Section 1 - Total Energy

Key results show:

Total energy production was 3.6 per cent lower than in the second quarter of 2015. (**Charts 1.1 & 1.2**)

Total primary energy consumption for energy uses fell by 0.5 per cent. However, when adjusted to take account of weather differences between the second quarter of 2015 and the second quarter of 2016, primary energy consumption fell by 2.1 per cent. (**Chart 1.3**)

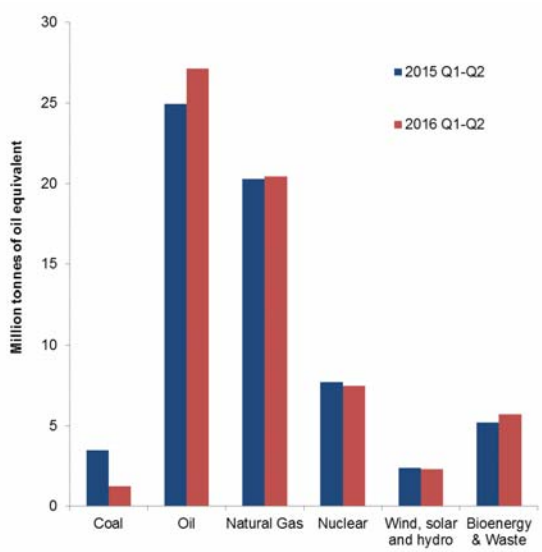
Final energy consumption (excluding non-energy use) rose by 1.7 per cent compared to the second quarter of 2015. Other final users' consumption rose by 2.6 per cent, transport consumption rose by 2.4 per cent, domestic consumption rose by 1.6 per cent, whilst industrial consumption fell by 0.3 per cent. (**Charts 1.4 & 1.5**)

On a temperature adjusted basis, final energy consumption rose by 3.1 per cent, with rises in all sectors except industry, down 0.7 per cent. (**Chart 1.5**)

Net import dependency was 35.8 per cent, up 2.3 percentage points from the second quarter of 2015. (**Chart 1.6**)

Fossil fuel dependency fell to 80.5 per cent, a record low, in the second quarter of 2016. (**Chart 1.7**)

Chart 1.1 Production of indigenous primary fuels



Total production in the second quarter of 2016 stood at 31.0 million tonnes of oil equivalent, 3.6 per cent lower than in the second quarter of 2015.

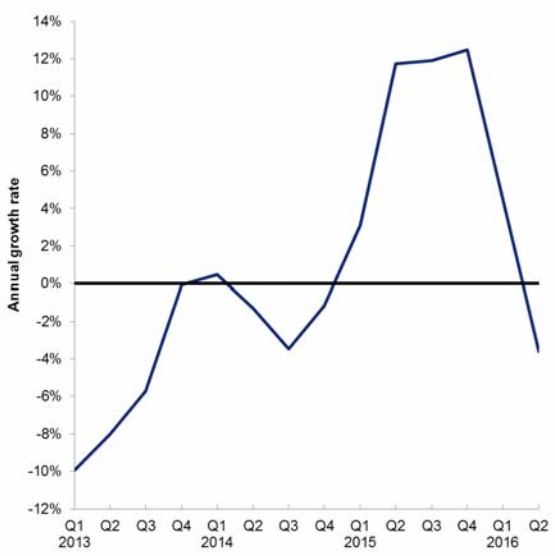
Production of oil rose by 1.0 per cent, boosted by new fields coming online and also less maintenance activity than last year, whilst production of natural gas fell by 4.0 per cent.

Primary electricity output in the second quarter of 2016 was 3.1 per cent lower than in the second quarter of 2015. Nuclear electricity output was 1.5 per cent lower, whilst output from wind, hydro and solar pv were 8.5 per cent lower, despite an increase in wind and solar capacity, due to lower wind speeds, rainfall and sun hours.

Production of bioenergy and waste was 8.8 per cent higher compared to the second quarter in 2015.

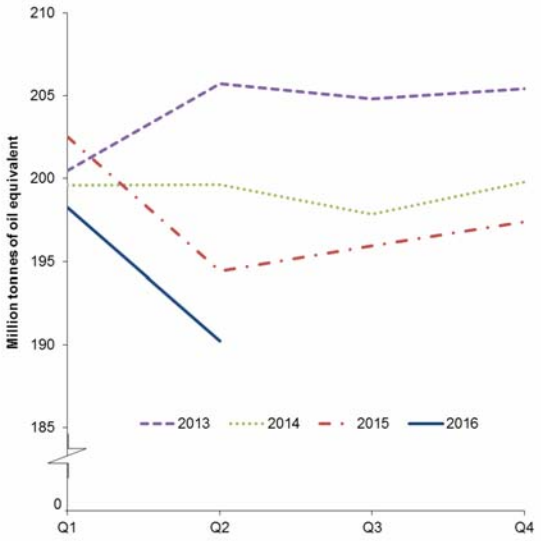
In the second quarter of 2016 production of coal and other solid fuels was 60 per cent lower than the corresponding period of 2015. This was due to mines closing and some other mines producing less coal as they are coming to the end of operation.

Chart 1.2 UK production (annual growth rate)



In the second quarter of 2016, the annual growth rate of UK quarterly production was -3.6 per cent. The fall in production follows a strong period of growth since the beginning of 2015 which was largely due to increases in oil and gas as well as in renewable sources.

Chart 1.3 Total inland consumption (primary fuel input basis)[1]



(1) Seasonally adjusted and temperature corrected annual rates

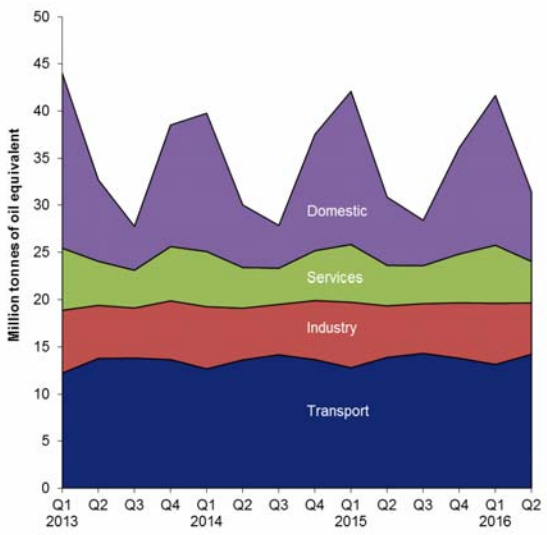
Total inland consumption on a primary fuel input basis (seasonally adjusted and temperature corrected annualised rate), was 190.2 million tonnes of oil equivalent in the second quarter of 2016, 2.1 per cent lower than in the second quarter of 2015. The average temperature in the second quarter of 2016 was 0.2 degree Celsius warmer than the same period a year earlier.

Between the second quarter of 2015 and the second quarter of 2016 (on a seasonally adjusted and temperature corrected basis) coal and other solid fuel consumption fell by 58 per cent, driven by decreased coal use in electricity generation.

On the same basis, natural gas consumption rose by 13.0 per cent between the second quarter of 2015 and the second quarter of 2015, due to increased demand from electricity generators.

Also on a seasonally adjusted and temperature corrected basis, oil consumption in the second quarter of 2016 was 2.7 per cent higher than in the second quarter of 2015. On the same basis and over the same period, there was a fall of 1.2 per cent in nuclear consumption but an increase of 14.5 per cent in bioenergy & waste consumption.

Chart 1.4 Final energy consumption by user



Total final energy consumption rose by 2.6 per cent between the second quarter of 2015 and the second quarter of 2016.

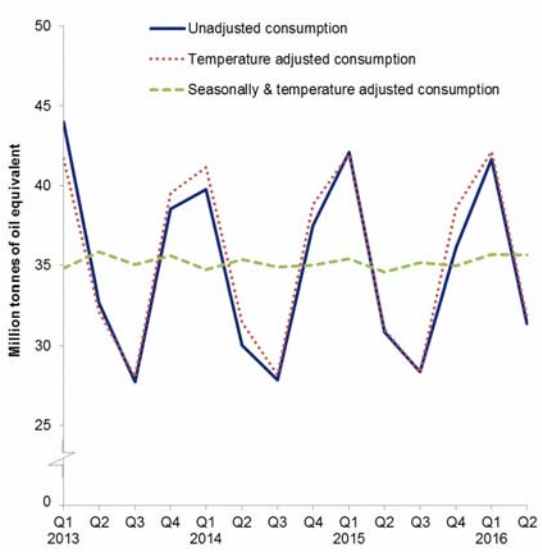
Domestic sector energy consumption rose by 1.6 per cent. Average temperatures in the second quarter of 2016 were 0.2 degree Celsius warmer than a year earlier, however April 2016 was 1.6 degree Celsius cooler than April 2015.

Service sector energy consumption rose by 2.6 per cent.

Industrial sector energy consumption fell by 0.3 per cent.

Transport sector energy consumption rose by 2.4 per cent.

Chart 1.5 Seasonally adjusted and temperature corrected final energy consumption



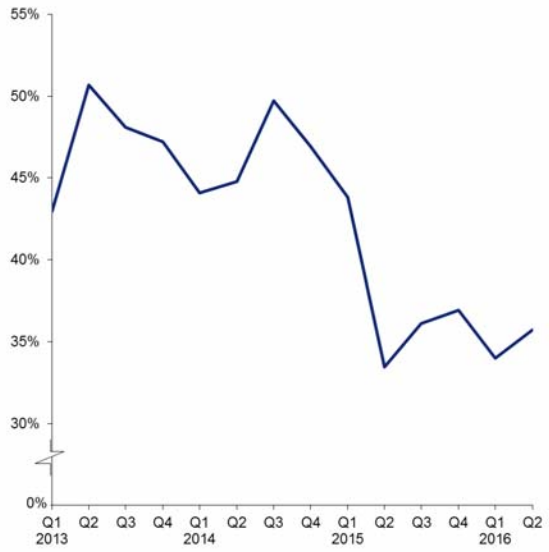
Total unadjusted final energy consumption (excluding non-energy use) rose by 1.7 per cent between the second quarter of 2015 and the second quarter of 2016.

On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) rose by 3.1 per cent between the second quarter of 2015 and the second quarter of 2016. The high growth rate is due, in part to the very low level of consumption calculated for the second quarter of 2015. Compared to the first quarter of 2016, consumption fell by 0.1 per cent.

Unadjusted domestic consumption rose by 1.6 per cent over this same period, and was up 4.8 per cent on a seasonally and temperature adjusted basis.

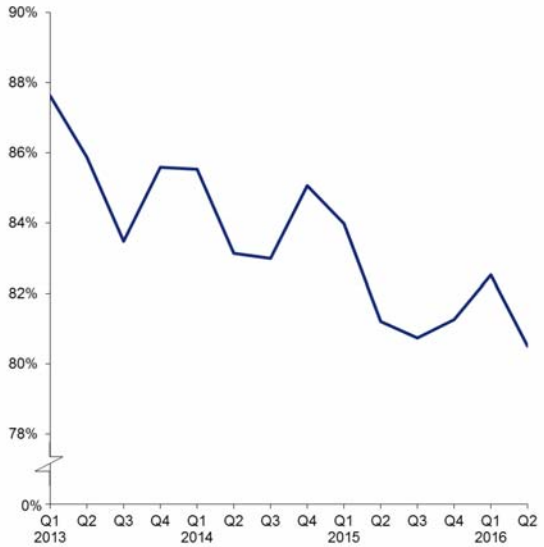
Consumption data by fuel and sector is available in the table ET 1.3c on the BEIS section of the GOV.UK website at:
www.gov.uk/government/statistics/total-energy-section-1-energy-trends

Chart 1.6 Net import dependency



In the second quarter of 2016 net import dependency was 35.8 per cent, up 2.3 percentage points from the second quarter of 2015, reflecting the increase in oil production, and reduced coal imports.

Chart 1.7 Fossil fuel dependency



In the second quarter of 2016 fossil fuel dependency was 80.5 per cent, a new record low, down 0.7 percentage points from the second quarter of 2015.

Relevant tables

1.1: Indigenous production of primary fuels…… Page 9
1.2: Inland energy consumption: primary fuel input basis……Page 10
1.3: Supply and use of fuels……Page 11-12

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1 TOTAL ENERGY

TABLE 1.1. Indigenous production of primary fuels

Million tonnes of oil equivalent

							Primary electricity	
		Total	Coal[1]	Petroleum[2]	Natural gas[3]	Bioenergy & waste[4,5]	Nuclear	Wind, solar and hydro[6]
2011		137.3	11.5	56.9	45.3	6.1	15.6	1.86
2012		122.6	10.6	48.8	38.9	6.8	15.2	2.28
2013		115.1	8.0	44.5	36.5	7.7	15.4	3.02
2014		113.6	7.3	43.7	36.8	8.3	13.9	3.60
2015		124.5	5.4	49.5	39.6	9.9	15.5	4.66
Per cent change		*+9.6*	*-26.1*	*+13.4*	*+7.6*	*+18.1*	*+11.8*	*+29.3*
2015	Quarter 2	32.2	1.5	13.2	10.4	2.2	3.7	1.11
	Quarter 3	27.6	0.9	11.4	8.8	2.0	3.6	0.94
	Quarter 4	32.9	1.0	13.2	10.5	2.7	4.1	1.33
2016	Quarter 1	33.3r	0.6r	13.8r	10.4r	3.3r	3.8	1.30r
	Quarter 2 p	31.0r	0.6r	13.3r	10.0r	2.4r	3.7	1.02r
Per cent change [7]		*-3.6*	*-60.4*	*+1.0*	*-4.0*	*+8.8*	*-1.5*	*-8.5*

1. Includes an estimate of slurry.
2. Crude oil, offshore and land, plus condensates and petroleum gases derived at onshore treatment plants.
3. Includes colliery methane, excludes gas flared or re-injected.
4. Includes solid renewable sources (wood, straw and waste), a small amount of renewable primary heat sources (solar, geothermal etc), liquid biofuels and sewage gas and landfill gas.
5. Bioenergy & waste introduced as a separate category from March 2014 - see special feature article in the March 2014 edition of Energy Trends at: www.gov.uk/government/collections/energy-trends-articles
6. Includes solar PV and natural flow hydro.
7. Percentage change between the most recent quarter and the same quarter a year earlier.

1 TOTAL ENERGY

TABLE 1.2 Inland energy consumption: primary fuel input basis

Million tonnes of oil equivalent

							Primary electricity								Primary electricity		
		Total	Coal[1]	Petroleum[2]	Natural gas[3]	Bioenergy & waste[4, 5]	Nuclear	Wind, solar and hydro[6]	Net imports	Total	Coal	Petroleum	Natural gas	Bioenergy & waste	Nuclear	Wind, solar and hydro	Net imports
		Unadjusted[7]								*Seasonally adjusted and temperature corrected*[8,9] *(annualised rates)*							
2011		203.5	32.2	67.8	77.6	7.7	15.6	1.86	0.53	209.0	34.0	67.8	81.5	7.7	15.6	1.86	0.53
2012		208.0	40.9	67.0	73.3	8.3	15.2	2.28	1.02	207.9	40.9	67.0	73.3	8.3	15.2	2.28	1.02
2013		206.9	39.1	65.8	72.7	9.6	15.4	3.02	1.24	204.1	38.4	65.8	70.6	9.6	15.4	3.02	1.24
2014		193.9	31.6	65.8	66.1	11.2	13.9	3.60	1.76	199.2	33.2	65.8	69.9	11.2	13.9	3.60	1.76
2015		194.8	25.1	66.7	67.9	13.2	15.5	4.66	1.80	197.6	25.5	66.7	70.2	13.2	15.5	4.66	1.80
Per cent change		*+0.4*	*-20.7*	*+1.4*	*+2.7*	*+18.1*	*+11.8*	*+29.3*	*+2.0*	*-0.8*	*-23.0*	*+1.4*	*+0.5*	*+18.1*	*+11.8*	*+29.3*	*+2.0*
2015	Quarter 2	44.2	5.6	16.4	13.9	3.0	3.7	1.11	0.48	194.4	27.2	65.6	67.9	12.0	14.7	5.10	1.91
	Quarter 3	41.2	4.6	17.0	11.6	2.8	3.6	0.94	0.51	195.9	23.3	68.1	71.3	11.4	14.9	4.90	2.03
	Quarter 4	50.7	5.7	16.9	18.6	3.7	4.1	1.33	0.40	197.4	21.1	67.5	71.4	14.6	16.9	4.34	1.58
2016	Quarter 1	56.4r	4.9r	16.6r	25.0r	4.2r	3.8	1.30r	0.52	198.3r	16.9r	66.3r	77.1r	16.9r	14.7	4.30r	2.06
	Quarter 2 p	44.0r	2.4r	16.8r	16.2r	3.4r	3.7	1.02r	0.46	190.2r	11.4r	67.3r	76.7r	13.8r	14.6	4.69r	1.84
Per cent change[10]		*-0.5*	*-57.7*	*+2.7*	*+16.8*	*+14.5*	*-1.5*	*-8.5*	*-3.5*	*-2.1*	*-58.2*	*+2.7*	*+13.0*	*+14.5*	*-1.2*	*-8.1*	*-3.5*

1. Includes net foreign trade and stock changes in other solid fuels.
2. Inland deliveries for energy use, plus refinery fuel and losses, minus the differences between deliveries and actual consumption at power stations.
3. Includes gas used during production and colliery methane. Excludes gas flared or re-injected and non-energy use of gas.
4. Includes solid renewable sources (wood, straw and waste), a small amount of renewable primary heat sources (solar, geothermal, etc.), liquid biofuels, landfill gas and sewage gas.
5. Bioenergy & waste introduced as a separate category from March 2014 - see special feature article in the March 2014 edition of Energy Trends at:
www.gov.uk/government/collections/energy-trends-articles
6. Includes natural flow hydro, but excludes generation from pumped storage stations.
7. Not seasonally adjusted or temperature corrected.
8. Coal and natural gas are temperature corrected; petroleum, bioenergy and waste, and primary electricity are not temperature corrected.
9. For details of temperature correction see the June and September 2011 editions of Energy Trends; Seasonal and temperature adjustment factors were reassessed in June 2013
www.gov.uk/government/collections/energy-trends
10. Percentage change between the most recent quarter and the same quarter a year earlier.

1 TOTAL ENERGY

Table 1.3a Supply and use of fuels

Thousand tonnes of oil equivalent

	2014	2015	*per cent change*	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter	2015 4th quarter	2016 1st quarter	2016 2nd quarter p	*per cent change* [1]
SUPPLY													
Indigenous production	113,626	124,547	*+9.6*	28,784	24,695	29,251	31,852	32,157	27,636	32,903	33,296r	31,002	*-3.6*
Imports	164,955	154,846	*-6.1*	39,179	38,650	43,407	43,766	35,233	36,170	39,676	39,572r	35,097	*-0.4*
Exports	-70,629	-76,667	*+8.5*	-18,258	-16,948	-17,471	-16,955	-19,532	-20,270	-19,910	-19,452r	-18,256	*-6.5*
Marine bunkers	-3,004	-2,593	*-13.7*	-711	-740	-812	-564	-720	-725	-584	-553r	-821	*+14.0*
Stock change [2]	-3,935	+2,868		-2,998	-2,763	+72	+2,507	-960	+479	+841	+5,741r	-739	*(+)*
Primary supply	201,013	203,001	*+1.0*	45,996	42,893	54,448	60,606	46,178	43,291	52,926	58,605r	46,283	*+0.2*
Statistical difference [3]	-374	523		-54	-218	-96	258	32	20	213	-74r	10	
Primary demand	201,387	202,478	*+0.5*	46,050	43,111	54,544	60,348	46,146	43,271	52,713	58,678r	46,274	*+0.3*
Transfers [4]	-3	21		-5	6	-2	19	2	3	-3	-4r	1	
TRANSFORMATION	-44,010	-41,212	*-6.4*	-10,456	-10,049	-11,358	-12,147	-9,596	-9,093	-10,376	-10,815r	-8,853	*-7.7*
Electricity generation	-39,578	-37,603	*-5.0*	-9,397	-8,902	-10,286	-10,984	-8,629	-8,346	-9,644	-9,930r	-8,110	*-6.0*
Heat generation	-1,105	-1,084	*-1.9*	-240	-210	-312	-350	-240	-207	-287	-351	-240	*+0.0*
Petroleum refineries	-505	-40	*-92.2*	-145	-196	-111	-80	-6	12	34	-74r	-35	*(+)*
Coke manufacture	-334	-176	*-47.2*	-77	-85	-86	-48	-46	-38	-44	-20	-20	*-56.9*
Blast furnaces	-2,379	-2,201	*-7.5*	-573	-626	-537	-665	-647	-485	-404	-407	-425	*-34.3*
Patent fuel manufacture	-66	-64	*-2.4*	-17	-18	-15	-10	-18	-17	-20	-21	-11	*-39.4*
Other [5]	-44	-44	*+0.7*	-8	-11	-11	-10	-9	-12	-12	-13	-11	*+20.1*
Energy industry use	11,873	12,485	*+5.2*	2,987	2,808	2,975	3,197	3,115	3,056	3,118	3,080r	3,126	*+0.4*
Losses	3,270	3,147	*-3.7*	714	705	915	982	649	658	858	859r	657	*+1.1*
FINAL CONSUMPTION	142,232	145,654	*+2.4*	31,892	29,563	39,289	44,032	32,791	30,474	38,356	43,910r	33,643	*+2.6*
Iron & steel	1,359	1,263	*-7.1*	345	338	317	369	343	291	260	249r	236	*-31.3*
Other industries	22,359	22,332	*-0.1*	5,149	5,015	5,952	6,593	5,127	4,986	5,626	6,252r	5,219	*+1.8*
Transport	54,126	54,810	*+1.3*	13,623	14,169	13,658	12,791	13,894	14,325	13,800	13,141r	14,223	*+2.4*
Domestic	38,232	39,623	*+3.6*	6,648	4,537	12,361	16,265	7,247	4,814	11,297	15,921r	7,364	*+1.6*
Other Final Users	19,063	19,403	*+1.8*	4,259	3,781	5,232	6,069	4,238	3,969	5,127	6,094r	4,347	*+2.6*
Non energy use	7,093	8,223	*+15.9*	1,868	1,723	1,769	1,944	1,942	2,090	2,247	2,254r	2,254	*+16.1*
DEPENDENCY [6]													
Net import dependency	46.2%	38.0%		44.8%	49.7%	46.9%	43.8%	33.5%	36.1%	36.9%	34.0%r	35.8%	
Fossil fuel dependency	84.3%	82.0%		83.1%	83.0%	85.1%	84.0%	81.2%	80.7%	81.3%	82.5%	80.5%	
Low carbon share	14.3%	16.5%		15.4%	15.4%	13.7%	14.8%	17.1%	17.3%	17.4%	16.1%	17.8%	

1. Percentage change between the most recent quarter and the same quarter a year earlier; (+) represents a positive percentage change greater than 100%.
2. Stock change + = stock draw, - = stock build.
3. Primary supply minus primary demand.
4. Annual transfers should ideally be zero. For manufactured fuels differences occur in the rescreening of coke to breeze.
   For oil and petroleum products differences arise due to small variations in the calorific values used.
5. Back-flows from the petrochemical industry - see article in the June 2016 edition of Energy Trends.
6. See article in the December 2010 edition of Energy Trends.

1 TOTAL ENERGY

Table 1.3b Supply and use of fuels

Thousand tonnes of oil equivalent

	2015 Quarter 2									2016 Quarter 2 p								
	Coal	Manufactured fuels[4]	Primary oil	Petroleum Products	Natural gas[5]	Bioenergy & waste[6]	Primary electricity	Electricity	Heat sold	Coal	Manufactured fuels[4]	Primary oil	Petroleum Products	Natural gas[5]	Bioenergy & waste[6]	Primary electricity	Electricity	Heat sold
SUPPLY																		
Indigenous production	1,526	-	13,188	-	10,410	2,201	4,833	-	-	604	-	13,326	-	9,997	2,395	4,681	-	-
Imports	3,375	206	13,216	9,045	7,982	891	-	518	-	821	202	12,926	9,947	9,598	1,120	-	483	-
Exports	-57	-53	-10,213	-5,660	-3,421	-88	-	-42	-	-58	-3	-8,827	-6,777	-2,493	-76	-	-24	-
Marine bunkers	-	-	-	-720	-	-	-	-	-	-	-	-	-821	-	-	-	-	-
Stock change[1]	+631	+27	-419	-249	-949	-	-	-	-	+809	+15	-510	-307	-745	-	-	-	-
Primary supply	5,476	180	15,772	2,416	14,021	3,005	4,833	476	-	2,176	214	16,915	2,042	16,356	3,440	4,681	460	-
Statistical difference[2]	-22	-1	-6	-2	+15	+12	-	+36	-	-40	+1	-30	-5	+56	-	-	+27	-
Primary demand	5,498	182	15,778	2,417	14,006	2,993	4,833	440	-	2,216	213	16,944	2,047	16,300	3,440	4,681	432	-
Transfers[3]	-	8	-476	+478	-8	-	-1,110	+1,110	-	-	+8	-494	+495	-9	-	-1,015	+1,015	-
TRANSFORMATION	-5,052	293	-15,302	15,114	-4,770	-2,057	-3,723	5,586	315	-1,785	32	-16,451	16,237	-6,784	-2,408	-3,666	5,656	315
Electricity generation	-3,818	-209	-	-138	-4,284	-2,043	-3,723	5,586	-	-1,127	-149	-	-133	-6,297	-2,394	-3,666	5,656	-
Heat generation	-27	-13	-	-16	-486	-14	-	-	315	-27	-13	-	-16	-486	-14	-	-	315
Petroleum refineries	-	-	-15,399	15,393	-	-	-	-	-	-	-	-16,569	16,534	-	-	-	-	-
Coke manufacture	-823	777	-	-	-	-	-	-	-	-333	313	-	-	-	-	-	-	-
Blast furnaces	-340	-308	-	-	-	-	-	-	-	-263	-162	-	-	-	-	-	-	-
Patent fuel manufacture	-45	45	-	-19	-	-	-	-	-	-36	44	-	-18	-	-	-	-	-
Other[7]	-	-	97	-106	-	-	-	-	-	-	-	119	-130	-	-	-	-	-
Energy industry use	-	203	-	988	1,338	-	-	518	68	-	106	-	1,088	1,375	-	-	489	68
Losses	-	78	-	-	96	-	-	475	-	-	29	-	-	120	-	-	507	-
FINAL CONSUMPTION	446	201	-	17,021	7,794	936	-	6,142	251	432	119	-	17,690	8,012	1,032	-	6,108	251
Iron & steel	8	127	-	3	125	-	-	80	-	7	67	-	0	87	-	-	74	-
Other industries	337	4	-	824	1,659	242	-	1,887	174	322	0	-	836	1,731	240	-	1,915	174
Transport	2	-	-	13,555	-	241	-	96	-	3	-	-	13,835	-	289	-	96	-
Domestic	96	40	-	450	4,216	350	-	2,086	9	93	41	-	490	4,317	391	-	2,023	9
Other final users	3	-	-	391	1,681	103	-	1,993	69	6	-	-	399	1,763	112	-	1,999	69
Non energy use	-	30	-	1,799	113	-	-	-	-	-	11	-	2,130	113	-	-	-	-

1. Stock fall +, stock rise -.
2. Primary supply minus primary demand.
3. Annual transfers should ideally be zero. For manufactured fuels differences occur in the rescreening of coke to breeze. For oil and petroleum products differences arise due to small variations in the calorific values used.
4. Includes all manufactured solid fuels, benzole, tars, coke oven gas and blast furnace gas.
5. Inludes colliery methane.
6. Includes geothermal, solar heat and biofuels for transport; wind and wave electricity included in primary electricity figures.
7. Back-flows from the petrochemical industry - see article in the June 2016 edition of Energy Trends.