

Table 34

Production of heat – by type

Terajoules

Table Notes

Direct use geothermal represents heat used directly for district heating, agriculture etc. without a commercial transaction taking place.

Direct use solar thermal represents heat used for the production of domestic hot water or for the seasonal heating of swimming pools (e.g. flat plate collectors, mainly of the thermosyphon type) without a commercial transaction taking place.

Please refer to the Definitions Section on pages ix to xv for the appropriate product description /classification, and xvi to xvii for the descriptions of relevant flows.

Figure 84: Heat production by region, 1990-2016

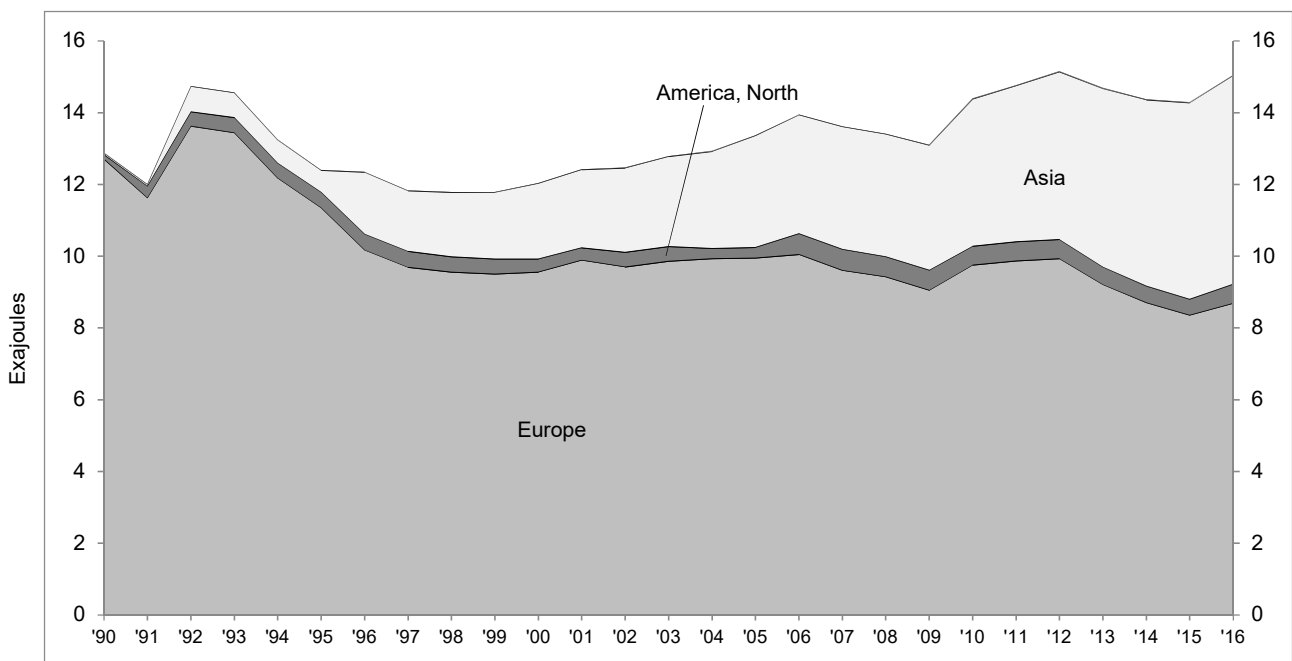


Figure 85: Major heat producing countries, 2016

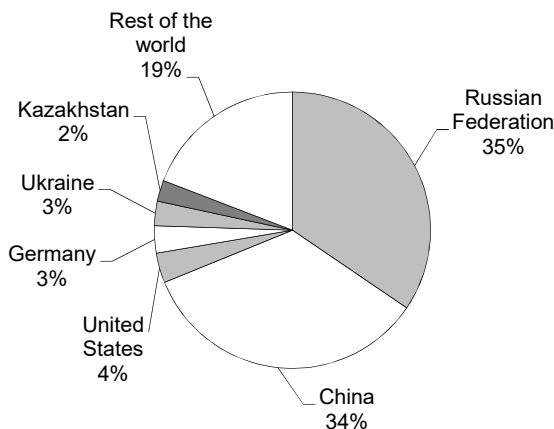


Figure 86: World heat production by type, 2016

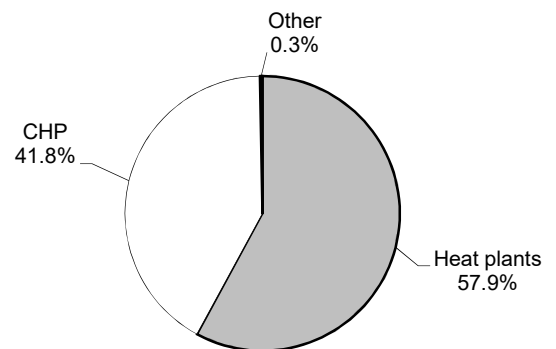


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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
World	2013	14,170,028	28,525	5,927	27,450	78,762	29,279	350,130	130,038	264,424
	2014	13,843,928	29,672	6,973	26,785	71,417	31,084	360,667	129,796	276,322
	2015	13,760,504	34,264	7,318	25,818	60,018	34,020	373,016	150,095	287,630
	2016	14,473,004	43,704	7,974	26,625	58,935	33,303	407,188	155,651	277,735
Africa	2013	12,895	..	786	..	3,748	..	..	..	5,531
	2014	11,265	..	815	..	2,940	..	..	..	6,136
	2015	11,487	..	850	..	3,466	..	..	..	6,641
	2016	11,580	..	887	..	3,730	..	..	..	7,160
Eswatini	2013	*10,900	..	..	..	..	..	..	..	..
	2014	9,249	..	..	..	..	..	..	..	..
	2015	*9,403	..	..	..	..	..	..	..	..
	2016	*9,403	..	..	..	..	..	..	..	..
Mayotte	2013	..	..	..	..	..	..	..	..	*5
	2014	..	..	..	..	..	..	..	..	*6
	2015	..	..	..	..	..	..	..	..	*6
	2016	..	..	..	..	..	..	..	..	*6
Namibia	2013	..	..	..	..	..	..	..	..	72
	2014	..	..	..	..	..	..	..	..	72
	2015	..	..	..	..	..	..	..	..	104
	2016	..	..	..	..	..	..	..	..	126
Réunion	2013	1,995	..	786	..	..	..	..	..	..
	2014	2,016	..	815	..	..	..	..	..	..
	2015	2,085	..	850	..	..	..	..	..	..
	2016	2,177	..	887	..	..	..	..	..	..
Senegal	2013	..	..	..	..	698	..	..	..	..
	2014	..	..	..	..	316	..	..	..	..
	2015	..	..	..	..	382	..	..	..	..
	2016	..	..	..	..	513	..	..	..	..
South Africa	2013	..	..	..	..	..	..	..	..	3,804
	2014	..	..	..	..	..	..	..	..	4,241
	2015	..	..	..	..	..	..	..	..	4,576
	2016	..	..	..	..	..	..	..	..	4,937
Tunisia	2013	..	..	..	..	3,050	..	..	..	1,650
	2014	..	..	..	..	2,624	..	..	..	1,817
	2015	..	..	..	..	3,084	..	..	..	1,955
	2016	..	..	..	..	3,217	..	..	..	2,091
America, North	2013	483,439	..	..	..	..	..	..	10,355	98,505
	2014	460,533	..	..	..	..	..	..	10,969	102,730
	2015	447,539	..	..	..	..	..	..	11,280	106,924
	2016	534,545	..	..	..	..	..	..	11,828	94,675
Canada	2013	28,927	..	..	..	..	..	..	..	1,630
	2014	30,923	..	..	..	..	..	..	..	1,702
	2015	28,296	..	..	..	..	..	..	..	1,760
	2016	25,561	..	..	..	..	..	..	..	1,760
Greenland	2013	1,099	..	..	..	..	..	..	..	..
	2014	1,003
	2015	1,056
	2016	*984
Martinique	2013	*147
	2014	*192
	2015	*237
	2016	*255

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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
Mexico	2013	..	..	..	..	..	..	..	..	7,236
	2014	..	..	..	..	..	..	..	..	8,064
	2015	..	..	..	..	..	..	..	..	9,087
	2016	..	..	..	..	..	..	..	..	10,180
United States	2013	453,413	..	..	..	..	..	..	10,355	89,492
	2014	428,607	..	..	..	..	..	..	10,969	92,772
	2015	418,187	..	..	..	..	..	..	11,280	95,840
	2016	508,000	..	..	..	..	..	..	11,828	82,480
America, South	2013	..	..	..	..	1,091	..	..	102	1,091
	2014	..	..	..	..	1,936	..	..	102	2,359
	2015	..	..	..	..	..	..	..	102	2,370
	2016	..	..	..	..	..	..	..	102	2,775
Chile	2013	..	..	..	..	1,091	..	..	..	780
	2014	..	..	..	..	1,936	..	..	..	2,023
	2015	..	..	..	..	..	..	..	..	1,297
	2016	..	..	..	..	..	..	..	..	1,386
Ecuador	2013	..	..	..	..	..	..	..	102	..
	2014	..	..	..	..	..	..	..	102	..
	2015	..	..	..	..	..	..	..	*102	..
	2016	..	..	..	..	..	..	..	*102	..
Peru	2013	..	..	..	..	..	..	..	..	311
	2014	..	..	..	..	..	..	..	..	336
	2015	..	..	..	..	..	..	..	..	1,073
	2016	..	..	..	..	..	..	..	..	1,389
Asia	2013	4,953,486	0	4,569	..	3,976	3,878	9,168	72,819	70,137
	2014	5,170,551	0	5,301	..	3,752	3,627	9,569	74,820	70,890
	2015	5,455,139	0	5,393	..	2,667	3,609	11,601	92,600	71,204
	2016	5,784,411	0	5,485	..	2,159	3,609	19,074	94,157	70,438
Armenia	2013	*76	..	..	..	..	..	..	..	..
	2014	*65	..	..	..	..	..	..	..	..
	2015	28	..	..	..	..	..	..	..	..
	2016	34	..	..	..	..	..	..	..	..
Azerbaijan	2013	5,436	..	..	..	..	..	..	..	..
	2014	6,778	..	..	..	..	..	..	..	..
	2015	6,501	..	..	..	..	..	..	..	..
	2016	7,282	..	..	..	..	..	..	..	..
China	2013	4,131,207	..	..	..	..	..	..	..	..
	2014	4,334,113	..	..	..	..	..	..	..	..
	2015	4,610,572	..	..	..	..	..	..	..	..
	2016	4,967,022	..	..	..	..	..	..	..	..
Cyprus	2013	42	..	..	..	..	..	..	62	2,751
	2014	45	..	..	..	..	..	..	65	2,796
	2015	51	..	..	..	..	..	..	65	2,841
	2016	50	..	..	..	..	..	..	65	2,887
Georgia	2013	0	0	..	..	..	..	..	520	47
	2014	0	0	..	..	..	..	..	546	77
	2015	0	0	592	99
	2016	0	0	642	127
Israel	2013	14,400
	2014	15,765
	2015	15,887
	2016	15,887

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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
Japan	2013	13,902	..	..	..	..	3,878	5,462	7,343	13,254
	2014	13,090	..	..	..	..	3,627	5,252	7,242	12,159
	2015	13,138	..	..	..	..	3,609	5,003	7,158	11,175
	2016	13,127	..	..	..	..	3,609	5,014	7,535	10,387
Kazakhstan	2013	396,689	..	..	..	..	..	..	..	..
	2014	398,902	..	..	..	..	..	..	..	..
	2015	408,147	..	..	..	..	..	..	..	..
	2016	351,875	..	..	..	..	..	..	..	..
Korea, Republic of	2013	196,855	..	..	..	3,976	..	..	3,642	1,164
	2014	203,794	..	..	..	3,752	..	..	4,542	1,193
	2015	202,291	..	..	..	2,667	..	..	5,655	1,192
	2016	219,624	..	..	..	2,159	..	..	6,785	1,193
Kyrgyzstan	2013	12,525	..	..	..	..	..	..	..	..
	2014	13,858	..	..	..	..	..	..	..	..
	2015	16,745	..	..	..	..	..	..	..	..
	2016	9,904	..	..	..	..	..	..	..	..
Lebanon	2013	..	..	..	..	..	..	..	..	894
	2014	..	..	..	..	..	..	..	..	962
	2015	..	..	..	..	..	..	..	..	994
	2016	..	..	..	..	..	..	..	..	1,017
Mongolia	2013	39,824	..	..	..	..	..	..	..	..
	2014	42,003	..	..	..	..	..	..	..	..
	2015	44,713	..	..	..	..	..	..	..	..
	2016	45,213	..	..	..	..	..	..	..	..
Other Asia	2013	..	..	..	..	..	..	..	..	4,343
	2014	..	..	..	..	..	..	..	..	4,318
	2015	..	..	..	..	..	..	..	..	4,369
	2016	..	..	..	..	..	..	..	..	4,315
State of Palestine	2013	..	..	4,569	..	..	..	..	..	..
	2014	..	..	5,301	..	..	..	..	..	..
	2015	..	..	5,393	..	..	..	..	..	..
	2016	..	..	5,485	..	..	..	..	..	..
Tajikistan	2013	408	..	..	..	..	..	..	..	..
	2014	1,063	..	..	..	..	..	..	..	..
	2015	1,499	..	..	..	..	..	..	..	..
	2016	1,648	..	..	..	..	..	..	..	..
Turkey	2013	50,766	..	..	..	..	..	3,706	61,252	33,284
	2014	48,410	..	..	..	..	..	4,317	62,425	33,620
	2015	41,496	..	..	..	..	..	6,598	79,130	34,647
	2016	38,839	..	..	..	..	..	14,060	79,130	34,625
Turkmenistan	2013	9,108	..	..	..	..	..	..	..	..
	2014	9,846	..	..	..	..	..	..	..	..
	2015	9,846	..	..	..	..	..	..	..	..
	2016	9,846	..	..	..	..	..	..	..	..
Uzbekistan	2013	96,648	..	..	..	..	..	..	..	..
	2014	98,584	..	..	..	..	..	..	..	..
	2015	100,112	..	..	..	..	..	..	..	..
	2016	119,947	..	..	..	..	..	..	..	..
Europe	2013	8,720,207	28,525	572	27,450	69,947	25,401	339,748	39,071	75,528
	2014	8,201,577	29,672	857	26,785	62,789	27,457	349,777	36,572	80,487
	2015	7,846,336	34,264	1,075	25,818	53,885	30,411	360,052	38,769	85,129
	2016	8,142,466	43,704	1,601	26,625	53,046	29,694	386,701	41,916	87,295

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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
Albania	2013	199	..	..	..	..	..	..	..	481
	2014	214	..	..	..	..	..	..	..	502
	2015	*225	..	..	..	..	..	..	..	493
	2016	*113	..	..	..	..	..	..	..	504
Austria	2013	87,462	593	57	..	99	..	..	329	7,384
	2014	79,917	519	70	..	95	..	..	267	7,559
	2015	83,332	578	70	..	106	..	..	301	7,665
	2016	85,526	556	70	..	110	..	..	300	7,664
Belarus	2013	263,853	..	..	..	..	..	..	..	..
	2014	254,934	..	..	..	..	..	..	..	..
	2015	241,857	..	..	..	..	..	..	..	..
	2016	249,665	..	..	..	..	..	..	..	..
Belgium	2013	28,776	68	..	..	9,791	..	..	..	779
	2014	26,474	60	..	..	9,810	..	..	..	857
	2015	27,767	63	..	..	10,099	..	..	..	934
	2016	26,733	66	..	..	10,551	..	..	..	962
Bosnia and Herzegovina	2013	5,722	..	..	..	..	..	..	..	..
	2014	5,000	..	..	..	..	..	..	..	..
	2015	5,621	..	..	..	..	..	..	..	..
	2016	5,657	..	..	..	..	..	..	..	..
Bulgaria	2013	50,370	..	..	655	1,992	..	..	1,400	798
	2014	51,930	..	..	604	1,645	..	..	1,400	824
	2015	48,062	..	..	635	1,648	..	..	1,400	912
	2016	45,663	..	..	612	1,927	..	..	1,450	937
Croatia	2013	11,738	..	..	..	..	..	..	286	345
	2014	10,127	..	..	..	..	..	..	324	391
	2015	11,106	..	..	..	..	..	..	373	435
	2016	11,411	..	..	..	..	..	..	379	484
Czechia	2013	134,504	..	..	898	204	78	1,621	..	630
	2014	116,905	..	..	871	221	81	1,669	..	691
	2015	118,467	..	..	899	163	74	1,704	..	742
	2016	124,778	..	..	883	355	67	2,356	..	787
Denmark	2013	132,369	114	475	..	..	595	2,252	..	552
	2014	119,576	83	736	..	..	494	2,876	..	565
	2015	125,352	70	956	..	..	1,188	3,081	..	581
	2016	130,815	112	1,483	..	..	874	3,391	..	589
Estonia	2013	23,028	..	..	..	..	..	..	..	..
	2014	21,812	..	..	..	..	..	..	..	..
	2015	21,204	..	..	..	..	..	..	..	..
	2016	23,940	..	..	..	..	..	..	..	..
Finland	2013	181,049	..	..	..	4,475	1,797	1,043	..	52
	2014	176,886	..	..	..	4,526	2,240	960	..	57
	2015	168,632	..	..	..	3,977	3,988	996	..	62
	2016	186,120	..	..	..	5,080	4,106	1,019	..	69
France	2013	157,412	3,879	..	..	..	145	3,330	1,280	3,748
	2014	142,578	3,747	..	..	..	259	3,116	1,280	3,993
	2015	154,723	3,857	..	..	..	507	3,452	1,237	4,146
	2016	170,354	4,397	..	..	..	520	4,502	1,237	4,219
Germany	2013	480,642	207	1	..	..	..	7,461	2,852	24,408
	2014	430,982	304	11	7,043	3,487	26,221
	2015	448,187	626	9	8,739	2,863	28,091
	2016	461,067	797	6	7,389	3,394	28,079

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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
Greece	2013	1,738	..	..	..	..	..	..	481	7,831
	2014	2,073	..	..	..	..	..	..	490	8,029
	2015	2,093	..	..	..	..	..	..	410	8,221
	2016	2,134	..	..	..	..	..	..	423	8,384
Hungary	2013	47,113	574	0	505	..	..	965	4,104	368
	2014	44,288	1,166	0	778	..	..	1,736	2,445	406
	2015	47,835	1,769	..	802	..	..	1,678	2,239	448
	2016	48,096	2,700	..	848	..	..	2,321	2,116	468
Iceland	2013	42	22,060	..	..	..	647	..	4,087	..
	2014	82	22,443	..	..	..	665	..	3,543	..
	2015	33	25,873	..	..	..	700	..	3,415	..
	2016	13	33,601	..	..	..	711	..	3,435	..
Ireland	2013	..	..	..	..	..	..	..	..	472
	2014	..	..	..	..	..	..	..	..	511
	2015	..	..	..	..	..	..	..	..	544
	2016	..	..	..	..	..	..	..	..	584
Italy	2013	215,757	650	2	..	..	..	..	4,987	7,040
	2014	205,188	764	2	..	..	..	..	4,660	7,517
	2015	216,164	780	2	..	..	..	..	4,778	7,953
	2016	223,037	810	3	..	..	..	..	5,222	8,378
Kosovo	2013	211	..	..	..	..	..	..	..	12
	2014	249	..	..	..	..	..	..	..	13
	2015	44	..	..	..	..	535	..	..	14
	2016	46	..	..	..	..	749	..	..	14
Latvia	2013	26,227	..	..	..	..	9	13	..	..
	2014	25,740	..	..	..	..	7	0	..	..
	2015	25,452	..	..	..	..	7	0	..	..
	2016	28,959	..	..	..	..	8	0	..	..
Liechtenstein	2013	356	..	36	..	..	..	..	..	..
	2014	378	..	37	..	..	..	..	..	..
	2015	380	..	37	..	..	..	..	..	..
	2016	388	..	37	..	..	..	..	..	..
Lithuania	2013	34,217	35	..	..	9,363	10	..	..	..
	2014	32,420	39	..	..	10,832	9	..	..	..
	2015	31,820	32	..	..	9,600	8	..	..	..
	2016	33,652	41	..	..	9,446	9	..	..	..
Luxembourg	2013	3,256	..	..	..	..	..	..	..	68
	2014	2,525	..	..	..	..	..	..	..	73
	2015	2,363	..	..	..	..	..	..	..	79
	2016	2,432	..	..	..	..	..	..	..	85
Malta	2013	1	..	..	..	..	..	..	..	173
	2014	1	..	..	..	..	..	..	..	178
	2015	6	..	..	..	..	..	..	..	180
	2016	8	..	..	..	..	..	..	..	183
Netherlands	2013	150,090	..	..	..	..	..	..	993	1,106
	2014	147,157	..	..	..	..	..	..	1,502	1,128
	2015	139,282	..	..	..	..	..	..	2,448	1,137
	2016	118,706	..	..	..	..	..	..	2,844	1,147
Norway	2013	13,887	1,194	5,076	1,325
	2014	13,518	3,200	4,570	1,521
	2015	14,828	3,120	4,858	1,150
	2016	15,948	5,458	792

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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
Poland	2013	301,318	..	..	..	891	5	128	778	1,035
	2014	275,602	..	..	..	1,205	4	76	847	1,455
	2015	280,106	..	..	..	1,191	3	96	909	1,885
	2016	292,247	..	..	..	495	4	54	930	2,189
Portugal	2013	25,523	..	..	..	46	..	..	52	3,046
	2014	21,367	..	..	..	55	..	..	55	3,218
	2015	19,527	..	..	..	87	..	..	64	3,360
	2016	18,846	..	..	..	..	..	..	57	3,515
Republic of Moldova	2013	10,640	..	..	..	..	..	..	..	..
	2014	10,466	..	..	..	..	..	..	..	..
	2015	10,042	..	..	..	..	..	..	..	..
	2016	10,606	..	..	..	..	..	..	..	..
Romania	2013	84,803	9	..	..	..	..	..	1,049	9
	2014	77,756	217	..	..	..	..	..	835	23
	2015	76,366	251	..	..	..	..	..	824	21
	2016	76,505	256	..	..	..	..	..	1,071	22
Russian Federation	2013	5,374,829	211	..	15,136	..	..	321,571	..	..
	2014	5,187,219	191	..	14,982	..	..	330,772	..	..
	2015	4,853,378	223	..	14,180	..	..	339,148	..	..
	2016	4,996,131	207	..	14,637	..	..	363,085	..	..
Serbia	2013	34,313	..	..	..	..	..	..	187	..
	2014	30,694	..	..	..	..	..	..	234	..
	2015	35,256	..	..	..	..	..	..	256	..
	2016	36,097	..	..	..	..	..	..	214	..
Slovakia	2013	40,192	102	1	2,147	..	49	39	69	233
	2014	32,823	120	1	1,795	..	55	8	56	241
	2015	34,510	121	1	1,968	..	53	8	55	229
	2016	35,325	140	2	1,976	..	63	10	66	232
Slovenia	2013	9,405	23	..	..	..	..	..	1,410	437
	2014	8,164	19	..	..	..	..	..	1,486	452
	2015	8,664	21	..	..	..	..	..	1,749	457
	2016	8,982	21	..	..	..	..	..	1,816	457
Spain	2013	..	..	..	..	..	..	..	758	10,006
	2014	..	..	..	..	..	..	..	789	10,828
	2015	..	..	..	..	..	..	..	789	11,587
	2016	..	..	..	..	..	..	..	789	12,279
Sweden	2013	173,253	..	..	..	..	16,895	..	..	468
	2014	160,891	..	..	..	..	19,005	..	..	468
	2015	165,056	..	..	..	..	18,399	..	..	472
	2016	176,404	..	..	..	..	17,025	..	..	468
Switzerland	2013	19,674	..	..	1,270	..	95	..	13,630	2,042
	2014	17,313	..	..	1,190	..	68	..	12,616	2,212
	2015	19,194	..	..	1,100	..	91	..	14,398	2,359
	2016	20,515	..	..	1,330	..	100	..	15,929	2,450
T.F.Yug.Rep. Macedonia	2013	2,131	..	..	..	..	..	..	306	..
	2014	1,956	..	..	..	..	..	..	223	..
	2015	2,193	..	..	..	..	..	..	228	..
	2016	2,239	..	..	..	..	..	..	211	..
Ukraine	2013	537,503	..	..	6,839	41,892	..	..	..	..
	2014	406,078	6,565	31,200
	2015	348,082	6,234	23,894
	2016	414,323	6,339	25,082	..	1,782

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Country or area	Year	Combustible fuels	Geo-thermal	Solar thermal	Nuclear	Chemical sources	Heat pumps and electric boilers	Other sources	Direct use geothermal	Direct use solar thermal
United Kingdom	2013	56,604	..	..	..	..	..	..	33	2,005
	2014	60,294	..	..	..	..	..	..	33	2,075
	2015	59,127	..	..	..	..	..	..	33	2,122
	2016	58,985	..	..	..	..	..	..	33	2,146
Oceania	2013	2	..	..	..	..	..	1,214	7,691	13,632
	2014	2	..	..	..	..	..	1,321	7,333	13,720
	2015	4	..	..	..	..	..	1,363	7,344	15,362
	2016	3	..	..	..	..	..	1,413	7,648	15,392
Australia	2013	..	..	..	..	..	..	..	..	13,141
	2014	..	..	..	..	..	..	..	..	13,229
	2015	..	..	..	..	..	..	..	..	14,842
	2016	..	..	..	..	..	..	..	..	14,872
New Caledonia	2013	..	..	..	..	..	..	..	..	111
	2014	..	..	..	..	..	..	..	..	111
	2015	..	..	..	..	..	..	..	..	140
	2016	..	..	..	..	..	..	..	..	140
New Zealand	2013	2	..	..	..	..	..	1,214	7,691	364
	2014	2	..	..	..	..	..	1,321	7,333	364
	2015	4	..	..	..	..	..	1,363	7,344	364
	2016	3	..	..	..	..	..	1,413	7,648	364
Niue	2013	..	..	..	..	..	..	..	..	16
	2014	..	..	..	..	..	..	..	..	16
	2015	..	..	..	..	..	..	..	..	16
	2016	..	..	..	..	..	..	..	..	*16