

KEEI Korea Energy Demand Outlook



KOREA ENERGY ECONOMICS INSTITUTE



2019 / First Half

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 2018 increased to 307.3 Mtoe, up 1.7% year-on-year.**

- Despite cold winter and the worst heat wave ever, TPES growth decreased by more than 1%p on a year-on-year basis due to declining economic growth, rising oil prices, increased maintenance of petrochemical facilities, etc.
- Feedstock energy use (non-energy oil and bituminous coal for steelmaking) reduced, led by naphtha consumption in the petrochemical industry, which caused sluggish energy consumption. Excluding the feedstock energy use, TPES in 2018 went up by 2.7% on a year-on-year basis.

☐ **Petroleum and nuclear energy use showed a year-on-year decrease while coal and gas consumption increased.**

- **Petroleum (↓ 0.8%)** Rising oil prices decreased petroleum consumption in the transport and buildings sectors and that in the industrial sector also went down due to increased maintenance of naphtha cracking centers (NCC) and unplanned outage triggered by accidents.
- **Coal (↑ 2.5%)** Coal use for generation plummeted due to diminishing effect of introduction of new coal-fired power plants, government restrictions on coal-fired generation, etc., and coal consumption growth in the industrial sector also showed a dramatic year-on-year decrease (5.6%p) driven by the sluggish key iron & steel industries, etc.
- **Nuclear energy (↓ 10.1%)** While the preventive maintenance period of multiple nuclear power plants were extended due to strengthened safety regulations, nuclear energy use maintained its sharp downward movement led by the shutdown effect of Gori Unit 1(June 2017) and Wolsong Unit 1(June 2018).
- **Gas (↑ 12.4%)** Gas use for generation surged as gas generation replaced the most part of plummeting nuclear power generation, and that for city gas production also marked a rapid increase thanks to its improved price competitiveness driven by cold winter, rising oil prices, etc.
- **Electricity (↑ 3.6%)** Electricity use increased as that for the industrial sector grew driven by the power-intensive fabricated metal product manufacturing industry, and that for the buildings sector also soared due to temperature effect, temporary reduction of residential progressive electricity tariffs, etc.

☐ **TFC in 2018, led by the buildings sector, increased to 237.9 Mtoe by 1.7% on a year-on-year basis.**

- **Industry (↑1.4%)** Energy consumption for the industrial use marked a modest 1%-range increase due to the sluggish manufacturing industry, expanded facilities of petrochemical plants, etc.
- **Transport (↓0.5%)** Despite the increased number of vehicles and amount of goods transported, energy consumption in the transport sector reduced (-0.5%) due to rising oil prices.
- **Buildings (↑4.8%)** Energy use in the buildings sector showed a rapid growth thanks to temperature effect, reduced energy tariffs, etc., and consequently drove TFC.

Energy Outlook

- **TPED will increase by 1.2% to 311.1 Mtoe and TFD is expected to be up by 1.2% to 240.8 Mtoe in 2019.**
 - TPED and TFD will show a significant year-on-year decrease as economic growth is slowing down and the temperature will return to the annual average level.
 - In 2019, energy intensity is expected to recover (decrease) further and energy consumption per capita is projected to continue its upward trend.
- **In 2019, demand for petroleum and nuclear energy is forecasted to rise and that for coal and gas are expected to switch to move downwards.**
 - Petroleum demand will rebound from its declining trend in the previous year thanks to falling international oil prices, decreased fuel tax and expanded petrochemical facilities.
 - With the continued sluggish coal demand for industrial use, that for power generation is expected to start showing a sharp descending movement, which will drive down the overall coal demand.
 - Despite strengthened safety requirements, demand for nuclear power is anticipated to rebound thanks to the introduction of new nuclear power plants and base effect.
 - Gas demand for both power generation and city gas production are projected to reduce due to the decreasing number of heating degree-days driven by sluggish electricity demand growth, increasing base-load generation and temperature recovery to annual average level.
 - Amid the decreasing economic growth rate, the growth rate of electricity demand is anticipated to decline as energy use for the buildings sector is expected to go down dramatically due to base effect.

Energy demand growth rates by major energy source

	2014	2015	2016	2017	2018p	2019e
TPES	1.3	1.4	2.4	2.8	1.7	1.2
Coal	4.0	1.3	- 4.3	8.1	2.5	- 4.1
Petroleum	- 0.5	4.2	8.0	1.7	- 0.8	2.0
Gas	- 9.0	- 8.7	4.4	4.3	12.4	- 3.0
Nuclear	12.7	5.3	- 1.7	- 8.4	- 10.1	18.7
Electricity	0.6	1.3	2.8	2.2	3.6	1.6

- ☐ **In 2019, the growth of energy demand in the industrial sector will remain similar to the previous year level while that for the transport and buildings sectors are expected to rebound and reduce, respectively.**
 - Despite the decreasing economic growth rate, the growth of energy demand in the industrial sector is expected to remain at a similar level to the previous year due to recovery of naphtha demand.
 - Energy demand in the transport sector will rebound driven by declining oil prices, temporary reduction of fuel tax, etc.
 - The growth of energy demand in the buildings sector is forecasted to plummet as the temperature is expected to return to the annual average level and the effect of energy tariffs reduction is anticipated to diminish, which will lead TFD to slow down.

Key Features and Implications

- ☐ **Electricity demand growth in the buildings sector is estimated to have doubled in 2018 due to cold waves and the worst heat waves.**
 - Electricity demand growth in the buildings sector increased by 3.2%p compared to the previous year in which electricity demand for air-conditioning and heating are estimated to account for 1.6%p and 0.8%p, respectively.
- ☐ **Electricity demand growth will increase by 0.6%p to 1.4%p if the temperature in 2019 summer is as high as the previous year or even higher.**
 - Taking into account frequent abnormal heat waves recently, two scenarios have been developed for potential hot waves in 2019 summer.

- Electricity demand growth and TPED growth in 2019 will increase by up to 1.4%p and 0.4%p or higher compared to growth forecasted at 1.6% and 1.2%, respectively, given that electricity demand for air-conditioning is considered only.
 - Even if another record-breaking heat wave is seen in 2019, gas demand will show a year-on-year decrease this year, and the temperature effect only is unlikely to increase the demand.
- ☐ **Coal and gas generation is expected to decline while nuclear generation will rebound and account for greater share than gas generation in energy mix.**
- Coal generation in 2019 is projected to shrink dramatically due to decreasing capacity of generation facilities, the government's fine dust countmeasures, suspension caused by safety accidents, etc.
 - Despite the lower capacity factor of nuclear power plants compared to the past, nuclear generation will rebound from its sharp decreasing trend which continued for the past three years thanks to the introduction of two new nuclear power plants.
 - Gas generation will switch from its sharp upward movement in 2018 to downward movement in 2019 as the growth of electricity demand is expected to show a significant slowdown while nuclear generation is anticipated to rebound.
 - Accordingly, the share of coal generation is forecasted to reduce for three consecutive years while that of nuclear generation will rise for the first time since 2015, which will result in greater share of nuclear generation that exceeds gas generation in energy mix.
- ☐ **The improving trend of energy intensity which has remained sluggish is expected to accelerate for two consecutive years provided that the temperature returns to its annual average level.**
- Energy intensity (TPES/GDP) improved (declined) rapidly for the first time since 2013 thanks to decreased capacity factor of petrochemical facilities and rising oil prices.
 - If the temperature returns to its annual average level in 2019, energy consumption in the buildings sector which soared in 2018 will go down dramatically and the improving trend of energy intensity will accelerate.

The Main Indicator and Energy Outlook Result

Main Economic and Energy Indicators

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Economy and Population											
GDP (2010 trillion won)	1 466.8	1 509.8	755.8	800.2	1 556.0	777.0	820.5	1 597.5	794.9	842.7	1 637.5
Industrial Production(2010=100)	100.0	102.2	104.1	105.3	104.7	104.6	107.6	106.1	105.4	108.8	107.1
Crude Oil Price (Dubai, USD/bbl)	50.8	41.2	51.5	54.9	53.2	68.0	70.9	69.4	64.6	69.1	66.8
Working Days	274.0	273.0	134.0	135.5	269.5	133.0	137.0	270.0	135.0	138.5	273.5
Population (million)	51.0	51.2	51.4	51.4	51.4	51.6	51.6	51.6	51.7	51.7	51.7
Average Temperature (°C)	13.4	13.6	10.4	15.7	13.1	9.9	16.1	13.0	10.4	16.0	13.2
Cooling Degree days	82.3	154.1	2.4	130.3	132.7	3.5	205.5	209.0	-	103.9	103.9
Heating Degree days	2 298.0	2 386.8	1 520.3	996.8	2 517.1	1 616.9	980.9	2 597.8	1 508.5	926.5	2 435.1
Energy Indicators											
Total Primary Energy Demand (Mtoe)	286.8	293.7	148.7	153.3	302.1	153.3	154.0	307.3	154.4	156.6	311.1
Energy Intensity (toe/million won)	0.196	0.195	0.197	0.192	0.195	0.198	0.188	0.193	0.195	0.186	0.190
TPED/capita (toe/capita)	5.623	5.734	2.896	2.985	5.881	2.970	2.984	5.955	2.987	3.029	6.016
Electricity Generation (TWh)	528.1	540.4	270.4	283.2	553.5	279.1	291.6	570.6	278.8	298.6	577.5
Electricity Generation/capita (MWh/capita)	10.4	10.6	5.3	5.5	10.8	5.4	5.7	11.1	5.4	5.8	11.2
Electricity Demand/capita (MWh/capita)	9.5	9.7	4.9	5.0	9.9	5.1	5.1	10.2	5.1	5.3	10.3

Energy Demand

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Total Primary Energy Supply											
Coal (Mton)	135.1	129.3	66.5	73.3	139.8	70.0	73.2	143.2	65.1	72.3	137.4
Oil (Mbbbl)	853.1	921.1	457.9	479.2	937.1	465.4	463.9	929.3	468.9	479.1	948.0
Gas (Bm ³)	33.4	34.9	18.6	17.8	36.4	22.1	18.8	40.9	21.6	18.2	39.7
Hydro (TWh)	5.8	6.6	3.2	3.8	7.0	3.4	3.9	7.3	3.5	4.4	7.9
Nuclear (TWh)	164.8	162.0	78.1	70.3	148.4	60.0	73.6	133.5	76.0	82.6	158.5
Other Renewables (Mtoe)	12.8	13.6	7.8	8.0	15.8	8.7	8.8	17.5	9.8	9.7	19.5
Total (Mtoe)	286.8	293.7	148.7	153.3	302.1	153.3	154.0	307.3	154.4	156.6	311.1
Coal	85.3	81.4	41.0	45.2	86.2	43.1	45.1	88.2	40.2	44.2	84.4
Oil	109.1	117.6	58.3	61.1	119.4	59.1	59.0	118.1	59.4	60.5	119.9
Gas	43.6	45.5	24.3	23.3	47.5	28.9	24.5	53.4	28.1	23.7	51.9
Nuclear	1.2	1.4	0.7	0.8	1.5	0.7	0.8	1.5	0.7	0.9	1.7
Hydro	34.8	34.2	16.6	15.0	31.6	12.8	15.7	28.4	16.2	17.6	33.8
Other Renewables	12.8	13.6	7.8	8.0	15.8	8.7	8.8	17.5	9.8	9.7	19.5
Total Final Consumption											
Coal (Mton)	52.6	49.0	24.8	25.5	50.4	25.4	26.0	51.5	25.4	26.4	51.8
Oil (Mbbbl)	838.5	899.3	451.9	474.7	926.6	458.4	459.4	917.8	463.7	475.6	939.2
Gas (Bm ³)	20.8	21.3	12.8	9.8	22.6	14.0	10.2	24.2	13.3	10.1	23.3
Electricity (TWh)	483.7	497.0	251.4	256.3	507.7	261.7	264.5	526.1	262.5	272.2	534.8
Heat (Mtoe)	2.0	2.2	1.4	1.0	2.4	1.7	1.0	2.7	1.6	1.1	2.6
Other Renewables (Mtoe)	10.6	10.9	6.2	6.3	12.5	6.8	6.9	13.7	7.5	7.5	14.9
Total (Mtoe)	217.9	225.1	116.6	117.3	233.9	120.7	117.2	237.9	121.1	119.8	240.8
Coal	34.8	32.3	16.4	16.9	33.4	16.8	17.2	34.0	16.7	17.1	33.8
Oil	106.9	114.3	57.4	60.4	117.9	58.1	58.4	116.5	58.6	60.0	118.6
Gas	22.1	22.7	13.5	10.5	24.1	14.9	10.9	25.8	14.1	10.8	24.9
Electricity	41.6	42.7	21.6	22.0	43.7	22.5	22.7	45.2	22.6	23.4	46.0
Heat	2.0	2.2	1.4	1.0	2.4	1.7	1.0	2.7	1.6	1.1	2.6
Other Renewables	10.6	10.9	6.2	6.3	12.5	6.8	6.9	13.7	7.5	7.5	14.9
Industry	135.3	137.8	70.8	73.5	144.3	72.9	73.3	146.3	73.1	75.5	148.6
Transport	39.9	42.3	20.9	21.9	42.8	20.9	21.7	42.6	21.6	21.9	43.5
Buildings	42.8	45.0	24.9	21.9	46.8	26.9	22.2	49.1	26.3	22.4	48.7

Energy Demand

(yoy, %)

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Total Primary Energy Supply											
Coal (Mton)	1.3	- 4.3	7.2	8.9	8.1	5.3	- 0.1	2.5	- 7.0	- 1.3	- 4.1
Oil (Mbbbl)	4.2	8.0	1.8	1.7	1.7	1.6	- 3.2	- 0.8	0.8	3.3	2.0
Gas (Bm ³)	- 8.7	4.4	4.0	4.6	4.3	19.2	5.4	12.4	- 2.7	- 3.3	- 3.0
Hydro (TWh)	- 25.9	14.5	7.0	4.2	5.5	5.8	2.4	4.0	2.6	15.0	9.2
Nuclear (TWh)	5.3	- 1.7	- 9.7	- 6.9	- 8.4	- 23.3	4.6	- 10.1	26.7	12.2	18.7
Other Renewables (Mtoe)	17.2	5.7	15.5	18.0	16.7	10.7	10.2	10.5	13.2	9.6	11.4
Total (Mtoe)	1.4	2.4	2.0	3.7	2.9	3.1	0.4	1.7	0.8	1.7	1.2
Coal	0.7	- 4.6	4.3	7.3	5.8	5.1	- 0.2	2.4	- 6.7	- 2.0	- 4.3
Oil	4.2	7.8	1.3	1.8	1.5	1.3	- 3.3	- 1.1	0.5	2.5	1.5
Gas	- 8.7	4.4	4.1	4.8	4.4	19.2	5.4	12.4	- 2.7	- 3.3	- 3.0
Nuclear	- 25.9	14.5	8.0	5.2	6.5	5.8	2.4	4.0	2.6	15.0	9.2
Hydro	5.3	- 1.7	- 8.8	- 6.0	- 7.5	- 23.3	4.6	- 10.1	26.7	12.2	18.7
Other Renewables	17.2	5.7	15.5	18.0	16.7	10.7	10.2	10.5	13.2	9.6	11.4
Total Final Consumption											
Coal (Mton)	- 0.8	- 6.8	7.3	- 1.3	2.7	2.4	2.0	2.2	- 0.2	1.4	0.6
Oil (Mbbbl)	4.1	7.3	3.4	2.7	3.0	1.4	- 3.2	- 0.9	1.2	3.5	2.3
Gas (Bm ³)	- 5.9	2.3	4.3	9.0	6.3	9.4	4.4	7.2	- 5.3	- 1.5	- 3.7
Electricity (TWh)	1.3	2.8	1.2	3.1	2.2	4.1	3.2	3.6	0.3	2.9	1.6
Heat (Mtoe)	39.9	11.0	5.0	22.5	11.8	17.7	0.4	10.3	- 6.1	2.6	- 2.7
Other Renewables (Mtoe)	15.7	2.9	12.8	16.2	14.5	9.6	8.7	9.1	10.0	8.4	9.2
Total (Mtoe)	2.1	3.3	3.7	4.1	3.9	3.5	- 0.0	1.7	0.3	2.2	1.2
Coal	- 2.1	- 7.2	5.7	1.3	3.4	2.0	1.8	1.9	- 0.1	- 1.0	- 0.6
Oil	4.0	6.9	3.2	3.1	3.1	1.1	- 3.4	- 1.2	0.9	2.7	1.8
Gas	- 5.9	2.6	3.3	9.7	6.0	10.1	4.0	7.4	- 5.3	- 1.5	- 3.7
Electricity	1.3	2.8	1.2	3.1	2.2	4.1	3.2	3.6	0.3	2.9	1.6
Heat	39.9	11.0	5.0	22.5	11.8	17.7	0.4	10.3	- 6.1	2.6	- 2.7
Other Renewables	15.7	2.9	12.8	16.2	14.5	9.6	8.7	9.1	10.0	8.4	9.2
Industry	- 0.1	1.9	5.2	4.2	4.7	3.0	- 0.2	1.4	0.3	3.0	1.6
Transport	7.0	6.1	1.4	1.1	1.2	- 0.1	- 0.8	- 0.5	3.6	0.7	2.1
Buildings	5.0	5.2	1.6	7.2	4.2	7.8	1.3	4.8	- 2.1	0.8	- 0.8

Energy Demand by Sector

(Mtoe)

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Industry	135.3	137.8	70.8	73.5	144.3	72.9	73.3	146.3	73.1	75.5	148.6
Coal	34.1	31.7	16.2	16.6	32.8	16.6	17.0	33.6	16.6	16.8	33.4
Oil	62.2	66.8	33.9	36.0	69.8	34.5	34.5	69.0	34.5	36.3	70.8
Gas	8.1	8.0	4.5	4.3	8.8	5.1	4.8	9.9	4.8	4.7	9.5
Electricity	22.8	23.2	11.8	12.0	23.8	12.1	12.3	24.4	12.2	12.6	24.9
Heat	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	8.1	8.1	4.4	4.5	9.0	4.7	4.7	9.4	5.0	5.1	10.1
Transport	39.9	42.3	20.9	21.9	42.8	20.9	21.7	42.6	21.6	21.9	43.5
Coal	-	-	-	-	-	-	-	-	-	-	-
Oil	37.9	40.3	19.9	20.9	40.9	19.8	20.6	40.4	20.5	20.7	41.2
Gas	1.3	1.3	0.6	0.6	1.3	0.6	0.6	1.2	0.6	0.6	1.2
Electricity	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.3
Heat	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	0.4	0.4	0.2	0.2	0.4	0.3	0.3	0.7	0.4	0.4	0.7
Buildings*	42.8	45.0	24.9	21.9	46.8	26.9	22.2	49.1	26.3	22.4	48.7
Coal	0.7	0.6	0.2	0.3	0.5	0.2	0.3	0.4	0.2	0.3	0.4
Oil	6.8	7.1	3.6	3.5	7.2	3.8	3.3	7.1	3.6	3.0	6.6
Gas	12.7	13.4	8.5	5.5	14.0	9.2	5.5	14.7	8.7	5.4	14.2
Electricity	18.6	19.3	9.7	9.9	19.6	10.3	10.3	20.6	10.2	10.6	20.8
Heat	2.0	2.2	1.4	1.0	2.4	1.7	1.0	2.7	1.6	1.1	2.6
Other Renewables	2.1	2.4	1.5	1.6	3.1	1.8	1.8	3.5	2.1	2.0	4.1
Transform	134.2	135.7	68.3	69.2	137.5	71.2	71.1	142.2	71.2	71.7	142.9
Coal	50.6	49.2	24.6	28.2	52.8	26.4	27.9	54.2	23.5	27.1	50.6
Oil	2.2	3.3	0.9	0.7	1.5	1.0	0.7	1.6	0.7	0.5	1.2
Gas	43.2	45.0	23.9	22.8	46.7	28.5	24.1	52.5	27.7	23.3	51.0
Nuclear	34.8	34.2	16.6	15.0	31.6	12.8	15.7	28.4	16.2	17.6	33.8
Hydro	1.2	1.4	0.7	0.8	1.5	0.7	0.8	1.5	0.7	0.9	1.7
Renewables	2.2	2.6	1.6	1.7	3.3	1.9	2.0	3.8	2.3	2.2	4.6

* include residential, commercial, public-etc usage

Coal

(Mton)

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Total Coal Demand	135.1	129.3	66.5	73.3	139.8	70.0	73.2	143.2	65.1	72.3	137.4
Transform	82.5	80.3	41.6	47.8	89.4	44.6	47.2	91.8	39.7	45.9	85.6
Power Generation	82.5	80.3	41.6	47.8	89.4	44.6	47.2	91.8	39.7	45.9	85.6
Heat	-	-	-	-	-	-	-	-	-	-	-
Gas Manufacture	-	-	-	-	-	-	-	-	-	-	-
Total Final Consumption	52.6	49.0	24.8	25.5	50.4	25.4	26.0	51.5	25.4	26.4	51.8
Industry	51.1	47.8	24.4	24.8	49.3	25.1	25.5	50.5	25.1	25.9	51.0
Transport	-	-	-	-	-	-	-	-	-	-	-
Buildings	1.5	1.3	0.4	0.7	1.1	0.3	0.6	0.9	0.3	0.5	0.8
Consumption by products											
Anthracite	10.5	10.8	4.3	3.9	8.3	4.5	4.7	9.2	4.2	4.7	8.9
Bituminous	124.5	118.5	62.1	69.4	131.5	65.5	68.5	134.0	60.8	67.6	128.5
Iron making	36.8	33.5	17.7	18.6	36.3	18.0	18.8	36.9	18.2	19.0	37.2
Cement	4.7	4.6	2.2	2.0	4.2	1.8	1.9	3.7	1.9	1.9	3.7
Power Generation	80.4	77.8	40.9	47.4	88.3	44.3	46.5	90.8	39.3	45.4	84.8

Oil

(Mbbbl)

	2015	2016	2017p			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Total Oil Demand	853.1	921.1	457.9	479.2	937.1	465.4	463.9	929.3	468.9	479.1	948.0
Transform	14.6	21.8	5.9	4.5	10.5	7.0	4.5	11.5	5.2	3.5	8.8
Power Generation	12.8	19.3	4.5	3.5	8.1	4.8	3.6	8.3	3.2	2.7	5.9
Heat	0.8	1.3	0.8	0.4	1.2	0.7	0.4	1.1	0.6	0.3	0.9
Gas Manufacture	1.0	1.2	0.6	0.6	1.2	1.5	0.6	2.0	1.4	0.5	2.0
Total Final Consumption	838.5	899.3	451.9	474.7	926.6	458.4	459.4	917.8	463.7	475.6	939.2
Industry	501.0	542.6	275.3	291.6	567.0	281.3	280.8	562.2	282.3	296.9	579.2
Transport	284.0	300.5	147.9	155.3	303.2	146.9	152.8	299.8	152.2	153.7	305.9
Buildings	53.5	56.3	28.7	27.8	56.4	30.1	25.8	55.9	29.2	24.9	54.1
Consumption by products											
Gasoline	76.6	78.9	38.5	41.2	79.6	39.0	40.7	79.7	41.1	40.9	82.0
Diesel (including Transformation)	153.3	163.5	80.7	85.2	165.9	79.9	84.2	164.1	84.7	83.7	168.4
Kerosene (including Transformation)	16.2	19.1	9.3	9.7	19.0	10.2	8.7	18.9	8.9	8.3	17.2
B-C (including Transformation)	38.3	47.5	18.5	17.3	35.8	17.9	15.3	33.3	14.7	13.6	28.3
Jet Oil	34.4	37.0	18.5	19.7	38.2	19.8	20.0	39.9	19.7	20.6	40.3
LPG (including Transformation)	89.9	109.0	52.7	52.5	105.1	56.3	52.3	108.6	58.8	58.8	117.6
Naphtha	410.8	430.1	222.9	235.5	458.4	226.5	224.7	451.2	225.8	236.9	462.6
Other Non-Energy	33.7	36.1	16.8	18.2	35.1	15.8	17.9	33.7	15.2	16.3	31.5

Gas

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Total Gas Demand (Mton)	33.4	34.9	18.6	17.8	36.4	22.1	18.8	40.9	21.6	18.2	39.7
Transform	33.1	34.5	18.3	17.5	35.8	21.8	18.4	40.2	21.2	17.8	39.1
Power Generation	14.6	15.5	7.4	8.2	15.6	9.4	8.6	18.0	9.0	8.5	17.5
Heat	1.5	1.6	0.8	0.8	1.7	1.2	1.0	2.3	1.2	1.0	2.2
Gas Manufacture	17.0	17.5	10.1	8.4	18.5	11.1	8.8	20.0	11.0	8.3	19.3
Industry	0.3	0.4	0.3	0.4	0.6	0.4	0.3	0.7	0.3	0.3	0.7
City Gas (Bm³)	20.8	21.3	12.8	9.8	22.6	14.0	10.2	24.2	13.3	10.1	23.3
Industry*	7.3	7.2	4.0	3.8	7.8	4.5	4.2	8.7	4.2	4.2	8.4
Transport	1.2	1.2	0.6	0.6	1.2	0.6	0.6	1.2	0.6	0.6	1.2
Buildings	12.2	12.8	8.2	5.4	13.6	9.0	5.3	14.3	8.5	5.3	13.8

* exclude industrial LNG usage

Electricity

(TWh)

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Net Electricity Demand	528.1	540.4	270.4	283.2	553.5	279.1	291.6	570.6	278.8	298.6	577.5
Own use and Losses	44.4	43.4	19.0	26.8	45.8	17.4	27.1	44.5	16.3	26.4	42.7
Total Final Consumption	483.7	497.0	251.4	256.3	507.7	261.7	264.5	526.1	262.5	272.2	534.8
Industry	265.6	270.0	136.9	139.8	276.7	140.8	142.9	283.7	142.4	147.0	289.4
Transport	2.2	2.7	1.3	1.5	2.8	1.4	1.5	3.0	1.5	1.6	3.1
Buildings	215.8	224.4	113.2	115.1	228.3	119.4	120.0	239.5	118.7	123.7	242.4
Installed Electrical Capacity (GW)*	384.5	402.7	219.5	230.6	450.1	233.8	236.3	470.1	239.7	246.5	486.2
Coal	108.4	115.5	66.0	72.8	138.8	73.5	73.9	147.5	74.1	73.8	147.9
Oil	17.0	16.5	8.3	8.3	16.6	8.3	8.6	16.9	8.4	8.2	16.6
Gas	127.2	130.3	70.3	74.1	144.4	75.1	75.7	150.8	75.7	78.0	153.8
Nuclear	84.9	87.3	46.0	45.1	91.1	44.8	43.7	88.5	43.7	46.0	89.7
Hydro	25.9	25.9	13.0	13.0	25.9	13.0	13.0	26.0	13.0	13.0	26.0
Other Renewables	21.2	27.1	16.0	17.4	33.3	19.1	21.4	40.4	24.8	27.5	52.3
Electricity Generation of Power Plants*	528.1	540.4	270.4	283.2	553.5	279.1	291.6	570.6	278.8	298.6	577.5
Coal	204.7	213.8	113.3	125.5	238.8	116.1	122.3	238.4	100.1	119.1	219.2
Oil	31.7	14.0	3.0	2.3	5.3	3.4	2.4	5.7	2.2	1.8	4.0
Gas	100.8	121.0	59.2	66.9	126.0	80.9	72.6	153.5	77.8	71.5	149.3
Nuclear	164.8	162.0	78.1	70.3	148.4	60.0	73.6	133.5	76.0	82.6	158.5
Hydro	5.8	6.6	3.2	3.8	7.0	3.4	3.9	7.3	3.5	4.4	7.9
Other Renewables	20.3	23.0	13.5	14.5	28.0	15.4	16.9	32.2	19.3	19.2	38.5
Fuel Consumption of Power Plants (Mtoe)	109.8	110.6	53.9	56.9	110.8	54.7	58.1	112.9	55.0	59.4	114.4
Coal	50.6	49.2	24.6	28.2	52.8	26.4	27.9	54.2	23.5	27.1	50.6
Oil	2.0	3.0	0.7	0.5	1.2	0.7	0.5	1.3	0.5	0.4	0.9
Gas	19.0	20.2	9.7	10.7	20.4	12.3	11.3	23.5	11.8	11.1	22.9
Nuclear	34.8	34.2	16.6	15.0	31.6	12.8	15.7	28.4	16.2	17.6	33.8
Hydro	1.2	1.4	0.7	0.8	1.5	0.7	0.8	1.5	0.7	0.9	1.7
Other Renewables	2.2	2.6	1.6	1.7	3.3	1.9	2.0	3.8	2.3	2.2	4.6

* District Heat is classified by fuel type since 2014

Heat and Other Renewables

(Mtoe)

	2015	2016	2017			2018p			2019e		
			1H	2H		1H	2H		1H	2H	
Net Heat Demand	2.0	2.2	1.4	1.1	2.4	1.6	1.1	2.7	1.5	1.1	2.6
Own use and Losses	0.1	0.0	- 0.0	0.0	0.0	- 0.1	0.0	- 0.0	- 0.1	0.0	- 0.0
Total Final Consumption	2.0	2.2	1.4	1.0	2.4	1.7	1.0	2.7	1.6	1.1	2.6
Industry	-	-	-	-	-	-	-	-	-	-	-
Transport	-	-	-	-	-	-	-	-	-	-	-
Buildings	2.0	2.2	1.4	1.0	2.4	1.7	1.0	2.7	1.6	1.1	2.6
Heat Production by fuel											
Coal	-	-	-	-	-	-	-	-	-	-	-
Oil	1.3	1.4	0.9	0.6	1.5	1.0	0.7	1.7	1.0	0.7	1.7
Gas	0.7	0.8	0.5	0.4	1.0	0.6	0.4	0.9	0.5	0.4	0.9
Nuclear	-	-	-	-	-	-	-	-	-	-	-
Hydro	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	-	-	-	-	-	-	-	-	-	-	-
Fuel Consumption of District Heat											
Coal	-	-	-	-	-	-	-	-	-	-	-
Oil	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1
Gas	2.0	2.0	1.1	1.1	2.2	1.6	1.3	2.9	1.5	1.4	2.9
Nuclear	-	-	-	-	-	-	-	-	-	-	-
Hydro	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	-	-	-	-	-	-	-	-	-	-	-
Other Renewables	14.1	15.0	8.5	8.8	17.3	9.4	9.7	19.1	10.5	10.6	21.2
Hydro	1.2	1.4	0.7	0.8	1.5	0.7	0.8	1.5	0.7	0.9	1.7
Transform	2.2	2.6	1.6	1.7	3.3	1.9	2.0	3.8	2.3	2.2	4.6
Total Final Consumption	10.6	10.9	6.2	6.3	12.5	6.8	6.9	13.7	7.5	7.5	14.9
Industry	8.1	8.1	4.4	4.5	9.0	4.7	4.7	9.4	5.0	5.1	10.1
Transport	0.4	0.4	0.2	0.2	0.4	0.3	0.3	0.7	0.4	0.4	0.7
Buildings	2.1	2.4	1.5	1.6	3.1	1.8	1.8	3.5	2.1	2.0	4.1

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