4)	65.6 (-10.8)	13.2 (-9.8)	13.3 (-13.2)	13.7 (-2.4)	48.7 (-25.9)	9.2 (-29.8)	9.4 (-29.2)	11.4 (-16.8)
Others (Mtoe)	13.6 (5.7)	15.0 (10.2)	6.2 (10.1)	1.3 (10.4)	1.3 (11.0)	1.2 (12.0)	7.0 (12.0)	1.4 (9.7)	1.4 (14.3)	1.4 (10.9)
<b>TPES (Mtoe)</b>	<b>294.6</b> (2.4)	<b>301.1</b> (2.2)	<b>125.6</b> (1.6)	<b>26.2</b> (4.4)	<b>23.0</b> (1.7)	<b>23.4</b> (1.4)	<b>129.6</b> (3.2)	<b>25.7</b> (-1.8)	<b>24.1</b> (4.8)	<b>24.3</b> (3.8)
- Non-energy oil excluded	236.6 (1.8)	239.9 (1.4)	100.6 (0.7)	20.8 (1.7)	18.3 (0.1)	18.4 (1.2)	104.3 (3.7)	20.8 (0.1)	19.0 (3.6)	19.1 (3.6)
- Non-energy oil & coal excluded	213.2 (3.2)	214.7 (0.7)	90.4 (-0.1)	18.7 (1.1)	16.4 (-0.5)	16.3 (-0.1)	93.9 (3.9)	18.8 (0.1)	17.0 (3.3)	16.9 (3.7)

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

## Share of TPES by Sources

(unit: %)

	2016	2017p					2018p			
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Coal	27.8	28.7	27.6	27.4	27.7	28.3	28.2	28.5	27.6	27.9
- Coking coal excluded	19.8	20.3	19.5	19.4	19.3	19.4	20.1	20.4	19.1	19.1
Oil	40.1	39.7	38.9	39.2	40.0	41.8	38.5	38.4	40.6	41.0
- non-energy oil excluded	20.4	19.4	19.1	18.6	19.8	20.5	19.0	19.4	19.6	19.6
LNG	15.4	15.7	16.9	17.5	14.0	11.6	19.5	19.7	17.0	14.8
Hydro	0.5	0.5	0.5	0.4	0.5	0.6	0.4	0.4	0.4	0.7
Nuclear	11.6	10.5	11.1	10.7	12.3	12.4	8.0	7.7	8.3	10.0
Others	4.6	5.0	5.0	4.9	5.5	5.3	5.4	5.4	6.0	5.6
<b>TPES</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Note: p means provisional  
Source: Monthly Energy Statistics

## Total Final Consumption (TFC)

(Unit: Mtoe)

	2016	2017p					2018p			
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Industry	138.3 (1.9)	143.8 (4.0)	59.2 (5.5)	12.5 (11.0)	11.3 (5.6)	11.7 (3.1)	61.0 (2.9)	11.9 (-4.5)	12.2 (7.6)	12.5 (6.2)
Transport	42.7 (6.0)	43.0 (0.7)	17.4 (-0.3)	3.6 (2.2)	3.5 (-2.6)	3.7 (2.7)	17.5 (0.6)	3.6 (-0.5)	3.6 (2.4)	3.6 (-2.5)
Residential-commercial	38.3 (4.5)	39.3 (2.7)	18.9 (-0.0)	3.9 (-1.2)	3.0 (3.8)	2.3 (-0.3)	20.1 (6.2)	3.9 (-1.0)	3.0 (-1.0)	2.4 (5.7)
Public	6.2 (8.4)	6.4 (1.9)	2.7 (1.2)	0.6 (-2.2)	0.5 (1.5)	0.5 (5.5)	2.9 (6.0)	0.6 (1.8)	0.5 (8.6)	0.5 (1.1)
<b>TFC</b>	<b>225.5</b> (3.3)	<b>232.5</b> (3.1)	<b>98.2</b> (3.2)	<b>20.6</b> (6.5)	<b>18.2</b> (3.5)	<b>18.2</b> (2.7)	<b>101.4</b> (3.2)	<b>20.0</b> (-2.9)	<b>19.2</b> (5.2)	<b>19.0</b> (4.2)
Coal (Mton)	49.1 (-6.8)	50.2 (2.2)	20.8 (6.5)	4.4 (12.4)	3.9 (1.3)	4.1 (5.1)	21.1 (1.3)	4.1 (-5.9)	4.2 (7.2)	4.4 (7.1)
Oil (Mbbbl)	902.4 (7.2)	928.1 (2.8)	378.6 (3.1)	79.9 (8.5)	71.5 (3.7)	76.1 (2.3)	385.6 (1.8)	76.1 (-4.8)	76.3 (6.8)	78.1 (2.6)
Electricity (TWh)	497.0 (2.8)	507.7 (2.2)	211.7 (1.4)	42.6 (0.7)	40.8 (1.7)	38.7 (1.3)	220.6 (4.2)	42.9 (0.9)	42.0 (3.0)	40.5 (4.6)
City gas (Bm <sup>3</sup> )	21.3 (2.3)	22.6 (6.2)	11.7 (4.4)	2.5 (4.2)	1.8 (8.8)	1.3 (3.1)	12.4 (6.1)	2.5 (-1.7)	1.8 (-2.9)	1.4 (7.7)
Heat-others (1 000 toe)	12.6 (3.8)	13.6 (7.5)	5.9 (6.0)	1.2 (6.3)	1.1 (7.1)	1.0 (7.7)	6.6 (11.0)	1.3 (6.0)	1.2 (11.4)	1.1 (12.4)

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			
			M1~5	M3	M4	M5	M1~5	M3	M4	M5
Industry	61.3	61.9	60.3	60.8	61.9	64.4	60.1	59.8	63.3	65.6
Transport	18.9	18.5	17.7	17.6	19.1	20.4	17.3	18.0	18.6	19.1
Residential-commercial	17.0	16.9	19.2	18.9	16.3	12.6	19.8	19.3	15.4	12.8
Public	2.8	2.7	2.8	2.8	2.7	2.5	2.8	2.9	2.8	2.4
Final energy	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Coal	14.5	14.4	14.1	14.2	14.3	15.1	13.8	13.8	14.6	15.5
Oil	50.9	50.8	49.0	49.4	50.0	53.3	48.3	48.4	50.6	52.2
Electricity	19.0	18.8	18.5	17.8	19.2	18.3	18.7	18.5	18.8	18.4
City gas	10.1	10.2	12.4	12.7	10.6	7.8	12.7	12.9	9.7	8.0
Heat-others	5.6	5.9	6.0	5.9	5.9	5.5	6.5	6.5	6.3	6.0

Note: p means provisional  
Source: Monthly Energy Statistics

## Statistics on Energy Production Facilities

	2015	2016	2017				2018p		
				M3	M4	M5	M3	M4	M5
Total capacity (GW)	97.6 (4.8)	105.9 (8.4)	116.9 (19.7)	109.5 (14.8)	110.7 (16.0)	111.3 (16.3)	116.7 (18.2)	116.7 (18.0)	117.8 (19.0)
Nuclear	21.7 (4.8)	23.1 (6.4)	22.5 (3.7)	23.1 (11.6)	23.1 (11.6)	23.1 (11.6)	22.5 (3.7)	22.5 (3.7)	22.5 (3.7)
Bituminous coal	26.2 (1.1)	30.9 (18.0)	36.1 (37.8)	31.6 (21.9)	31.6 (21.9)	31.7 (22.4)	36.1 (37.0)	36.1 (36.9)	36.3 (37.5)
Gas	32.2 (6.5)	32.6 (1.2)	37.9 (17.4)	35.2 (10.5)	36.2 (13.6)	36.6 (15.0)	37.4 (14.8)	37.4 (14.6)	37.9 (16.1)
Refinery capacity (mil BPSD)	3.1 (3.7)	3.1 -	3.1 -	3.1 -	3.1 -	3.1 -	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

	2015	2016	2017				2018p		
				M3	M4	M5	M3	M4	M5
The number of household demanding city gas (mil)	17.4 (3.0)	18.0 (3.4)	18.6 (3.3)	18.2 (3.2)	18.2 (3.3)	18.1 (3.2)	18.8 (3.3)	18.8 (3.3)	18.8 (3.4)
Registered cars (mil)	21.0 (4.3)	21.8 (3.9)	22.5 (3.3)	22.0 (3.7)	22.1 (3.6)	22.1 (3.5)	22.7 (3.2)	22.8 (3.2)	22.8 (3.2)
- gasoline	9.8 (2.3)	10.1 (2.9)	10.4 (2.7)	10.2 (3.0)	10.2 (3.1)	10.2 (3.0)	10.4 (2.6)	10.5 (2.6)	10.5 (2.6)
- diesel	8.6 (8.6)	9.2 (6.4)	9.6 (4.4)	9.3 (5.5)	9.3 (5.3)	9.3 (5.1)	9.7 (4.2)	9.7 (4.1)	9.7 (4.1)
- LPG	2.3 (-3.4)	2.2 (-4.0)	2.1 (-2.9)	2.2 (-3.8)	2.1 (-3.6)	2.1 (-3.5)	2.1 (-3.0)	2.1 (-3.2)	2.1 (-3.2)
- hybrid	0.2 (31.3)	0.2 (37.6)	0.3 (37.6)	0.2 (37.6)	0.2 (31.2)	0.2 (35.2)	0.3 (38.0)	0.3 (42.1)	0.3 (36.6)

Note: ( ) is year-on-year growth rates (%)  
Source: Monthly Energy Statistics

# KEEI

MONTHLY **KOREA ENERGY TRENDS** (2018, NO.77)



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KEEI Monthly Korea Energy Trends is designed to be used for energy policy and market strategy in the government and industrial sector by analyzing and providing energy economic indicators in Korea.

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.

If you have any further inquiries, please send an email to [EnergyOutlook@keei.re.kr](mailto:EnergyOutlook@keei.re.kr) or call +82-52-714-2270.

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