

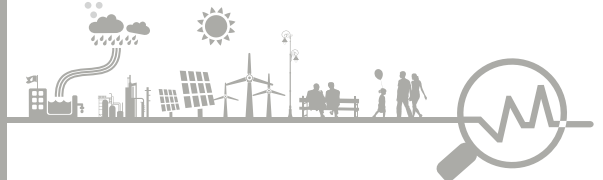


# KEEI

## Korea Energy Demand Outlook



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Published by the Korea Energy Economics Institute (KEEI), Energy Demand Outlook takes a closer look at the global energy market and supply and demand trends in domestic energy and examines the outlook for short-term energy demand.

This report outlines the recent changes in the supply and demand of energy and provides important data and policy implications in an effort to contribute to the establishment and adjustment of a series of energy policies by the government.

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.

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# Summary

## Energy Trends

- ☐ **TPES in 1Q 2018 increased to 81.2Mtoe, up 2.6% on a year-on-year basis.**
  - Energy consumption in the industrial sector remained sluggish as industrial production slowed down due to the stagnant manufacturing industry, however, the rapid consumption growth in the buildings sector triggered by temperature effect, price effect and growing wholesale and retail businesses drove TPES growth.
  - Excluding the feedstock energy use (non-energy oil and bituminous coal for steelmaking), TPES in 1Q 2018 increased by 4.1% on a year-on-year basis.
- ☐ **Gas and coal consumption increased rapidly while petroleum consumption remained stagnant and nuclear energy use plunged.**
  - **Petroleum (↑ 0.6%)** With LPG prices remaining low, LPG consumption for industrial use moved upward, however, the overall growth rate of petroleum slowed down as naphtha consumption declined due to the increased maintenance of naphtha cracking centers (NCC).
  - **Coal (↑ 6.3%)** Coal consumption for steelmaking remained stagnant as the key iron & steel industries that had driven demand weakened and furnace improvements increased the furnace efficiency. However, the overall coal consumption posted a rapid growth, prompted by soaring coal use for generation along with the introduction of new large-scale bituminous coal power plants.
  - **Nuclear energy (↓ 27.9%)** A number of nuclear power plants extended the preventive maintenance period due to strengthened safety requirements which led to a record-low capacity factor at the 50%-range, driving nuclear energy consumption down by nearly 30% on a year-on-year basis.
  - **Gas (↑ 15.7%)** Gas consumption for power generation showed a sharp increase driven by the increased electricity consumption and plunged nuclear power generation and that for city gas production also grew rapidly as its price competitiveness recovered thanks to temperature effect and rising oil prices.
  - **Electricity (↑ 4.4%)** Electricity consumption growth for industrial use slowed down due to the sluggish manufacturing industry except for the semiconductor sector, but that for buildings rose rapidly due to temperature effect, which resulted in the 4%-range electricity consumption growth.
- ☐ **TFC in 1Q 2018 marked 63.2Mtoe, 2.4% up on a year-on-year basis, led by the buildings sector.**

- **Industry ( ↑ 0.4%)** Energy consumption for industrial use remained unchanged as gas and electricity consumption increased while feedstock energy use decreased.
- **Transport ( ↑ 1.2%)** Despite rising oil prices, energy use in the transport sector went up thanks to road transport and aviation energy consumption.
- **Buildings ( ↑ 7.7%)** Energy consumption in the buildings sector expanded rapidly, due to falling energy prices and lower temperatures compared to the previous year.

## Energy Outlook

- **In 2018, TPED will increase by 2.6% to 308.8Mtoe and TFD is expected to be up by 2.8% to 238.9Mtoe.**
  - TFD growth is expected to show a slight year-on-year decrease due to declining economic growth rate, however, TPED is forecasted to grow further thanks to the increased conversion loss driven by expanded energy input for power generation.
- **Demand for petroleum, coal, gas and nuclear energy will continue to grow, slow down, increase significantly and maintain its sharp downward trend, respectively.**
  - Although naphtha consumption growth will show a steep year-on-year decrease, petroleum demand is anticipated to maintain its upward movement due to growing demand in the industrial and transport sectors.
  - Coal demand, especially for power generation, is expected to decline significantly, driven by the extended shut-down period of old power plants during spring and increased preventative maintenance, with no change to installed capacity of coal-fired power generation plants.
  - Demand for nuclear energy is projected to mark a rapid decrease by 9% or more due to the shutdown decision of Wolsong Unit 1, strengthened safety inspection requirements of nuclear power plants, delayed introduction of new power plants, etc.
  - The growth of gas demand is predicted to post a significant increase thanks to surging demand for generation use.
  - Electricity demand for both industrial and buildings sectors will mark a rapid growth spurred by increased exports and private consumption, temperature effect, etc.

## Energy demand growth rates by major energy source

	2013	2014	2015	2016	2017p	2018e
<b>TPES</b>	0.6	0.9	1.6	2.4	2.2	2.6
Coal	1.1	2.9	1.2	- 4.3	7.9	1.5
Petroleum	- 0.3	- 0.5	4.2	7.9	1.5	2.0
Gas	4.7	- 9.0	- 8.7	4.4	3.5	12.4
Nuclear	- 7.7	12.7	5.3	- 1.7	- 8.4	- 9.7
Electricity	1.8	0.6	1.3	2.8	2.2	3.8

☐ **The growth of energy demand in the industrial sector will show a year-on-year decrease while that for buildings is predicted to mark a sharp increase.**

- The growth of energy demand in the industrial sector is anticipated to show a year-on-year decrease due to sluggish demand for feedstock energy (naphtha, coking coal, etc.)
- Energy demand in the transport sector, despite rising oil prices, will maintain its growth rate similar to the previous year thanks to the increased number of travelers and cargo volume.
- Energy demand in the buildings sector will show a dramatic escalation as private consumption increased and energy prices decreased amid the sweltering heatwave with record temperatures.

## Key Features and Implications

☐ **In 1Q 2018, naphtha consumption has decreased for the first time since Q4 2013 (-2.2%), due to the increased maintenance of petrochemical facilities.**

- Despite new additions of facilities, the six basic petrochemicals (ethylene, propylene, butadiene, benzene, toluene, xylene) and para-xylene (PX) production reduced by 0.2% owing to the increasing production loss and diminishing base effect.
- In addition to the decreased production of basic petrochemicals, an increase in the relative price of naphtha against LPG has contributed to the reduction of naphtha consumption (-2.2%).

☐ **In 2018, the contribution of gas and the buildings sector to energy demand growth will rise significantly.**

- The driving force (contribution level) of coal that leads TPED will plunge compared to the previous year, whereas that of gas is expected to rise sharply thanks to soaring demand for power generation.

- By sector, the contribution of the industrial sector to TFD is projected to show a year-on-year decrease due to declining economic growth while that for buildings is expected to escalate thanks to temperature effect.
- **The growth of electricity demand for buildings in 2018 is anticipated to record a dramatic year-on-year increase (3.2%p) owing to the record-breaking heatwave.**
  - Electricity demand growth for buildings in 2018 is expected to rise by around 5.0% on a year-on-year basis, due to the temperature effect which is considered even more extreme than that in 2016.
  - Taking into account the higher temperatures and lower residential electricity tariffs in 2018 compared to 2016, electricity demand for air-conditioning is projected to increase electricity demand for buildings by 2%p or more.
  - The growth of the total electricity demand is expected to exceed the economic growth rate for the first time since 2012, led by a sharp increase in demand for buildings.
- **In 2018, capacity factor of nuclear power plants will drop to record low due to strengthened safety inspection requirements.**
  - Capacity factor of nuclear power plants will decline for three consecutive years to the 60%-range due to strengthened safety inspection requirements and the shutdown decision of Wolsong Unit 1.
- **The share of gas generation is set to outpace that of nuclear power generation, driven by the decreasing base load power proportion and increasing electricity demand.**
  - Base load power (coal & nuclear power) decreased by 3.6% on a year-on-year basis due to increased preventative maintenance, reducing the base load power proportion in the total generation to around 65%, down by more than 4%p compared to the previous year.
  - As the share of gas generation is projected to exceed that of nuclear power in 2018, gas will become the second largest energy source for power generation following coal.

# The Main Indicator and Energy Outlook Result

## Main Economic and Energy Indicators

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
Economy and Population											
GDP (2010 trillion won)	1 427.0	1 466.8	734.9	774.8	1 509.8	755.8	800.2	1 556.0	777.5	822.9	1 600.4
Industrial Production(2010=100)	100.3	100.0	100.3	104.3	102.3	103.8	104.6	104.2	102.9	105.5	104.2
Crude Oil Price (Dubai, USD/bbl)	96.7	50.8	36.8	45.7	41.2	51.5	54.9	53.2	68.0	70.4	69.2
Working Days	271.5	274.0	133.5	139.5	273.0	134.0	135.5	269.5	133.0	137.0	270.0
Population (million)	50.7	51.0	51.3	51.3	51.3	51.4	51.4	51.4	51.6	51.6	51.6
Average Temperature (°C)	13.4	13.6	10.2	16.9	13.6	10.2	15.9	13.0	9.5	16.8	13.1
Cooling Degree days	125.4	151.8	10.2	227.9	238.1	18.2	169.9	188.1	7.7	273.1	280.8
Heating Degree days	2 501.6	2 459.1	1 654.1	935.6	2 589.7	1 626.1	1 061.5	2 687.6	1 724.3	981.1	2 705.4
Energy Indicators											
Total Primary Energy Demand (Mtoe)	283.1	287.7	146.1	148.5	294.6	148.5	152.6	301.1	153.6	155.2	308.8
Energy Intensity (toe/million won)	0.199	0.197	0.199	0.192	0.196	0.197	0.191	0.194	0.198	0.189	0.193
TPED/capita (toe/capita)	5.579	5.640	2.850	2.897	5.747	2.886	2.967	5.853	2.975	3.005	5.980
Electricity Generation (TWh)	522.0	528.1	266.1	274.4	540.4	270.4	283.1	553.5	281.2	288.6	569.8
Electricity Generation/capita (MWh/capita)	10.3	10.4	5.2	5.4	10.5	5.3	5.5	10.8	5.4	5.6	11.0
Electricity Demand/capita (MWh/capita)	9.4	9.5	4.8	4.8	9.7	4.9	5.0	9.9	5.1	5.1	10.2

## Energy Demand

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Total Primary Energy Supply</b>											
Coal (Mton)	133.6	135.2	62.1	67.4	129.4	66.5	73.2	139.7	68.7	73.0	141.7
Oil (Mbbbl)	821.5	856.2	451.4	472.7	924.2	458.4	479.8	938.2	467.6	489.7	957.3
Gas (Bm³)	36.6	33.4	17.9	17.0	34.9	18.5	17.6	36.1	22.9	17.7	40.6
Hydro (TWh)	7.8	5.8	3.0	3.6	6.6	3.2	3.8	7.0	3.2	3.1	6.3
Nuclear (TWh)	156.4	164.8	86.5	75.5	162.0	78.1	70.3	148.4	59.8	74.3	134.1
Other Renewables (Mtoe)	11.0	12.8	6.8	6.8	13.6	7.5	7.5	15.0	8.3	8.2	16.4
<b>Total (Mtoe)</b>	<b>283.1</b>	<b>287.7</b>	<b>146.1</b>	<b>148.5</b>	<b>294.6</b>	<b>148.5</b>	<b>152.6</b>	<b>301.1</b>	<b>153.6</b>	<b>155.2</b>	<b>308.8</b>
Coal	84.8	85.7	39.3	42.5	81.9	41.1	45.2	86.3	42.6	45.2	87.7
Oil	104.9	109.6	57.8	60.3	118.1	58.4	61.2	119.6	59.5	62.3	121.8
Gas	47.8	43.6	23.3	22.2	45.5	24.1	23.0	47.2	29.9	23.1	53.0
Nuclear	1.6	1.2	0.6	0.8	1.4	0.7	0.8	1.5	0.7	0.7	1.3
Hydro	33.0	34.8	18.3	15.9	34.2	16.6	15.0	31.6	12.7	15.8	28.6
Other Renewables	11.0	12.8	6.8	6.8	13.6	7.5	7.5	15.0	8.3	8.2	16.4
<b>Total Final Consumption</b>											
Coal (Mton)	53.3	52.7	23.2	25.9	49.1	24.8	25.4	50.3	24.9	25.9	50.8
Oil (Mbbbl)	808.5	841.6	438.7	463.7	902.4	452.7	475.4	928.1	461.0	486.0	947.0
Gas (Bm³)	22.1	20.8	12.3	9.0	21.3	12.8	9.8	22.6	13.8	9.9	23.7
Electricity (TWh)	477.6	483.7	248.5	248.5	497.0	251.4	256.3	507.7	261.6	265.5	527.2
Heat (Mtoe)	1.6	1.6	1.0	0.7	1.7	1.1	0.8	1.8	1.2	0.8	2.0
Other Renewables (Mtoe)	9.2	10.6	5.5	5.4	10.9	5.9	5.9	11.8	6.3	6.3	12.6
<b>Total (Mtoe)</b>	<b>213.8</b>	<b>218.4</b>	<b>112.4</b>	<b>113.1</b>	<b>225.5</b>	<b>116.1</b>	<b>116.4</b>	<b>232.5</b>	<b>119.6</b>	<b>119.4</b>	<b>238.9</b>
Coal	35.6	35.1	15.5	17.2	32.7	16.6	16.9	33.5	16.6	17.3	33.9
Oil	103.0	107.3	55.9	58.9	114.8	57.6	60.5	118.1	58.5	61.8	120.3
Gas	23.5	22.1	13.1	9.6	22.7	13.4	10.3	23.7	14.4	10.4	24.9
Electricity	41.1	41.6	21.4	21.4	42.7	21.6	22.0	43.7	22.5	22.8	45.3
Heat	1.6	1.6	1.0	0.7	1.7	1.1	0.8	1.8	1.2	0.8	2.0
Other Renewables	9.2	10.6	5.5	5.4	10.9	5.9	5.9	11.8	6.3	6.3	12.6
Industry	135.3	135.7	67.3	71.0	138.3	70.8	73.1	143.8	72.6	75.6	148.2
Transport	37.6	40.3	20.8	21.9	42.7	21.0	22.0	43.0	21.0	22.3	43.4
Buildings	40.9	42.4	24.3	20.2	44.5	24.3	21.3	45.7	25.9	21.4	47.4



## Energy Demand

(yoy, %)

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Total Primary Energy Supply</b>											
Coal (Mton)	2.9	1.2	- 7.2	- 1.4	- 4.3	7.1	8.7	7.9	3.4	- 0.2	1.5
Oil (Mbbl)	- 0.5	4.2	8.1	7.8	7.9	1.5	1.5	1.5	2.0	2.1	2.0
Gas (Bm³)	- 9.0	- 8.7	- 2.0	11.9	4.4	3.4	3.5	3.5	23.9	0.3	12.4
Hydro (TWh)	- 6.8	- 25.9	7.3	21.1	14.5	7.0	3.7	5.2	- 0.4	- 18.6	- 10.2
Nuclear (TWh)	12.7	5.3	10.2	- 12.5	- 1.7	- 9.7	- 6.9	- 8.4	- 23.4	5.7	- 9.7
Other Renewables (Mtoe)	21.9	17.2	5.9	5.5	5.7	10.5	9.9	10.2	10.4	9.0	9.7
<b>Total (Mtoe)</b>	<b>0.9</b>	<b>1.6</b>	<b>2.0</b>	<b>2.8</b>	<b>2.4</b>	<b>1.6</b>	<b>2.8</b>	<b>2.2</b>	<b>3.4</b>	<b>1.7</b>	<b>2.6</b>
Coal	3.3	1.1	- 7.4	- 1.7	- 4.5	4.7	6.2	5.4	3.5	- 0.0	1.6
Oil	- 0.8	4.4	8.2	7.4	7.8	1.0	1.5	1.2	1.8	1.9	1.8
Gas	- 9.0	- 8.7	- 2.0	11.9	4.4	3.6	3.6	3.6	23.9	0.3	12.4
Nuclear	- 6.8	- 25.9	7.3	21.1	14.5	8.0	4.7	6.2	- 0.4	- 18.6	- 10.2
Hydro	12.7	5.3	10.2	- 12.5	- 1.7	- 8.8	- 6.0	- 7.5	- 23.4	5.7	- 9.7
Other Renewables	21.9	17.2	5.9	5.5	5.7	10.5	9.9	10.2	10.4	9.0	9.7
<b>Total Final Consumption</b>											
Coal (Mton)	7.1	- 1.1	- 9.7	- 4.1	- 6.8	7.0	- 1.9	2.3	0.2	1.7	1.0
Oil (Mbbl)	1.2	4.1	7.0	7.5	7.2	3.2	2.5	2.8	1.8	2.2	2.0
Gas (Bm³)	- 7.5	- 5.9	1.1	4.1	2.3	4.3	8.8	6.2	7.6	1.6	5.0
Electricity (TWh)	0.6	1.3	1.7	3.9	2.8	1.2	3.1	2.2	4.1	3.6	3.8
Heat (Mtoe)	- 7.6	- 0.5	8.1	12.3	9.7	1.7	18.5	8.2	10.7	1.0	6.6
Other Renewables (Mtoe)	18.0	15.7	3.2	2.7	2.9	7.2	7.7	7.4	7.8	7.0	7.4
<b>Total (Mtoe)</b>	<b>1.7</b>	<b>2.1</b>	<b>2.4</b>	<b>4.2</b>	<b>3.3</b>	<b>3.3</b>	<b>2.9</b>	<b>3.1</b>	<b>3.0</b>	<b>2.5</b>	<b>2.8</b>
Coal	8.3	- 1.2	- 9.7	- 4.4	- 7.0	6.7	- 1.4	2.4	0.4	2.0	1.2
Oil	1.1	4.2	6.7	7.1	6.9	3.0	2.8	2.9	1.7	2.0	1.9
Gas	- 7.3	- 5.9	1.4	4.2	2.6	2.4	7.0	4.4	7.5	1.7	5.0
Electricity	0.6	1.3	1.7	3.9	2.8	1.2	3.1	2.2	4.1	3.6	3.8
Heat	- 7.6	- 0.5	8.1	12.3	9.7	1.7	18.5	8.2	10.7	1.0	6.6
Other Renewables	18.0	15.7	3.2	2.7	2.9	7.2	7.7	7.4	7.8	7.0	7.4
Industry	3.8	0.3	0.5	3.3	1.9	5.1	2.9	4.0	2.6	3.4	3.0
Transport	0.8	7.1	6.5	5.6	6.0	0.9	0.5	0.7	0.1	1.5	0.8
Buildings	- 4.0	3.6	4.5	5.7	5.1	0.2	5.5	2.6	6.7	0.5	3.8

## Energy Demand by Sector

(Mtoe)

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Industry</b>	<b>135.3</b>	<b>135.7</b>	<b>67.3</b>	<b>71.0</b>	<b>138.3</b>	<b>70.8</b>	<b>73.1</b>	<b>143.8</b>	<b>72.6</b>	<b>75.6</b>	<b>148.2</b>
Coal	34.8	34.5	15.3	16.8	32.1	16.4	16.6	33.0	16.5	17.0	33.4
Oil	61.2	62.2	32.3	34.6	66.9	33.9	35.9	69.8	34.6	37.1	71.7
Gas	9.5	8.1	4.2	3.9	8.0	4.3	4.1	8.4	4.7	4.4	9.2
Electricity	22.8	22.8	11.5	11.7	23.2	11.8	12.0	23.8	12.1	12.4	24.5
Heat	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	7.1	8.1	4.0	4.1	8.1	4.4	4.4	8.8	4.7	4.7	9.4
<b>Transport</b>	<b>37.6</b>	<b>40.3</b>	<b>20.8</b>	<b>21.9</b>	<b>42.7</b>	<b>21.0</b>	<b>22.0</b>	<b>43.0</b>	<b>21.0</b>	<b>22.3</b>	<b>43.4</b>
Coal	-	-	-	-	-	-	-	-	-	-	-
Oil	35.8	38.4	19.9	20.9	40.8	20.1	21.0	41.0	20.0	21.3	41.3
Gas	1.3	1.3	0.6	0.6	1.3	0.6	0.6	1.3	0.6	0.6	1.3
Electricity	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.3
Heat	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	0.4	0.4	0.2	0.2	0.4	0.2	0.2	0.5	0.3	0.2	0.5
<b>Buildings*</b>	<b>40.9</b>	<b>42.4</b>	<b>24.3</b>	<b>20.2</b>	<b>44.5</b>	<b>24.3</b>	<b>21.3</b>	<b>45.7</b>	<b>25.9</b>	<b>21.4</b>	<b>47.4</b>
Coal	0.7	0.7	0.2	0.4	0.6	0.2	0.3	0.5	0.2	0.3	0.4
Oil	6.0	6.8	3.7	3.4	7.1	3.6	3.6	7.2	3.9	3.4	7.2
Gas	12.7	12.7	8.3	5.1	13.4	8.5	5.5	14.0	9.1	5.4	14.4
Electricity	18.1	18.6	9.7	9.6	19.3	9.7	9.9	19.6	10.3	10.3	20.6
Heat	1.6	1.6	1.0	0.7	1.7	1.1	0.8	1.8	1.2	0.8	2.0
Other Renewables	1.7	2.1	1.3	1.2	2.4	1.3	1.2	2.5	1.4	1.3	2.7
<b>Transform</b>	<b>134.9</b>	<b>134.2</b>	<b>69.0</b>	<b>66.8</b>	<b>135.7</b>	<b>68.3</b>	<b>69.1</b>	<b>137.4</b>	<b>71.9</b>	<b>69.6</b>	<b>141.6</b>
Coal	49.2	50.6	23.8	25.4	49.2	24.6	28.2	52.8	25.9	27.9	53.8
Oil	2.0	2.2	2.0	1.4	3.3	0.9	0.6	1.5	0.9	0.5	1.5
Gas	47.3	43.2	23.0	22.0	45.0	23.9	22.8	46.7	29.7	22.8	52.5
Nuclear	33.0	34.8	18.3	15.9	34.2	16.6	15.0	31.6	12.7	15.8	28.6
Hydro	1.6	1.2	0.6	0.8	1.4	0.7	0.8	1.5	0.7	0.7	1.3
Renewables	1.8	2.2	1.3	1.4	2.6	1.6	1.6	3.2	1.9	1.9	3.8

\* include residential, commercial, public-etc usage

## Coal

(Mton)

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Total Coal Demand</b>	<b>133.6</b>	<b>135.2</b>	<b>62.1</b>	<b>67.4</b>	<b>129.4</b>	<b>66.5</b>	<b>73.2</b>	<b>139.7</b>	<b>68.7</b>	<b>73.0</b>	<b>141.7</b>
Transform	80.3	82.5	38.9	41.4	80.3	41.6	47.8	89.4	43.8	47.1	91.0
Power Generation	80.3	82.5	38.9	41.4	80.3	41.6	47.8	89.4	43.8	47.1	91.0
Heat	-	-	-	-	-	-	-	-	-	-	-
Gas Manufacture	-	-	-	-	-	-	-	-	-	-	-
<b>Total Final Consumption</b>	<b>53.3</b>	<b>52.7</b>	<b>23.2</b>	<b>25.9</b>	<b>49.1</b>	<b>24.8</b>	<b>25.4</b>	<b>50.3</b>	<b>24.9</b>	<b>25.9</b>	<b>50.8</b>
Industry	51.7	51.3	22.7	25.1	47.9	24.5	24.7	49.2	24.5	25.3	49.8
Transport	-	-	-	-	-	-	-	-	-	-	-
Buildings	1.6	1.5	0.5	0.8	1.3	0.4	0.7	1.1	0.3	0.6	0.9
<b>Consumption by products</b>											
Anthracite	10.2	10.7	4.7	6.2	10.9	4.3	4.0	8.3	3.9	4.0	7.8
Bituminous	123.4	124.5	57.4	61.1	118.5	62.1	69.2	131.3	64.8	69.1	133.9
Iron making	37.6	36.8	16.2	17.3	33.5	17.7	18.4	36.1	18.0	19.0	37.0
Cement	4.9	4.7	2.1	2.5	4.6	2.2	2.0	4.2	1.8	1.8	3.6
Power Generation	78.2	80.4	37.6	40.1	77.8	40.9	47.4	88.3	43.6	46.9	90.5

## Oil

(Mbbbl)

	2014	2015	2016p			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Total Oil Demand</b>	<b>821.5</b>	<b>856.2</b>	<b>451.4</b>	<b>472.7</b>	<b>924.2</b>	<b>458.4</b>	<b>479.8</b>	<b>938.2</b>	<b>467.6</b>	<b>489.7</b>	<b>957.3</b>
Transform	13.0	14.6	12.7	9.1	21.8	5.7	4.4	10.1	6.6	3.7	10.3
Power Generation	11.0	12.8	11.2	8.1	19.3	4.5	3.5	8.0	4.6	2.9	7.5
Heat	1.0	0.8	0.8	0.4	1.3	0.8	0.4	1.2	0.7	0.4	1.1
Gas Manufacture	0.9	1.0	0.7	0.6	1.2	0.5	0.5	0.9	1.3	0.4	1.7
<b>Total Final Consumption</b>	<b>808.5</b>	<b>841.6</b>	<b>438.7</b>	<b>463.7</b>	<b>902.4</b>	<b>452.7</b>	<b>475.4</b>	<b>928.1</b>	<b>461.0</b>	<b>486.0</b>	<b>947.0</b>
Industry	491.8	501.0	261.6	281.0	542.6	275.6	291.2	566.8	282.1	301.3	583.3
Transport	268.8	287.1	147.9	155.7	303.6	148.7	155.7	304.4	148.6	157.9	306.5
Buildings	47.9	53.5	29.2	27.1	56.3	28.4	28.5	56.9	30.4	26.8	57.1
<b>Consumption by products</b>											
Gasoline	73.5	76.6	38.2	40.8	78.9	38.5	41.2	79.6	38.9	41.7	80.6
Diesel (including Transformation)	144.8	156.4	81.3	85.2	166.6	82.2	86.7	168.9	82.0	86.6	168.5
Kerosene (including Transformation)	15.4	16.2	10.0	9.0	19.1	9.3	9.7	19.0	10.3	9.1	19.4
B-C (including Transformation)	33.3	38.3	25.4	22.1	47.5	18.5	17.3	35.8	17.6	16.1	33.7
Jet Oil	32.0	34.4	18.2	18.8	37.0	18.5	19.7	38.2	20.0	20.9	40.8
LPG (including Transformation)	89.6	89.9	50.0	58.9	109.0	52.6	52.3	104.8	56.2	54.6	110.9
Naphtha	396.3	410.8	210.7	219.4	430.1	222.9	235.5	458.4	226.2	242.5	468.7
Other Non-Energy	36.6	33.7	17.6	18.5	36.1	16.0	17.5	33.5	16.3	18.3	34.6

## Gas

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Total Gas Demand (Mton)</b>	<b>36.6</b>	<b>33.4</b>	<b>17.9</b>	<b>17.0</b>	<b>34.9</b>	<b>18.5</b>	<b>17.6</b>	<b>36.1</b>	<b>22.9</b>	<b>17.7</b>	<b>40.6</b>
Transform	36.3	33.1	17.7	16.8	34.5	18.3	17.5	35.8	22.7	17.5	40.2
Power Generation	16.3	14.6	7.0	8.5	15.5	7.3	8.2	15.6	10.6	8.3	18.9
Heat	1.7	1.5	0.9	0.7	1.6	0.9	0.8	1.7	1.1	0.9	2.1
Gas Manufacture	18.3	17.0	9.8	7.7	17.5	10.1	8.4	18.5	11.0	8.3	19.3
Industry	0.4	0.3	0.2	0.2	0.4	0.2	0.2	0.3	0.2	0.2	0.4
<b>City Gas (Bm<sup>3</sup>)</b>	<b>22.1</b>	<b>20.8</b>	<b>12.3</b>	<b>9.0</b>	<b>21.3</b>	<b>12.8</b>	<b>9.8</b>	<b>22.6</b>	<b>13.8</b>	<b>9.9</b>	<b>23.7</b>
Industry*	8.7	7.3	3.7	3.5	7.2	4.0	3.8	7.8	4.4	4.1	8.5
Transport	1.3	1.2	0.6	0.6	1.2	0.6	0.6	1.2	0.6	0.6	1.2
Buildings	12.2	12.2	8.0	4.9	12.8	8.2	5.4	13.6	8.8	5.2	14.0

\* exclude industrial LNG usage

## Electricity

(TWh)

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Net Electricity Demand</b>	<b>522.0</b>	<b>528.1</b>	<b>266.1</b>	<b>274.4</b>	<b>540.4</b>	<b>270.4</b>	<b>283.1</b>	<b>553.5</b>	<b>281.2</b>	<b>288.6</b>	<b>569.8</b>
Own use and Losses	44.4	44.4	17.6	25.8	43.4	19.0	26.8	45.7	19.6	23.1	42.7
<b>Total Final Consumption</b>	<b>477.6</b>	<b>483.7</b>	<b>248.5</b>	<b>248.5</b>	<b>497.0</b>	<b>251.4</b>	<b>256.3</b>	<b>507.7</b>	<b>261.6</b>	<b>265.5</b>	<b>527.2</b>
Industry	264.6	265.6	134.1	135.8	270.0	136.9	139.8	276.7	140.8	143.8	284.6
Transport	2.0	2.2	1.3	1.4	2.7	1.3	1.5	2.8	1.4	1.6	3.0
Buildings	211.0	215.8	113.1	111.3	224.4	113.2	115.1	228.3	119.4	120.1	239.6
<b>Installed Electrical Capacity (GW)*</b>	<b>357.5</b>	<b>384.5</b>	<b>197.5</b>	<b>205.2</b>	<b>402.7</b>	<b>219.5</b>	<b>230.6</b>	<b>450.1</b>	<b>234.0</b>	<b>237.2</b>	<b>471.2</b>
Coal	103.6	108.4	54.9	60.5	115.4	66.0	72.8	138.8	73.6	74.1	147.6
Oil	18.5	17.0	8.4	8.3	16.6	8.3	8.3	16.6	8.3	8.3	16.6
Gas	110.6	127.2	65.0	65.2	130.2	70.3	74.1	144.4	75.1	76.0	151.1
Nuclear	82.9	84.9	43.4	43.9	87.3	46.0	45.1	91.1	45.1	45.1	90.1
Hydro	25.8	25.9	13.0	13.0	25.9	13.0	13.0	25.9	13.0	13.0	26.0
Other Renewables	16.1	21.2	12.9	14.3	27.2	16.0	17.4	33.3	19.1	20.8	39.9
<b>Electricity Generation of Power Plants*</b>	<b>522.0</b>	<b>528.1</b>	<b>266.1</b>	<b>274.4</b>	<b>540.4</b>	<b>270.4</b>	<b>283.1</b>	<b>553.5</b>	<b>281.2</b>	<b>288.6</b>	<b>569.8</b>
Coal	203.4	204.7	101.7	112.1	213.8	113.1	125.2	238.2	112.9	125.6	238.5
Oil	25.0	31.7	8.4	5.8	14.3	6.4	2.7	9.1	3.6	2.2	5.8
Gas	114.7	100.8	55.4	65.5	120.8	56.0	66.8	122.9	86.2	66.8	153.0
Nuclear	156.4	164.8	86.5	75.5	162.0	78.1	70.3	148.4	59.8	74.3	134.1
Hydro	7.8	5.8	3.0	3.6	6.6	3.2	3.8	7.0	3.2	3.1	6.3
Other Renewables	14.7	20.3	11.1	11.9	23.0	13.5	14.3	27.8	15.5	16.7	32.2
<b>Fuel Consumption of Power Plants (Mtoe)*</b>	<b>108.6</b>	<b>109.8</b>	<b>54.8</b>	<b>55.8</b>	<b>110.6</b>	<b>53.8</b>	<b>56.9</b>	<b>110.7</b>	<b>55.9</b>	<b>57.5</b>	<b>113.4</b>
Coal	49.2	50.6	23.8	25.4	49.2	24.6	28.2	52.8	25.9	27.9	53.8
Oil	1.7	2.0	1.8	1.3	3.0	0.7	0.5	1.2	0.7	0.4	1.2
Gas	21.3	19.0	9.1	11.1	20.2	9.6	10.8	20.3	13.9	10.8	24.7
Nuclear	33.0	34.8	18.3	15.9	34.2	16.6	15.0	31.6	12.7	15.8	28.6
Hydro	1.6	1.2	0.6	0.8	1.4	0.7	0.8	1.5	0.7	0.7	1.3
Other Renewables	1.8	2.2	1.3	1.4	2.6	1.6	1.6	3.2	1.9	1.9	3.8

\* District Heat is classified by fuel type since 2014

## Heat and Other Renewables

(Mtoe)

	2014	2015	2016			2017p			2018e		
			1H	2H		1H	2H		1H	2H	
<b>Net Heat Demand</b>	<b>1.6</b>	<b>1.6</b>	<b>1.0</b>	<b>0.7</b>	<b>1.7</b>	<b>1.1</b>	<b>0.8</b>	<b>1.9</b>	<b>1.1</b>	<b>0.8</b>	<b>1.9</b>
Own use and Losses	- 0.0	0.0	- 0.0	0.0	0.0	- 0.0	0.0	0.0	- 0.1	0.0	- 0.1
<b>Total Final Consumption</b>	<b>1.6</b>	<b>1.6</b>	<b>1.0</b>	<b>0.7</b>	<b>1.7</b>	<b>1.1</b>	<b>0.8</b>	<b>1.8</b>	<b>1.2</b>	<b>0.8</b>	<b>2.0</b>
Industry	-	-	-	-	-	-	-	-	-	-	-
Transport	-	-	-	-	-	-	-	-	-	-	-
Buildings	1.6	1.6	1.0	0.7	1.7	1.1	0.8	1.8	1.2	0.8	2.0
<b>Heat Production by fuel</b>											
Coal	-	-	-	-	-	-	-	-	-	-	-
Oil	1.0	1.0	0.7	0.4	1.1	0.7	0.5	1.2	0.8	0.5	1.3
Gas	0.5	0.5	0.3	0.3	0.6	0.3	0.3	0.7	0.3	0.3	0.6
Nuclear	-	-	-	-	-	-	-	-	-	-	-
Hydro	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	-	-	-	-	-	-	-	-	-	-	-
<b>Fuel Consumption of District Heat</b>											
Coal	-	-	-	-	-	-	-	-	-	-	-
Oil	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2
Gas	2.2	2.0	1.1	0.9	2.0	1.2	1.0	2.2	1.5	1.2	2.7
Nuclear	-	-	-	-	-	-	-	-	-	-	-
Hydro	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	-	-	-	-	-	-	-	-	-	-	-
<b>Other Renewables</b>	<b>12.6</b>	<b>14.1</b>	<b>7.4</b>	<b>7.6</b>	<b>15.0</b>	<b>8.2</b>	<b>8.3</b>	<b>16.5</b>	<b>8.9</b>	<b>8.8</b>	<b>17.8</b>
Hydro	1.6	1.2	0.6	0.8	1.4	0.7	0.8	1.5	0.7	0.7	1.3
Transform	1.8	2.2	1.3	1.4	2.6	1.6	1.6	3.2	1.9	1.9	3.8
<b>Total Final Consumption</b>	<b>9.2</b>	<b>10.6</b>	<b>5.5</b>	<b>5.4</b>	<b>10.9</b>	<b>5.9</b>	<b>5.9</b>	<b>11.8</b>	<b>6.3</b>	<b>6.3</b>	<b>12.6</b>
Industry	7.1	8.1	4.0	4.1	8.1	4.4	4.4	8.8	4.7	4.7	9.4
Transport	0.4	0.4	0.2	0.2	0.4	0.2	0.2	0.5	0.3	0.2	0.5
Buildings	1.7	2.1	1.3	1.2	2.4	1.3	1.2	2.5	1.4	1.3	2.7

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# KEEI

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