

Statistical Review of World Energy

2020 | 69th edition

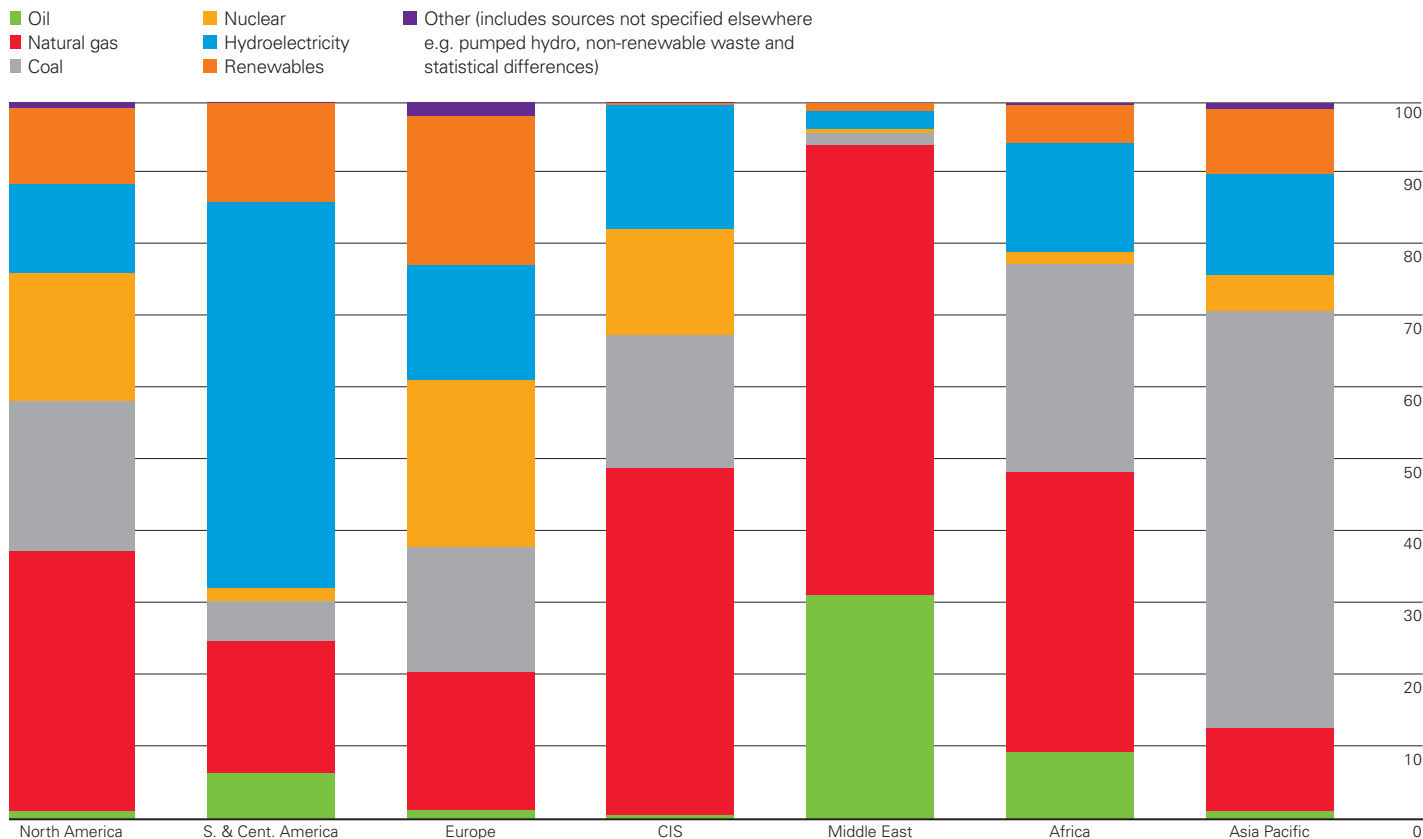


Electricity generation*

Terawatt-hours											Growth rate per annum		Share 2019	
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2019	2008-18	
Canada	613.9	607.0	638.3	636.5	655.7	647.6	659.3	663.0	664.5	652.3	660.4	1.2%	0.3%	2.4%
Mexico	267.8	275.6	292.1	296.4	297.1	303.3	310.3	320.3	329.1	349.3	364.0	4.2%	2.6%	1.3%
US	4206.5	4394.3	4363.4	4310.6	4330.3	4363.3	4348.7	4347.9	4302.5	4457.4	4401.3	-1.3%	0.2%	16.3%
Total North America	5088.2	5276.8	5293.8	5243.5	5283.1	5314.2	5318.4	5331.2	5296.1	5459.0	5425.7	-0.6%	0.3%	20.1%
Argentina	122.3	126.0	129.5	136.0	139.4	138.6	145.4	147.2	145.6	146.8	139.9	-4.7%	1.9%	0.5%
Brazil	466.2	515.8	531.8	552.5	570.8	590.5	581.2	578.9	589.3	601.4	625.6	4.0%	2.7%	2.3%
Chile	59.7	61.3	65.2	69.7	73.0	71.6	74.5	77.7	78.6	82.3	83.9	1.9%	3.3%	0.3%
Colombia	63.2	64.7	66.2	67.7	69.8	72.7	75.0	74.4	75.1	78.3	75.2	-3.9%	2.5%	0.3%
Ecuador	18.3	19.5	20.5	22.8	23.3	24.3	26.0	27.3	28.0	29.7	32.9	10.7%	4.8%	0.1%
Peru	32.9	35.9	38.8	41.0	43.3	45.5	48.3	51.7	52.7	54.9	57.3	4.4%	5.4%	0.2%
Trinidad & Tobago	7.8	8.5	8.8	9.1	9.5	9.9	10.3	10.7	11.0	10.6	11.1	5.1%	3.2%	•
Venezuela	124.8	116.7	122.9	127.9	130.0	128.3	123.8	113.8	109.4	105.1	84.9	-19.3%	-1.3%	0.3%
Other S. & Cent. America	187.7	192.0	197.4	204.6	208.5	205.9	212.4	224.8	218.2	222.0	218.6	-1.5%	1.7%	0.8%
Total S. & Cent. America	1082.9	1140.4	1181.1	1231.4	1267.7	1287.5	1296.9	1306.6	1308.0	1331.0	1329.3	-0.1%	2.2%	4.9%
Austria	69.1	71.1	65.9	72.4	68.0	65.1	64.9	67.9	70.7	68.0	73.4	8.0%	0.2%	0.3%
Belgium	91.2	95.2	90.2	82.9	83.5	72.6	69.8	85.7	86.6	74.9	93.6	24.9%	-1.2%	0.3%
Czech Republic	82.3	85.9	87.6	87.6	87.1	86.0	83.9	83.3	87.0	88.0	87.0	-1.2%	0.5%	0.3%
Finland	72.5	81.1	73.7	70.5	71.4	68.2	68.8	68.8	67.1	70.2	68.7	-2.1%	-1.0%	0.3%
France	535.9	569.3	565.0	564.5	573.8	564.2	570.3	556.2	554.1	574.2	555.4	-3.3%	•	2.1%
Germany	595.6	633.1	613.1	630.1	638.7	627.8	648.1	650.7	653.7	643.5	612.4	-4.8%	•	2.3%
Greece	61.4	57.4	59.4	61.0	57.2	50.5	51.9	54.4	55.3	53.3	50.2	-5.8%	-1.8%	0.2%
Hungary	35.9	37.4	36.0	34.6	30.3	29.4	30.4	31.9	32.9	32.0	33.9	6.0%	-2.2%	0.1%
Italy	292.6	302.1	302.6	299.3	289.8	279.8	283.0	289.8	295.8	289.7	283.8	-2.0%	-1.0%	1.1%
Netherlands	113.5	118.1	113.0	102.5	100.9	103.4	110.1	115.2	117.3	114.5	121.0	5.7%	0.6%	0.4%
Norway	131.8	123.6	127.6	147.7	134.0	142.0	144.5	149.0	149.4	147.1	134.8	-8.3%	0.3%	0.5%
Poland	151.7	157.7	163.5	162.1	164.6	159.1	164.9	166.6	170.5	170.0	163.9	-3.6%	0.9%	0.6%
Portugal	50.2	54.1	52.5	46.6	51.7	52.8	52.4	60.3	59.4	59.6	53.7	-10.0%	2.6%	0.2%
Romania	58.0	61.0	62.2	59.0	58.9	63.3	66.3	65.1	64.3	64.8	59.5	-8.2%	•	0.2%
Spain	296.3	300.4	291.8	297.6	285.3	278.8	281.0	274.6	275.6	274.5	275.8	0.5%	-1.3%	1.0%
Sweden	136.7	148.3	151.2	166.3	153.2	153.7	162.1	156.1	164.3	163.4	169.8	3.9%	0.9%	0.6%
Switzerland	68.3	68.0	64.8	70.0	70.4	72.0	67.9	63.3	63.3	69.4	68.3	-1.6%	0.1%	0.3%
Turkey	194.8	211.2	229.4	239.5	240.2	252.0	261.8	274.4	297.3	304.8	308.5	1.2%	4.4%	1.1%
Ukraine	173.6	188.8	194.9	198.9	194.4	182.8	163.7	164.6	156.0	159.9	154.5	-3.4%	-1.8%	0.6%
United Kingdom	376.8	382.1	368.0	363.9	358.3	338.1	338.9	339.2	338.2	332.9	323.7	-2.8%	-1.5%	1.2%
Other Europe	306.5	320.0	307.1	295.4	309.2	297.2	298.2	305.9	303.5	312.7	301.5	-3.6%	0.1%	1.1%
Total Europe	3894.7	4065.8	4019.4	4052.4	4020.6	3938.5	3982.9	4023.1	4062.2	4067.2	3993.3	-1.8%	-0.1%	14.8%
Azerbaijan	18.9	18.7	20.3	23.0	23.4	24.7	24.7	25.0	24.3	25.2	26.3	4.4%	1.5%	0.1%
Belarus	30.4	34.9	32.2	30.8	31.5	34.7	34.2	33.6	34.5	38.9	40.4	3.8%	1.1%	0.1%
Kazakhstan	78.7	82.6	86.6	90.6	92.6	94.6	91.6	94.6	103.1	107.3	108.4	1.0%	2.9%	0.4%
Russian Federation	993.1	1038.0	1054.9	1069.3	1059.1	1064.2	1067.5	1091.0	1091.2	1109.2	1118.1	0.8%	0.6%	4.1%
Turkmenistan	16.0	16.7	17.2	17.8	18.9	20.1	21.5	22.6	22.8	24.2	25.7	6.3%	4.9%	0.1%
Uzbekistan	50.1	51.9	52.8	53.0	54.9	55.4	57.3	59.1	60.8	62.9	62.9	•	2.3%	0.2%
Other CIS	39.1	41.1	44.6	46.0	43.3	44.1	44.0	43.5	46.3	48.6	49.2	1.1%	2.0%	0.2%
Total CIS	1226.2	1284.0	1308.5	1330.4	1323.7	1337.9	1340.9	1369.3	1383.0	1416.3	1431.0	1.0%	1.0%	5.3%
Iran	221.8	235.7	235.6	248.8	258.9	273.5	279.5	286.1	305.2	314.4	318.7	1.4%	4.1%	1.2%
Iraq	41.3	41.7	42.2	47.8	62.1	71.2	75.3	86.3	93.6	99.9	131.5	31.6%	11.0%	0.5%
Israel	55.3	58.5	59.3	63.0	61.4	61.3	64.3	67.3	67.6	69.0	71.8	4.1%	2.1%	0.3%
Kuwait	53.2	57.1	57.5	62.7	61.0	65.1	68.3	70.1	72.9	74.2	75.0	1.1%	3.7%	0.3%
Oman	18.4	19.8	21.9	25.0	26.2	29.1	32.8	34.2	36.1	37.7	37.4	-0.7%	8.9%	0.1%
Qatar	24.2	28.1	30.7	34.8	34.7	38.7	41.5	42.3	45.6	47.9	48.6	1.4%	8.3%	0.2%
Saudi Arabia	217.3	240.1	250.1	271.7	284.1	311.8	338.5	345.6	355.2	359.2	357.4	-0.5%	5.8%	1.3%
United Arab Emirates	85.7	93.9	99.1	106.2	110.0	116.5	127.4	129.6	134.6	136.0	138.1	1.5%	5.4%	0.5%
Other Middle East	90.7	98.7	93.4	88.3	83.7	83.5	81.6	82.0	86.4	85.8	86.1	0.4%	-0.1%	0.3%
Total Middle East	807.9	873.7	889.7	948.2	982.0	1050.9	1109.0	1143.6	1197.0	1224.1	1264.7	3.3%	4.8%	4.7%
Algeria	43.1	45.7	53.1	57.4	59.9	64.2	68.8	71.0	76.0	76.7	81.3	6.0%	6.7%	0.3%
Egypt	134.3	144.4	149.6	162.8	165.1	171.2	181.8	188.2	193.2	199.4	200.6	0.6%	4.5%	0.7%
Morocco	21.7	23.7	25.4	27.7	28.1	29.3	30.3	30.7	31.6	34.4	40.1	16.6%	5.1%	0.1%
South Africa	249.6	259.6	262.5	257.9	256.1	254.8	250.1	252.7	255.1	256.3	252.6	-1.5%	-0.1%	0.9%
Other Africa	178.5	198.1	198.5	214.8	234.2	247.9	256.3	259.8	272.1	279.0	295.6	6.0%	5.0%	1.1%
Total Africa	627.1	671.6	689.0	720.6	743.4	767.4	787.4	802.5	828.1	845.8	870.1	2.9%	3.2%	3.2%
Australia	249.9	251.0	256.3	250.7	249.6	247.6	255.2	258.5	259.1	263.1	265.1	0.8%	0.7%	1.0%
Bangladesh	37.2	40.8	44.2	48.7	54.4	57.4	61.8	70.0	73.4	81.1	89.7	10.6%	9.0%	0.3%
China	3714.7	4207.2	4713.0	4987.6	5431.6	5794.5	5814.6	6133.2	6604.4	7166.1	7503.4	4.7%	7.4%	27.8%
China Hong Kong SAR	38.7	38.4	39.1	38.8	39.2	39.9	38.0	38.3	37.0	36.6	36.9	0.9%	-0.4%	0.1%
India	879.7	937.5	1034.0	1091.8	1146.1	1262.2	1317.3	1401.7	1473.8	1551.4	1558.7	0.5%	6.5%	5.8%
Indonesia	156.8	169.8	183.4	200.3	216.2	228.6	234.0	247.9	254.6	267.1	279.1	4.5%	6.0%	1.0%
Japan	1114.0	1156.0	1104.2	1106.9	1087.8	1062.7	1030.1	1030.3	1042.6	1056.2	1036.3	-1.9%	-1.1%	3.8%
Malaysia	116.1	125.0	127.1	134.1	141.0	147.5	150.1	156.7	160.6	167.3	171.0	2.2%	3.9%	0.6%
New Zealand	43.4	44.9	44.4	44.2	43.3	43.5	44.2	43.7	44.2	44.2	44.6	0.8%	0.1%	0.2%
Pakistan	98.8	99.4	100.6	99.5	101.8	106.2	106.7	120.0	122.5	136.0	136.3	0.2%	3.9%	0.5%
Philippines	61.9	67.7	69.2	72.9	75.3	77.3	82.4	90.8	94.4	99.8	105.8	6.1%	5.1%	0.4%
Singapore	41.8	45.4	46.0	46.9	48.0	49.3	50.3	51.6	52.2	52.9	54.1	2.3%	2.4%	0.2%
South Korea	452.4	495.0	518.2	531.2	537.2	540.4	547.8	561.0	576.4	593.4	584.7	-1.5%	3.0%	2.2%
Sri Lanka	10.0	10.8	11.6	11.9	12.0	12.9	13.2	14.4	15.0	15.7	16.2	3.1%	4.6%	0.1%
Taiwan	230.0	247.1	252.2	250.4	252.4	260.0	258.2	264.1	270.3	275.6	274.2	-0.5%	1.5%	1.0%
Thailand	145.9	157.6	153.3	169.0	168.6	173.8	177.8	179.8	176.7	177.6	186.5	5.0%	2.0%	0.7%
Vietnam	80.6	91.7	101.5	115.1	124.5	141.3	157.9	175.7	191.6	209.2	227.4	8.7%	11.4%	0.8%
Other Asia Pacific	65.3	72.5	76.8	78.2	84.4	88.4	91.1	108.9	119.6	115.9	120.2	3.7%	5.7%	0.4%
Total Asia Pacific	7537.5	8257.7	8875.1	9278.2	9813.1	10333.4	10430.8	109						

Regional electricity generation by fuel 2019

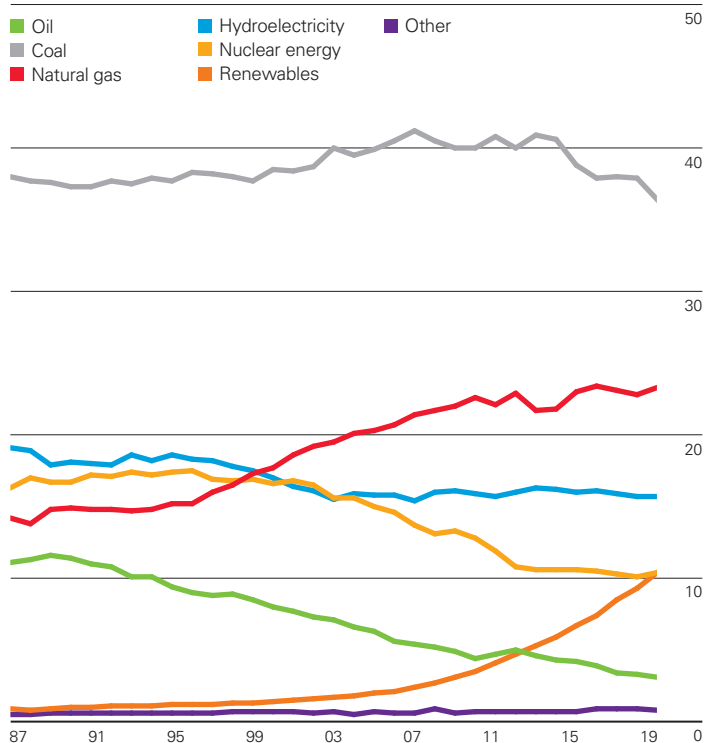
Percentage



Natural gas is the dominant fuel used for power generation in North America, CIS, the Middle East and Africa. South and Central America gets more than half of its power from hydroelectricity, with a share far higher than any other region. In Asia, coal is the dominant fuel. In Europe, nuclear energy is the top source of electricity, but only just, as generation is spread fairly evenly between five different fuels: the shares of nuclear, coal, natural gas, renewables and hydro are all in a narrow range of 16-23%.

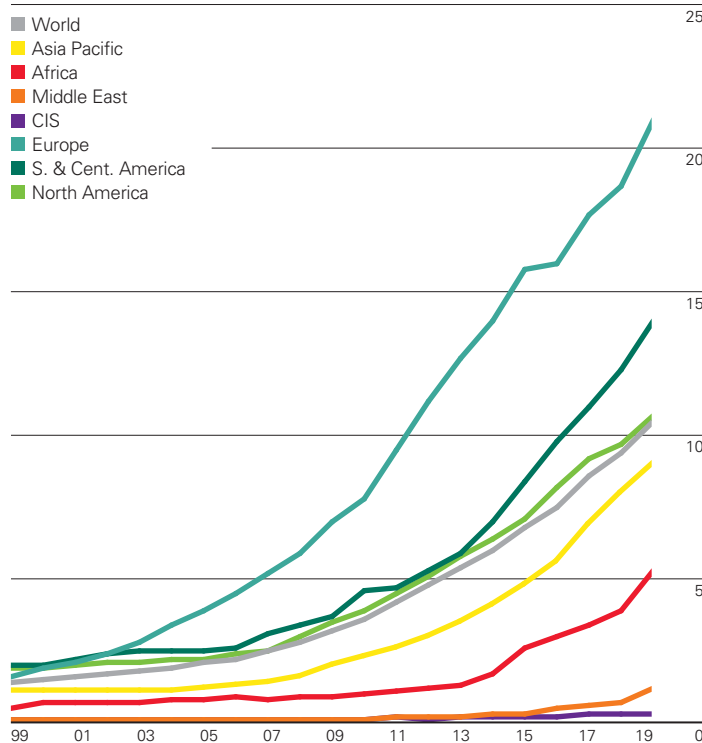
Share of global electricity generation by fuel

Percentage



Renewables share of power generation by region

Percentage



At the global level, coal is the dominant fuel for power generation, however its share fell 1.5 percentage points to 36.4% in 2019, the lowest level in our data series. The shares of both natural gas and renewables rose to record levels last year (to 23.3% and 10.4% respectively) and renewables generation surpassed nuclear for the first time. Regionally, there is significant variation in the penetration of renewables: Europe has the highest penetration at 20.9% – twice the global average, followed by South & Central America at 13.9%.

Electricity generation by fuel*

Terawatt-hours	2018								2019							
	Oil	Natural Gas	Coal	Nuclear energy	Hydro electric	Renew-ables	Other†	Total	Oil	Natural Gas	Coal	Nuclear energy	Hydro electric	Renew-ables	Other†	Total
Canada	3.8	64.1	50.6	100.0	385.9	47.1	0.7	652.3	4.1	69.3	54.6	100.5	382.0	49.3	0.7	660.4
Mexico	35.7	194.6	29.0	13.6	32.5	23.3	20.6	349.3	37.7	205.6	26.3	11.3	23.8	37.8	21.6	364.0
US	27.1	1579.3	1246.7	849.6	289.5	451.6	13.6	4457.4	20.0	1700.9	1053.5	852.0	271.2	489.8	14.0	4401.3
Total North America	66.7	1838.0	1326.3	963.2	707.9	522.0	34.9	5459.0	61.8	1975.8	1134.4	963.7	676.9	576.9	36.2	5425.7
Argentina	6.7	84.9	2.1	6.9	41.6	4.0	0.5	146.8	2.8	82.3	0.7	8.4	37.1	8.2	0.5	139.9
Brazil	12.2	54.6	23.7	15.7	389.0	106.3	–	601.4	7.9	58.9	25.7	16.2	399.3	117.7	–	625.6
Other S. & C. America	95.1	104.0	44.6	–	287.6	51.6	-0.1	582.8	75.6	103.8	47.8	–	278.3	58.3	-0.1	563.8
Total S. & C. America	113.9	243.5	70.4	22.5	718.2	161.9	0.5	1331.0	86.3	245.0	74.3	24.6	714.7	184.1	0.4	1329.3
Germany	5.2	82.5	228.2	76.0	18.0	206.8	26.8	643.5	5.1	91.0	171.2	75.1	20.2	224.1	25.7	612.4
Italy	11.0	128.5	31.0	–	47.1	65.6	6.5	289.7	10.2	126.5	29.7	–	45.1	67.6	4.7	283.8
Netherlands	1.3	57.7	27.5	3.5	0.1	18.8	5.6	114.5	1.4	71.0	17.4	3.9	0.1	22.3	5.0	121.0
Poland	1.8	12.6	133.3	–	2.0	19.6	0.7	170.0	1.2	14.8	121.9	–	2.0	23.1	1.0	163.9
Spain	14.5	58.0	38.7	55.8	34.8	69.8	2.9	274.5	13.4	86.0	13.1	58.4	25.2	77.5	2.1	275.8
Turkey	0.3	92.5	113.2	–	59.9	37.8	1.0	304.8	0.2	58.1	114.6	–	89.2	45.3	1.1	308.5
Ukraine	0.7	9.0	52.1	84.4	10.4	2.5	0.7	159.9	0.2	9.2	48.3	83.0	6.8	5.0	1.9	154.5
United Kingdom	1.7	131.5	16.8	65.1	5.5	104.5	7.8	332.9	1.0	132.5	6.9	56.2	6.0	113.4	7.8	323.7
Other Europe	19.5	157.5	215.8	651.1	467.5	230.8	35.2	1777.5	19.0	179.1	175.6	651.9	438.0	258.3	27.9	1749.7
Total Europe	56.1	729.9	856.6	935.8	645.3	756.3	87.1	4067.2	51.8	768.1	698.6	928.5	632.5	836.6	77.2	3993.3
Kazakhstan	0.8	20.7	79.6	–	10.4	0.5	-4.7	107.3	0.8	20.8	78.1	–	10.0	0.8	-2.1	108.4
Russian Federation	6.8	511.1	190.3	204.6	190.6	1.4	4.4	1109.2	6.9	519.5	182.2	209.0	194.4	1.8	4.3	1118.1
Other CIS	0.9	148.6	4.1	2.1	43.3	0.6	0.3	199.9	0.9	152.7	4.0	2.2	44.0	0.7	0.1	204.5
Total CIS	8.5	680.4	274.0	206.7	244.3	2.5	†	1416.3	8.6	693.0	264.2	211.2	248.4	3.3	2.3	1431.0
Iran	86.0	209.0	0.6	6.9	11.4	0.5	–	314.4	82.6	199.5	0.6	6.4	29.0	0.6	–	318.7
Saudi Arabia	158.8	200.0	–	–	–	0.4	–	359.2	149.6	206.0	–	–	–	1.8	–	357.4
United Arab Emirates	†	134.7	–	–	–	1.3	–	136.0	†	133.9	–	–	–	4.2	–	138.1
Other Middle East	147.5	238.0	20.6	–	3.1	5.3	–	414.5	163.9	253.5	21.9	–	4.3	6.8	–	450.5
Total Middle East	392.3	781.6	21.3	6.9	14.5	7.5	–	1224.1	396.1	792.9	22.6	6.4	33.3	13.3	–	1264.7
Egypt	28.8	153.7	–	–	13.4	3.5	–	199.4	28.2	152.5	–	–	13.4	6.5	–	200.6
South Africa	1.2	1.9	224.6	11.1	0.8	12.3	4.6	256.3	1.2	1.9	217.3	14.2	0.8	12.6	4.6	252.6
Other Africa	49.3	175.8	32.0	–	116.3	16.4	0.3	390.1	51.9	186.1	36.2	–	118.6	26.0	-1.8	417.0
Total Africa	79.3	331.3	256.6	11.1	130.4	32.2	4.9	845.8	81.3	340.5	253.6	14.2	132.7	45.1	2.8	870.1
Australia	5.4	51.4	156.5	–	17.4	32.2	0.1	263.1	5.8	54.4	149.5	–	14.3	41.1	0.1	265.1
China	5.5	215.5	4765.0	295.0	1198.9	636.4	49.8	7166.1	6.0	236.5	4853.7	348.7	1269.7	732.3	56.5	7503.4
India	8.5	73.9	1167.3	39.1	139.6	122.8	0.2	1551.4	8.2	71.0	1137.4	45.2	161.8	134.9	0.2	1558.7
Indonesia	18.1	57.3	160.0	–	16.8	14.6	0.3	267.1	17.3	51.6	177.0	–	17.0	16.0	0.3	279.1
Japan	66.2	386.9	323.0	49.1	81.0	96.8	53.3	1056.2	44.7	362.4	326.2	65.6	73.9	121.2	42.3	1036.3
Malaysia	1.3	64.8	73.5	–	26.5	1.3	–	167.3	2.6	68.6	71.1	–	27.0	1.7	–	171.0
South Korea	10.1	160.9	250.9	133.5	3.4	23.9	10.7	593.4	7.4	150.8	238.7	146.0	2.8	29.2	9.7	584.7
Taiwan	8.2	92.4	131.2	27.7	4.5	6.4	5.2	275.6	5.8	91.1	126.4	32.3	5.5	8.0	5.0	274.2
Thailand	0.2	116.3	35.8	–	7.6	17.8	†	177.6	1.1	121.8	35.8	–	6.3	21.4	†	186.5
Vietnam	0.2	40.1	83.9	–	84.5	0.5	–	209.2	1.4	43.1	112.5	–	65.6	4.7	–	227.4
Other Asia Pacific	49.9	218.2	138.9	9.8	130.8	32.8	1.9	582.2	39.1	231.4	148.0	9.5	139.7	35.7	0.5	604.0
Total Asia Pacific	173.5	1477.7	7286.1	554.1	1710.9	985.5	121.5	12309.3	139.5	1482.6	7376.4	647.3	1783.7	1146.2	114.8	12690.5
Total World	890.4	6082.5	10091.3	2700.4	4171.4	2468.0	248.9	26652.7	825.3	6297.9	9824.1	2796.0	4222.2	2805.5	233.6	27004.7
of which: OECD	196.4	3201.2	2829.6	1969.8	1423.0	1442.4	183.9	11246.1	164.9	3347.5	2471.0	1993.0	1380.2	1616.8	162.6	11136.0
Non-OECD	694.0	2881.3	7261.7	730.6	2748.4	1025.6	65.0	15406.6	660.4	2950.4	7353.1	803.0	2842.1	1188.8	71.0	15868.7
EU	52.6	621.2	643.6	827.0	346.9	700.9	77.9	3270.1	49.1	692.2	488.4	822.4	327.9	768.2	67.2	3215.3

*Based on gross output.

†Includes sources not specified elsewhere e.g. pumped hydro, non-renewable waste and statistical discrepancies (which can be positive or negative).

†Less than 0.05.