

Energy in Poland



Warsaw 2018



MINISTRY OF ENERGY

Energy in Poland

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MINISTRY OF ENERGY



Poland and European Union (2016)

	Area [km ²]	Population [1000]	GDP [mln euro05]	Primary energy production [ktoe]	Gross inland energy consumption* [ktoe]	Primary energy intensity of GDP [toe/ mln euro05]
EU 28	4 473 680	510 277,2	13 100 651	755 389	1 640 615	125,23
Austria	83 882	8 700,5	291 927	12 349	33 865	116,01
Belgium	30 665	11 311,1	357 281	14 969	57 451	160,80
Bulgaria	110 995	7 153,8	31 801	11 218	18 128	570,04
Croatia	56 594	4 190,7	38 499	4 409	8 585	222,98
Cyprus	9 253	848,3	16 502	129	2 443	148,01
Czech Republic	78 870	10 553,8	137 703	27 159	41 807	303,61
Denmark	42 926	5 707,3	234 815	14 949	17 422	74,19
Estonia	45 336	1 315,9	13 700	4 677	6 219	453,91
Finland	338 441	5 487,3	175 173	17 563	34 620	197,64
France	638 474	66 730,5	1 958 753	130 575	248 746	126,99
Germany	357 568	82 175,7	2 721 889	115 650	317 268	116,56
Greece	131 692	10 783,7	159 908	6 723	24 142	150,98
Hungary	93 013	9 830,5	101 334	11 356	25 705	253,67
Ireland	69 946	4 726,3	262 182	4 201	14 846	56,62
Italy	302 073	60 665,6	1 439 535	33 798	154 748	107,50
Latvia	64 586	1 969,0	16 256	2 447	4 385	269,72
Lithuania	65 286	2 888,6	27 433	1 620	7 034	256,41
Luxembourg	2 595	576,2	39 836	159	4 197	105,35
Malta	315	450,4	7 711	18	726	94,16
Netherlands	37 368	16 979,1	625 769	46 059	78 528	125,49
Poland	311 928	37 967,2	371 731	66 415	99 930	268,82
Portugal	92 226	10 341,3	159 559	5 998	23 264	145,80
Romania	238 397	19 760,3	111 276	25 044	32 402	291,19
Slovakia	49 035	5 426,3	58 102	6 198	16 511	284,17
Slovenia	20 273	2 064,2	33 489	3 570	6 797	202,96
Spain	505 983	46 440,1	1 004 583	33 970	122 176	121,62
Sweden	447 424	9 851,0	386 937	34 565	49 231	127,23
United Kingdom	248 536	65 382,6	2 339 281	119 605	189 440	80,98

* Gross inland energy consumption = Primary energy consumption

Poland and European Union (2016)

Net imports [ktoe]	Final energy consumption [ktoe]	Final energy consumption per capita [toe/cap]	Final energy consumption per household [toe/hh]	Final energy intensity of GDP [toe/ mln euro05]	Energy dependency* [%]	
903 711	1 107 818	2,17	5,04	84,56	53,64	EU 28
21 159	28 128	3,23	7,28	96,35	62,45	Austria
48 720	36 333	3,21	7,74	101,69	75,99	Belgium
6 767	9 663	1,35	3,52	303,85	37,17	Bulgaria
4 106	6 639	1,58	4,48	172,45	47,81	Croatia
2 620	1 758	2,07	5,58	106,53	96,16	Cyprus
13 683	24 881	2,36	5,30	180,68	32,73	Czech Republic
2 523	14 450	2,53	6,05	61,54	13,95	Denmark
443	2 818	2,14	4,92	205,72	6,82	Estonia
15 796	25 249	4,60	9,56	144,14	45,26	Finland
117 755	147 159	2,21	5,05	75,13	47,06	France
203 210	216 447	2,63	5,36	79,52	63,49	Germany
19 046	16 703	1,55	3,79	104,45	73,65	Greece
14 290	17 865	1,82	4,31	176,30	55,59	Hungary
10 356	11 610	2,46	6,61	44,28	69,05	Ireland
121 707	115 931	1,91	4,49	80,53	77,54	Italy
2 217	3 820	1,94	4,57	235,00	47,20	Latvia
5 574	5 108	1,77	3,67	186,21	77,44	Lithuania
4 035	4 039	7,01	17,29	101,39	96,13	Luxembourg
2 499	584	1,30	3,86	75,70	100,86	Malta
41 581	49 517	2,92	6,41	79,13	45,81	Netherlands
30 321	66 652	1,76	4,69	179,30	30,29	Poland
17 566	16 115	1,56	3,95	101,00	73,51	Portugal
7 232	22 280	1,13	2,98	200,22	22,30	Romania
9 743	10 418	1,92	5,64	179,31	59,01	Slovakia
3 345	4 876	2,36	5,48	145,59	48,37	Slovenia
93 226	82 498	1,78	4,47	82,12	71,91	Spain
16 373	32 591	3,31	6,75	84,23	31,97	Sweden
67 821	133 689	2,04	4,67	57,15	35,30	United Kingdom

* Energy dependency = Net imports / (Gross inland consumption + Marine bunkers)

Poland and European Union (2016)

	Electricity generation [ktoe]	Electricity generation from RES [ktoe]	Electricity consumption [ktoe]	Final electricity consumption [ktoe]	Electricity consumption per capita [toe/cap]	Electricity intensity of GDP [toe/ mln euro05]
EU 28	279 884	82 541	281 448	239 405	0,55	21,48
Austria	5 877	4 524	6 493	5 318	0,75	22,24
Belgium	7 353	1 227	7 885	7 038	0,70	22,07
Bulgaria	3 893	633	3 345	2 485	0,47	105,19
Croatia	1 102	729	1 578	1 316	0,38	40,98
Cyprus	420	36	420	378	0,50	25,46
Czech Republic	7 163	833	6 220	4 819	0,59	45,17
Denmark	2 624	1 641	3 059	2 679	0,54	13,03
Estonia	1 047	135	872	628	0,66	63,64
Finland	5 912	2 483	7 541	6 950	1,37	43,05
France	47 823	8 416	44 255	38 037	0,66	22,59
Germany	55 814	16 410	51 470	44 486	0,63	18,91
Greece	4 420	1 232	5 176	4 597	0,48	32,37
Hungary	2 739	276	3 832	3 192	0,39	37,82
Ireland	2 616	687	2 554	2 199	0,54	9,74
Italy	24 916	9 504	28 099	24 594	0,46	19,52
Latvia	553	329	641	557	0,33	39,45
Lithuania	367	173	1 078	838	0,37	39,31
Luxembourg	189	41	730	548	1,27	18,33
Malta	74	11	205	182	0,45	26,55
Netherlands	9 903	1 293	10 325	9 082	0,61	16,50
Poland	14 328	1 932	14 500	11 422	0,38	39,01
Portugal	5 183	2 511	4 746	3 986	0,46	29,74
Romania	5 598	2 188	5 167	3 719	0,26	46,43
Slovakia	2 327	570	2 555	2 149	0,47	43,97
Slovenia	1 419	415	1 318	1 120	0,64	39,34
Spain	23 627	8 781	24 286	19 993	0,52	24,18
Sweden	13 414	8 040	12 405	10 963	1,26	32,06
United Kingdom	29 183	7 493	30 692	26 131	0,47	13,12

Poland and European Union (2016)

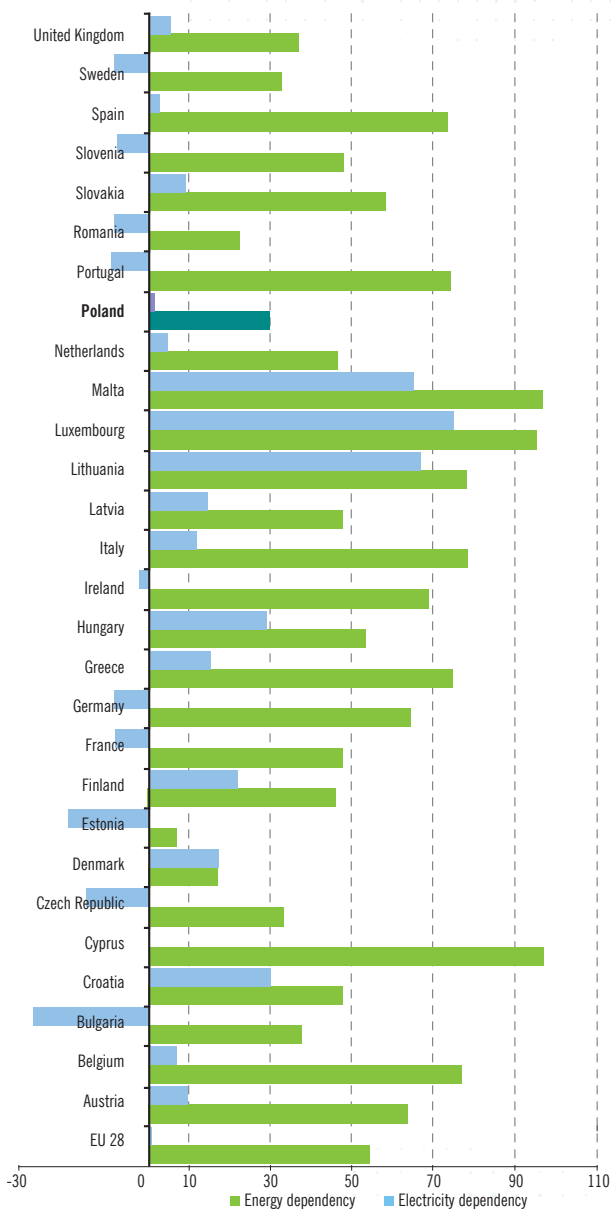
Electricity consumption per household [toe/hh]	Electricity dependency* [%]	Share of energy from RES in gross final energy consumption [%]	Share of energy from RES in gross			
			final electricity consumption [%]	final energy consumption in heating and cooling [%]	final energy consumption in transport [%]	
1,28	0,56	17,04	29,60	19,06	7,14	EU 28
1,68	9,48	33,49	72,64	33,35	10,58	Austria
1,68	6,74	8,65	15,75	8,14	5,89	Belgium
1,22	-16,38	18,81	19,24	30,00	7,27	Bulgaria
1,07	30,14	28,28	46,71	37,58	1,26	Croatia
1,33	0,00	9,35	8,59	23,03	2,65	Cyprus
1,33	-15,17	14,89	13,61	19,87	6,42	Czech Republic
1,28	14,21	32,18	53,73	41,68	6,76	Denmark
1,52	-20,08	28,81	15,48	51,17	0,40	Estonia
2,86	21,61	38,70	32,93	53,69	8,43	Finland
1,52	-8,06	15,98	19,20	21,06	8,90	France
1,27	-8,44	14,82	32,18	12,96	6,94	Germany
1,17	14,61	15,23	23,80	24,24	1,68	Greece
0,92	28,52	14,19	7,20	20,76	7,44	Hungary
1,46	-2,40	9,49	27,16	6,80	5,05	Ireland
1,09	11,33	17,41	34,01	18,88	7,24	Italy
0,77	13,85	37,16	51,26	51,85	2,76	Latvia
0,77	65,98	25,58	16,82	46,51	3,63	Lithuania
3,13	74,15	5,44	6,68	7,33	5,92	Luxembourg
1,35	64,04	6,05	5,60	15,32	5,41	Malta
1,34	4,09	5,97	12,52	5,45	4,63	Netherlands
1,02	1,18	11,29	13,36	14,72	3,92	Poland
1,16	-9,21	28,50	54,07	35,12	7,51	Portugal
0,69	-8,35	25,03	42,71	26,86	6,17	Romania
1,38	8,92	11,99	22,51	9,89	7,50	Slovakia
1,48	-7,68	21,29	32,06	34,01	1,60	Slovenia
1,32	2,71	17,26	36,61	16,84	5,28	Spain
2,57	-8,13	53,82	64,86	68,60	30,29	Sweden
1,07	4,92	9,28	24,62	7,02	4,94	United Kingdom

*Electricity dependency = Net imports of electricity / Inland consumption of electricity

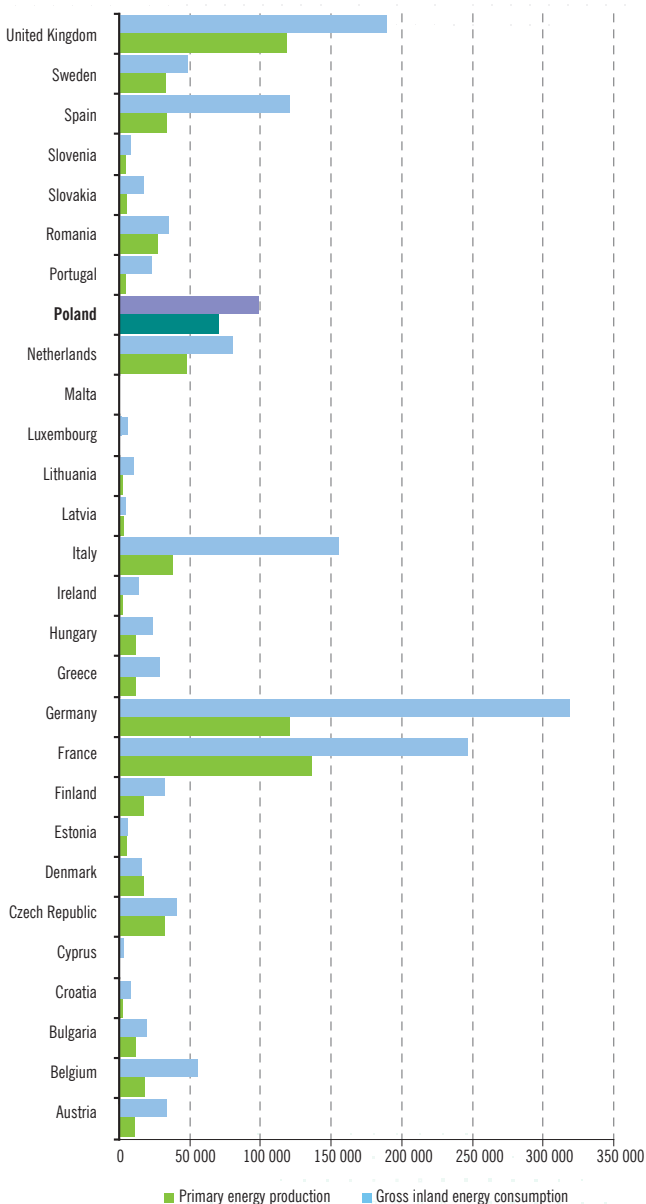
Poland and European Union (2016)

	GHG (CO ₂ equivalent) [Tg]	CO ₂ emissions [Tg]	CO ₂ intensity of electricity generation [Gg/ktoe]	CO ₂ emissions per capita [Mg/cap]
EU 28	4 439,29	3 635,77	12,99	7,13
Austria	82,02	69,73	11,86	8,01
Belgium	122,14	104,62	14,23	9,25
Bulgaria	59,70	45,92	11,80	6,42
Croatia	24,68	18,60	16,87	4,44
Cyprus	9,66	8,18	19,48	9,65
Czech Republic	130,55	107,50	15,01	10,19
Denmark	53,04	39,94	15,22	7,00
Estonia	19,69	17,56	16,77	13,34
Finland	60,72	49,89	8,44	9,09
France	475,36	357,49	7,48	5,36
Germany	935,82	827,92	14,83	10,08
Greece	94,71	74,45	16,84	6,90
Hungary	62,07	48,18	17,59	4,90
Ireland	64,16	42,52	16,26	9,00
Italy	438,25	360,62	14,47	5,94
Latvia	11,66	7,64	13,82	3,88
Lithuania	20,37	13,44	36,65	4,65
Luxembourg	11,53	10,49	55,58	18,21
Malta	2,29	1,80	24,39	3,99
Netherlands	206,80	177,20	17,89	10,44
Poland	397,84	323,18	22,56	8,51
Portugal	71,02	53,65	10,35	5,19
Romania	113,42	75,92	13,56	3,84
Slovakia	41,19	34,15	14,68	6,29
Slovenia	17,78	14,46	10,19	7,01
Spain	340,54	276,69	11,71	5,96
Sweden	55,45	45,09	3,36	4,58
United Kingdom	516,80	428,92	14,70	6,56

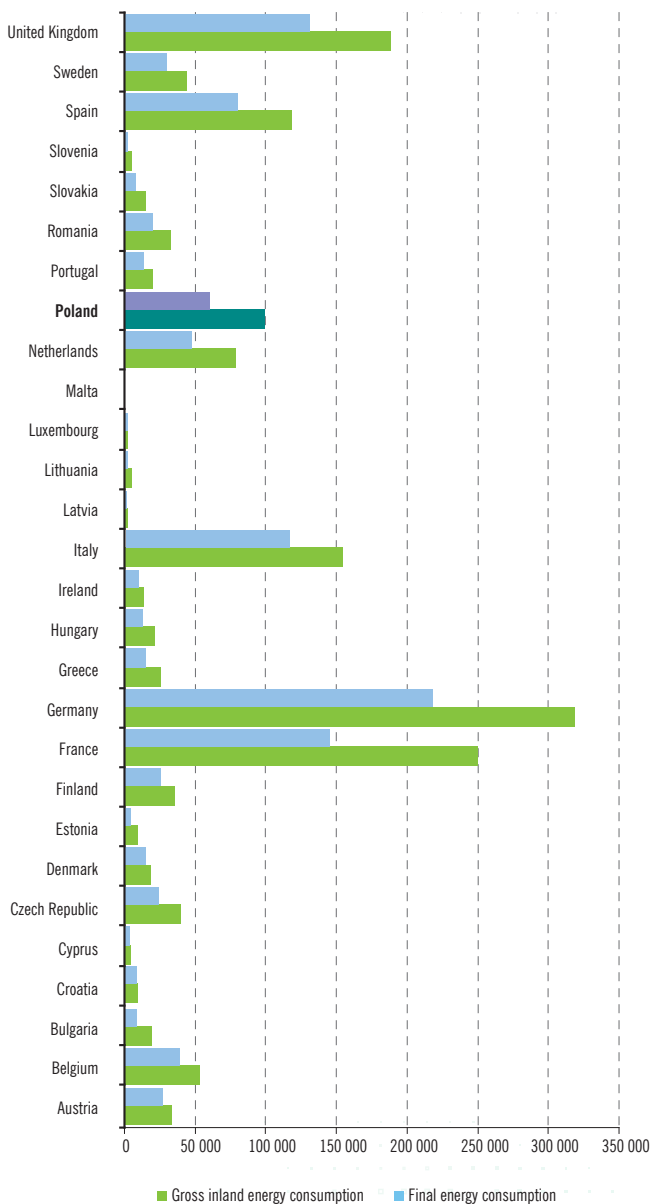
Energy dependency and electricity dependency (2016) [%]



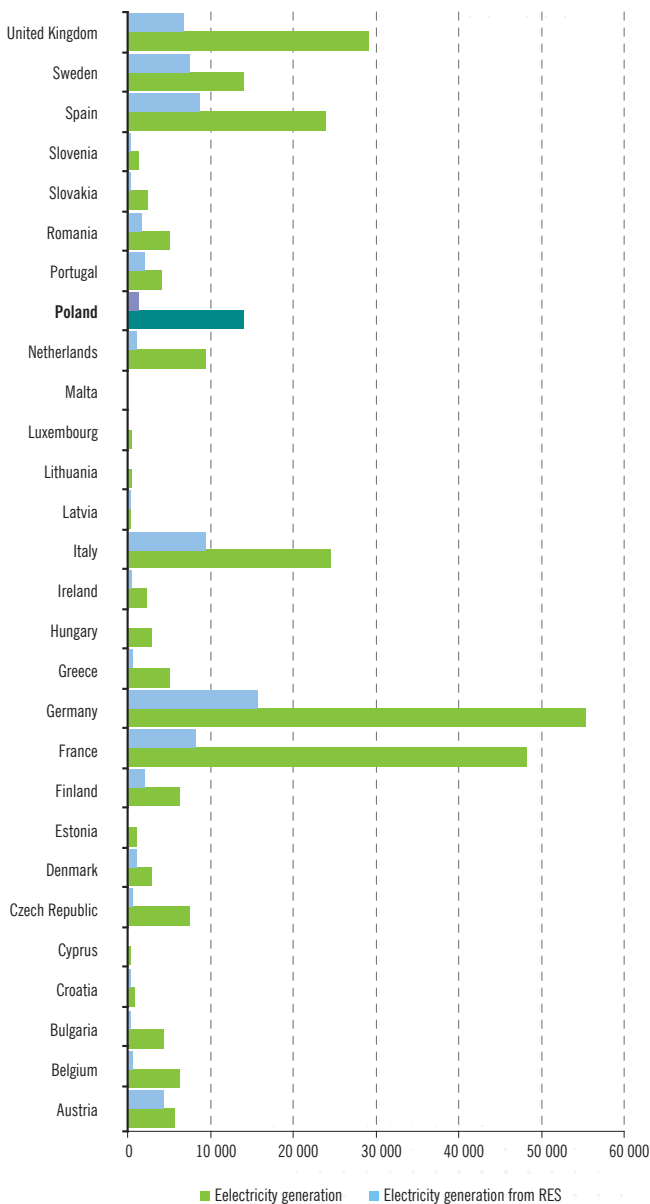
Primary energy production and gross inland energy consumption (2016) [ktoe]



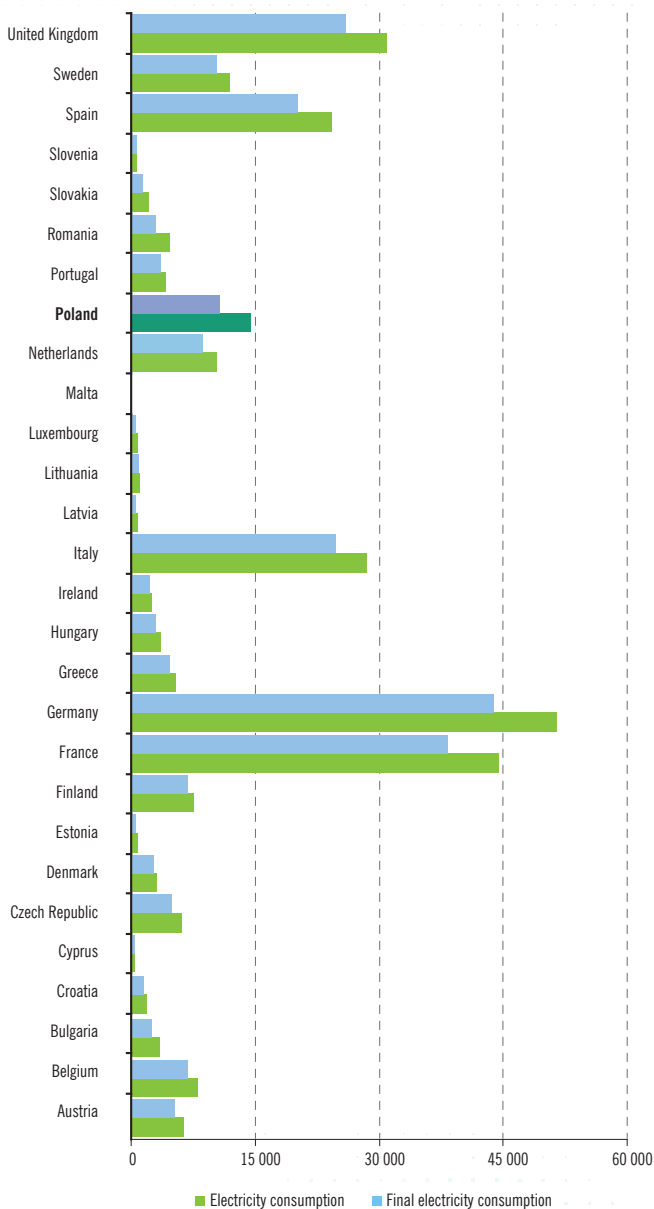
Final energy consumption and gross inland energy consumption (2016) [ktoe]



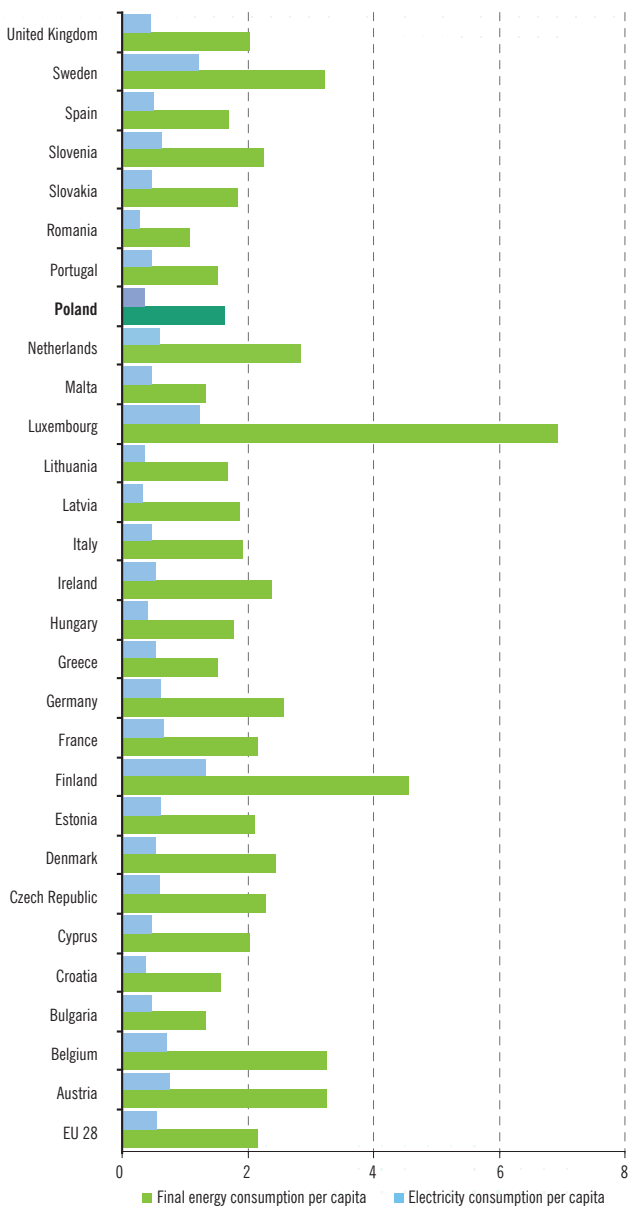
Electricity generation and electricity generation from RES (2016) [ktoe]



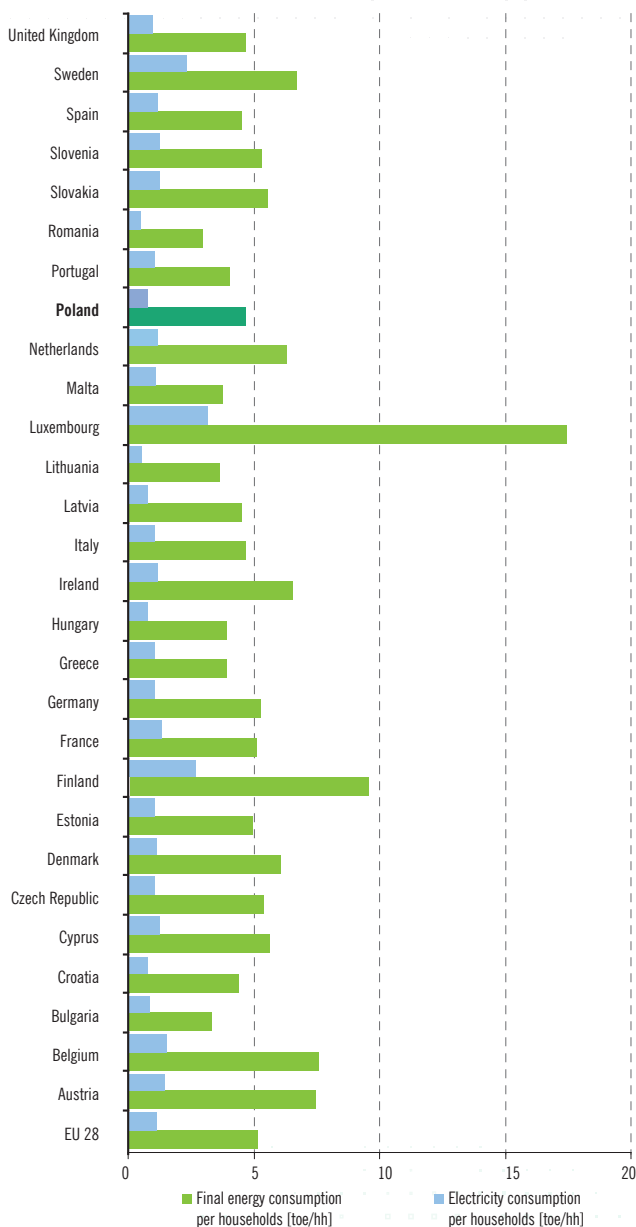
Electricity consumption and final electricity consumption (2016) [ktoe]



Final energy consumption per capita
and electricity consumption per capita (2016) [toe/cap]



Final energy consumption per households and electricity consumption per households (2016) [toe/hh]



Eurostat Basic Balance of Energy - Poland (2017) [ktoe]

	Total	Total Solid fuels	of which	
			Hard coal	Lignite
Primary production	63 974	49 527	37 361	12 166
Recovered products	341	288	288	-
Imports	58 011	7 853	7 627	65
Stock change	437	1 137	1 085	-10
Exports	17 636	9 378	4 633	51
Bunkers	267	-	-	-
Gross inland consumption	104 860	49 428	41 728	12 170
Transformation input	77 098	44 372	31 661	11 870
Public thermal power stations	34 317	31 167	19 308	11 859
Autoprod. thermal power stations	2 251	636	636	-
District heating plants	2 942	2 627	2 616	10
Coke-oven plants	8 902	8 902	8 840	-
Blast-furnace plants	933	933	260	-
Refineries	27 646	-	-	-
Non-specified transformation input	107	107	2	-
Transformation output	56 495	6 644	-	-
Public thermal power stations	16 486	-	-	-
Autoprod. thermal power stations	1 388	-	-	-
District heating plants	2 446	-	-	-
Coke-oven plants	8 294	6 642	-	-
Blast-furnace plants	674	-	-	-
Refineries	27 145	-	-	-
Non-specified transformation output	62	1	-	-
Exchanges and transfers, returns	-	-	-	-
Consumption of the energy branch	6 257	104	93	2
Distribution losses	1 545	-	-	-
Available for final consumption	76 455	11 596	9 974	299
Statistical difference	-491	-425	-591	183
Final non-energy consumption	5 920	79	79	-
Final energy consumption	71 026	11 942	10 486	115
Industry	16 534	3 834	2 601	31
Iron & steel industry	2 677	1 082	17	-
Chemical industry	2 677	1 121	1 085	-
Non-ferrous metal industry	492	30	2	-
Glass, pottery & building mat. industry	3 041	621	552	17
Transport equipment	432	9	9	0
Machinery	776	33	31	0
Mining and quarrying	432	11	10	-
Food, drink & tobacco industry	2 071	587	569	0
Paper and printing	1 758	212	212	-
Wood and wood product	1 048	43	43	-
Construction	195	27	13	13
Textile, leather & clothing industry	121	9	8	1
Not elsewhere specified (Industry)	815	51	50	0
Transport	22 539	-	-	-
Households, commerce, pub. auth., etc.	31 953	8 108	7 885	84

Eurostat Basic Balance of Energy - Poland (2017) [ktoe]

	Total Gas	of which		Crude oil and Feedstocks
		Natural gas	Total Derived gas	
Primary production	3 474	3 474	-	1 002
Recovered products	-	-	-	-
Imports	13 033	13 033	-	25 690
Stock change	-79	-79	-	-284
Exports	1 009	1 009	-	213
Bunkers	-	-	-	-
Gross inland consumption	15 418	15 418	-	26 195
Transformation input	3 513	2 589	924	27 051
Public thermal power stations	1 938	1 241	697	-
Autoprod. thermal power stations	773	557	216	-
District heating plants	207	196	11	-
Coke-oven plants	-	-	-	-
Blast-furnace plants	-	-	-	-
Refineries	595	595	-	27 051
Non-specified transformation input	-	-	-	-
Transformation output	2 386	-	2 386	-
Public thermal power stations	-	-	-	-
Autoprod. thermal power stations	-	-	-	-
District heating plants	-	-	-	-
Coke-oven plants	1 652	-	1 652	-
Blast-furnace plants	674	-	674	-
Refineries	-	-	-	-
Non-specified transformation output	61	-	61	-
Exchanges and transfers, returns	-	-	-	860
Consumption of the energy branch	2 363	1 402	961	-
Distribution losses	13	13	-	-
Available for final consumption	11 917	11 415	502	5
Statistical difference	-62	-62	-	5
Final non-energy consumption	2 180	2 179	0	-
Final energy consumption	9 798	9 297	501	0
Industry	4 126	3 685	442	-
Iron & steel industry	910	566	344	-
Chemical industry	326	311	15	-
Non-ferrous metal industry	214	180	34	-
Glass, pottery & building mat. industry	1 111	1 065	46	-
Transport equipment	108	108	-	-
Machinery	233	233	0	-
Mining and quarrying	41	38	3	-
Food, drink & tobacco industry	715	715	-	-
Paper and printing	208	208	-	-
Wood and wood product	45	45	-	-
Construction	34	34	-	-
Textile, leather & clothing industry	41	41	-	-
Not elsewhere specified (Industry)	139	139	-	-
Transport	382	382	-	-
Households, commerce, pub. auth., etc.	5 290	5 230	60	0

Eurostat Basic Balance of Energy - Poland (2017) [ktoe]

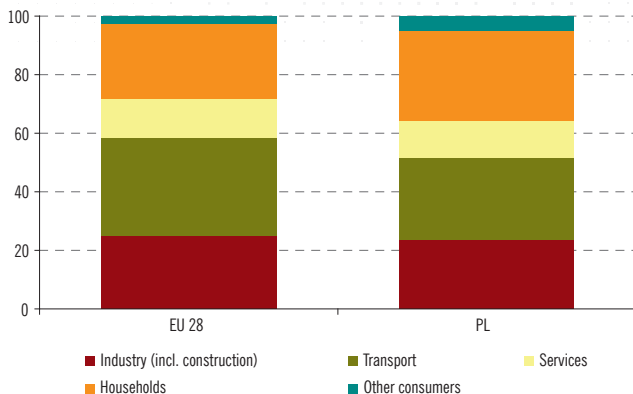
	Total petroleum products	of which				
		LPG	Motor spirit	Kerosenes, jet fuels	Gas/diesel oil	Residual fuels oil
Primary production	-	-	-	-	-	-
Recovered products	35	-	-	-	-	-
Imports	9 534	2 735	467	3	5 401	36
Stock change	-334	2	-37	-1	-269	-17
Exports	5 153	493	254	246	245	2 360
Bunkers	267	-	-	-	217	51
Gross inland consumption	3 815	2 244	177	-243	4 671	-2 391
Transformation input	421	0	-	-	44	362
Public thermal power stations	124	-	-	-	24	100
Autoprod. thermal power stations	269	-	-	-	2	252
District heating plants	27	0	-	-	17	10
Coke-oven plants	-	-	-	-	-	-
Blast-furnace plants	-	-	-	-	-	-
Refineries	-	-	-	-	-	-
Non-specified transformation input	-	-	-	-	-	-
Transformation output	27 145	599	4 053	1 119	12 435	3 281
Public thermal power stations	-	-	-	-	-	-
Autoprod. thermal power stations	-	-	-	-	-	-
District heating plants	-	-	-	-	-	-
Coke-oven plants	-	-	-	-	-	-
Blast-furnace plants	-	-	-	-	-	-
Refineries	27 145	599	4 053	1 119	12 435	3 281
Non-specified transformation output	-	-	-	-	-	-
Exchanges and transfers, returns	-860	-42	-	-	-54	-
Consumption of the energy branch	784	7	1	0	32	429
Distribution losses	-	-	-	-	-	-
Available for final consumption	28 896	2 795	4 229	876	16 976	99
Statistical difference	-9	-89	0	-	-	9
Final non-energy consumption	3 661	111	-	0	-	-
Final energy consumption	25 243	2 773	4 229	876	16 976	91
Industry	750	86	7	1	281	76
Iron & steel industry	6	1	0	-	3	-
Chemical industry	313	7	0	0	42	8
Non-ferrous metal industry	16	1	0	0	4	11
Glass, pottery & building mat. industry	79	9	1	0	25	5
Transport equipment	16	4	1	0	11	0
Machinery	32	11	2	0	18	0
Mining and quarrying	75	4	0	0	70	0
Food, drink & tobacco industry	81	29	0	0	35	17
Paper and printing	42	3	1	0	14	25
Wood and wood product	14	3	0	0	8	3
Construction	47	3	1	0	37	5
Textile, leather & clothing industry	6	1	0	-	4	0
Not elsewhere specified (Industry)	23	11	0	-	11	1
Transport	21 266	2 013	4 221	875	14 157	-
Households, commerce, pub. auth., etc.	3 228	674	1	1	2 538	14

Eurostat Basic Balance of Energy - Poland (2017) [ktoe]

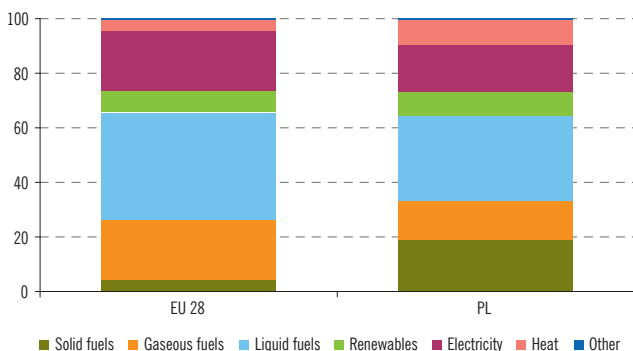
	Total Renewables	Other fuels	Derived heat	Electrical energy
Primary production	9 095	875	-	-
Recovered products	-	-	18	-
Imports	760	-	-	1 141
Stock change	-3	-	-	-
Exports	939	-	-	944
Bunkers	-	-	-	-
Gross inland consumption	8 914	875	18	197
Transformation input	1 579	147	16	-
Public thermal power stations	1 088	0	-	-
Autoprod. thermal power stations	425	133	16	-
District heating plants	66	14	-	-
Coke-oven plants	-	-	-	-
Blast-furnace plants	-	-	-	-
Refineries	-	-	-	-
Non-specified transformation input	-	-	-	-
Transformation output	-	-	7 220	13 100
Public thermal power stations	-	-	4 396	12 091
Autoprod. thermal power stations	-	-	379	1 010
District heating plants	-	-	2 446	-
Coke-oven plants	-	-	-	-
Blast-furnace plants	-	-	-	-
Refineries	-	-	-	-
Non-specified transformation output	-	-	-	-
Exchanges and transfers, returns	-1 516	-	-	1 516
Consumption of the energy branch	1	1	729	2 276
Distribution losses	-	-	673	860
Available for final consumption	5 818	727	5 819	11 677
Statistical difference	-	-	-	0
Final non-energy consumption	-	-	-	-
Final energy consumption	5 818	727	5 819	11 677
Industry	1 695	717	722	4 690
Iron & steel industry	0	-	93	585
Chemical industry	3	36	128	751
Non-ferrous metal industry	-	-	30	201
Glass, pottery & building mat. industry	63	672	24	471
Transport equipment	0	0	47	252
Machinery	2	0	63	413
Mining and quarrying	0	2	67	238
Food, drink & tobacco industry	36	0	71	581
Paper and printing	809	7	79	401
Wood and wood product	669	-	71	206
Construction	0	0	8	78
Textile, leather & clothing industry	0	-	12	52
Not elsewhere specified (Industry)	113	1	28	460
Transport	605	-	-	286
Households, commerce, pub. auth., etc.	3 518	10	5 097	6 702

Energy balance

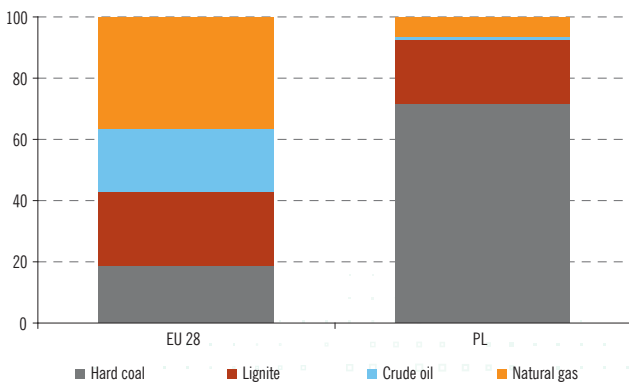
Structure of final energy consumption by sectors (2016) [%]



Structure of final energy consumption by fuels (2016) [%]



Structure of primary energy production by fuels (2016) [%]



Balance of Renewables - Poland (2017) [ktoe]

	Total Rene- wables	Solar heat	Geothermal heat	Solid biofuels
Primary production	9 095	54	23	6 211
Recovered products	-	-	-	-
Imports	760	-	-	396
Stock change	-3	-	-	-
Exports	939	-	-	266
Bunkers	-	-	-	-
Gross inland consumption	8 914	54	23	6 341
Transformation input	1 579	-	-	1 347
Public thermal power stations	1 088	-	-	962
Autoprod. thermal power stations	425	-	-	319
District heating plants	66	-	-	66
Transformation output	-	-	-	-
Exchanges and transfers, returns	-1 516	-	-	-
Consumption of the energy branch	1	-	-	0
Distribution losses	-	-	-	-
Available for final consumption	5 818	54	23	4 993
Statistical difference	-	-	-	-
Final non-energy consumption	-	-	-	-
Final energy consumption	5 818	54	23	4 993
Industry	1 695	-	-	1 623
Iron & steel industry	0	-	-	0
Chemical industry	3	-	-	2
Glass, pottery & building mat. industry	63	-	-	4
Transport equipment	0	-	-	0
Machinery	2	-	-	2
Mining and quarrying	0	-	-	0
Food, drink & tobacco industry	36	-	-	26
Paper and printing	809	-	-	806
Wood and wood product	669	-	-	669
Construction	0	-	-	0
Textile, leather & clothing industry	0	-	-	0
Not elsewhere specified (Industry)	113	-	-	113
Transport	605	-	-	-
Households, commerce, pub. auth., etc.	3 518	54	23	3 370

Balance of Renewables – Poland (2017) [ktoe]

	Municipal waste (renewable)	Biogases, liquid biofuels	Wind	Hydro energy
Primary production	92	1 198	1 296	220
Recovered products	-	-	-	-
Imports	-	364	-	-
Stock change	-	-3	-	-
Exports	-	672	-	-
Bunkers	-	-	-	-
Gross inland consumption	92	887	1 296	220
Transformation input	34	198	-	-
Public thermal power stations	1	124	-	-
Autoprod. thermal power stations	33	73	-	-
District heating plants	0	0	-	-
Transformation output	-	-	-	-
Exchanges and transfers, returns	-	-	-1 296	-220
Consumption of the energy branch	-	0	-	-
Distribution losses	-	-	-	-
Available for final consumption	59	689	-	-
Statistical difference	-	-	-	-
Final non-energy consumption	-	-	-	-
Final energy consumption	59	689	-	-
Industry	58	15	-	-
Iron & steel industry	-	-	-	-
Chemical industry	-	0	-	-
Glass, pottery & building mat. industry	58	1	-	-
Transport equipment	-	-	-	-
Machinery	-	-	-	-
Mining and quarrying	-	-	-	-
Food, drink & tobacco industry	-	10	-	-
Paper and printing	-	3	-	-
Wood and wood product	-	-	-	-
Construction	-	-	-	-
Textile, leather & clothing industry	-	-	-	-
Not elsewhere specified (Industry)	-	0	-	-
Transport	-	605	-	-
Households, commerce, pub. auth., etc.	1	70	-	-

Gross final consumption of renewable energy [ktoe]

		2005	2010	2016	2017
Gross final consumption of renewable energy	PL	4 245	6 399	7 857	8 124
	EU 28	110 598	155 356	195 904	•
Gross final consumption of renewable electricity	PL	282	841	1 854	1 856
	EU 28	41 113	55 480	80 687	•
Gross final consumption of renewable energy in heating and cooling	PL	3 868	4 642	5 468	5 581
	EU 28	65 184	85 545	99 300	•
Gross final consumption of renewable energy in transport	PL	95	916	535	687
	EU 28	4 301	14 332	15 917	•

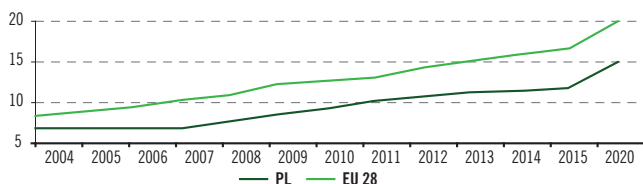
Sectoral and total share of renewable energy in gross final consumption of energy [%]

		2005	2010	2016	2017
Share of energy from RES in gross final energy consumption	PL	6,9	9,3	11,3	11,0
	EU 28	9,0	12,9	17,0	•
Share of electricity generation from RES	PL	2,7	6,7	13,4	13,1
	EU 28	14,8	19,7	29,6	•
Share of energy from RES in heating and cooling	PL	10,2	11,7	14,7	14,6
	EU 28	11,0	15,0	19,1	•
Share of energy from RES in transport	PL	1,6	6,6	3,9	4,2
	EU 28	1,8	5,2	7,1	•

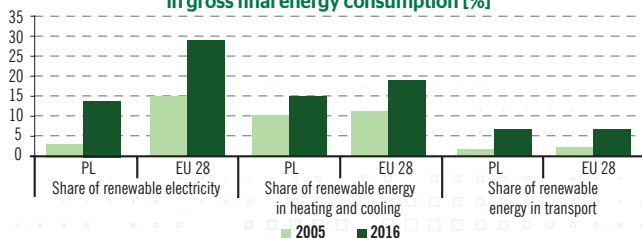
Share of renewable energy in primary energy production and in final energy consumption [%]

		2005	2010	2016	2017
Share of renewable energy in primary production	PL	5,8	10,2	13,6	14,1
	EU 28	13,3	20,2	27,9	•
Share of renewable energy in final consumption	PL	6,6	7,9	8,3	8,2
	EU 28	4,9	7,0	8,0	•

Share of renewable energy in gross final energy consumption [%]



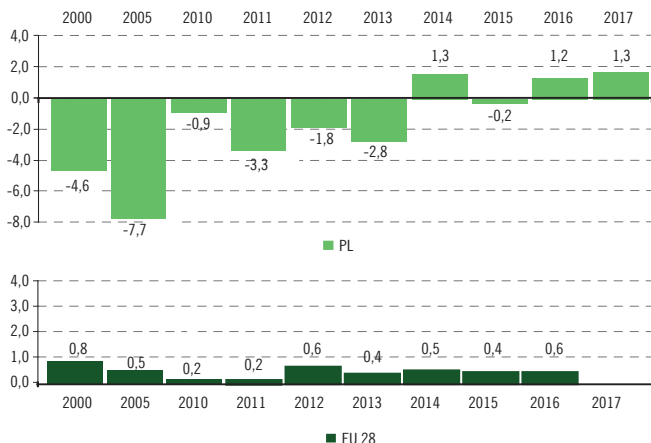
Sectoral and total share of renewable energy in gross final energy consumption [%]



Synthetic balance of electricity in Poland [GWh]		2000	2005	2010	2015	2016	2017
Supply		148 473	161 937	163 968	179 403	180 651	183 736
Generation		145 183	156 935	157 658	164 944	166 634	170 465
Import*		3 290	5 002	6 310	14 459	14 017	13 271
Use		148 473	161 937	163 968	179 403	180 651	183 736
Consumption		138 810	145 749	156 304	164 610	168 633	172 752
Export*		9 663	16 188	7 664	14 793	12 018	10 984

* Physical flows

Electricity dependency [%]



Electricity generation in Poland [GWh]		2000	2005	2010	2015	2016	2017
Gross electricity generation		145 183	156 935	157 658	164 944	166 634	170 465
Main activity producers		137 979	148 915	150 107	156 527	156 756	158 975
Autoproducers		7 204	8 020	7 551	8 417	9 878	11 490
Share of CHP in total generation [%]		•	16,8	17,6	16,2	16,7	16,8
Share of high-efficiency CHP in total generation [%]		•	•	17,1	15,9	16,1	16,5

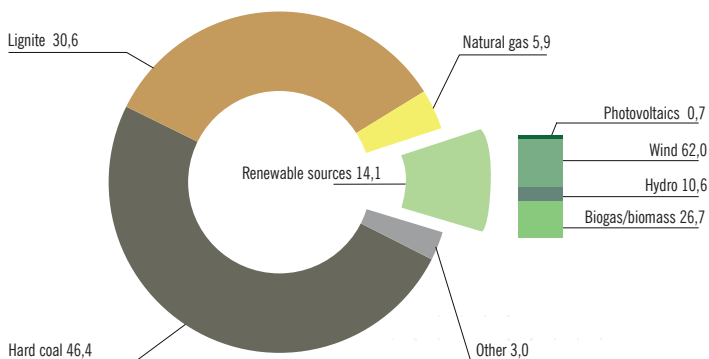
Structure of electricity generation [%]		2000	2005	2010	2015	2016	2017
Solid fuels	PL	93,6	90,4	86,6	79,1	78,2	76,9
	EU 28	30,5	28,6	24,3	24,2	21,2	•
Natural gas	PL	2,0	4,2	4,2	5,3	6,3	7,2
	EU 28	16,9	21,2	23,8	16,4	19,7	•
Oil	PL	1,3	1,8	1,8	1,3	1,4	1,2
	EU 28	6,2	4,6	2,9	2,2	2,1	•
Renewables	PL	1,6	2,4	6,9	13,8	13,7	14,1
	EU 28	13,8	13,8	20,2	28,9	29,2	•
Nuclear energy	PL	—	—	—	—	—	—
	EU 28	31,1	30,0	27,2	26,5	25,8	•
Other sources	PL	1,5	1,2	0,5	0,5	0,5	0,5
	EU 28	1,5	1,8	1,6	1,8	1,9	•

Electricity generation in Poland by sources [GWh]	2000	2005	2010	2015	2016	2017
Total	145 183	156 936	157 658	164 944	166 634	170 465
Hard coal	86 211	87 123	87 863	77 693	79 550	79 022
Lignite	49 677	54 758	48 651	52 825	50 920	52 166
Natural gas	928	5 165	4 890	6 405	7 924	10 141
Other*	6 035	6 043	5 365	5 342	5 434	5 087
Renewable sources	2 332	3 847	10 889	22 679	22 806	24 050
of which: biogas and biomass	221	1 511	6 305	9 932	7 955	6 416
hydro	2 106	2 201	2 920	1 832	2 139	2 560
wind	5	135	1 664	10 858	12 588	14 909
photovoltaics	•	•	•	57	124	165

* Liquid fuels, manufactured gases, non-organic industrial and municipal waste, pumped water

Fuel input to electricity generation in Poland [ktoe]	2000	2005	2010	2015	2016	2017
Total	30 840	32 419	32 328	31 719	31 130	31 071
Hard coal	17 992	17 977	18 166	15 982	16 188	15 972
Lignite	11 830	12 584	11 226	11 972	11 416	11 705
Natural gas	180	750	674	845	1 077	1 296
Biogas/biomass	7	208	1 260	1 933	1 396	1 137
Other fuels	831	901	1 002	988	1 053	962

Structure of electricity generation by sources (2017) [%]



Available generation capacity in Poland [MW]	2000	2005	2010	2015	2016	2017
Total	33 418	34 857	36 059	39 984	40 924	42 990
Main activity producers	31 071	32 619	34 205	38 045	38 952	40 375
Autoproducers	2 347	2 238	1 854	1 939	1 972	2 615

Of which newly constructed capacities	388	114	564	1 412	841	2 173
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Structure of capacities in Poland [%]	2000	2005	2010	2015	2016	2017
Hard coal	66,3	63,2	61,2	51,3	49,7	50,0
Lignite	25,1	25,3	24,5	23,4	23,0	21,9
Natural gas	0,4	2,8	2,9	3,1	3,1	4,6
Other*	5,7	5,6	5,4	4,8	4,8	4,7
Biogas and biomass	0,0	0,2	0,4	2,6	2,5	2,4
Hydro	2,4	2,6	2,6	2,4	2,4	2,2
Wind	0,0	0,3	3,1	12,2	14,0	13,4
Photovoltaics	•	•	•	0,3	0,5	0,7

* Liquid fuels, manufactured gases, non-organic industrial and municipal waste, pumped water

Electricity network in Poland	2000	2005	2010	2015	2016	2017
Total length of power lines [1000 km]	713,2	754,0	780,3	837,2	829,7	836,2
Highest voltage (750 – 220 kV)	12,9	13,0	13,5	14,3	14,3	14,4
High voltage (110 kV)	32,3	32,4	32,8	33,4	33,6	33,8
Medium voltage	278,1	295,9	303,7	312,4	311,6	313,6
Low voltage	389,9	412,8	430,3	477,1	470,1	474,4

Power demand at 50 Hz [MW]	2000	2005	2010	2015	2016	2017
Average in December	20 963	22 849	24 465	23 887	24 739	24 933
Maximum in a year	22 289	23 477	25 449	25 101	25 546	26 231
Date of maximum (day, month)	25.01	21.12	26.01	07.01	15.12	09.01

Wholesale electricity trading in 2017		Volume [GWh]	Price* [PLN/MWh]
Total generators (public thermal plants)		151 136	167,2
of which:	final consumers	3 372	221,8
	trading companies	108 966	165,7
	electricity exchange	28 326	162,4
	balancing market	8 700	180,1
Total trading companies		343 352	189,1
of which:	final consumers	131 747	226,4
	trading companies	129 443	168,0
	electricity exchange	62 691	164,3
	balancing market	5 952	157,0
	export**	3 839	164,2

* Price excl. excise tax ** Trade flows

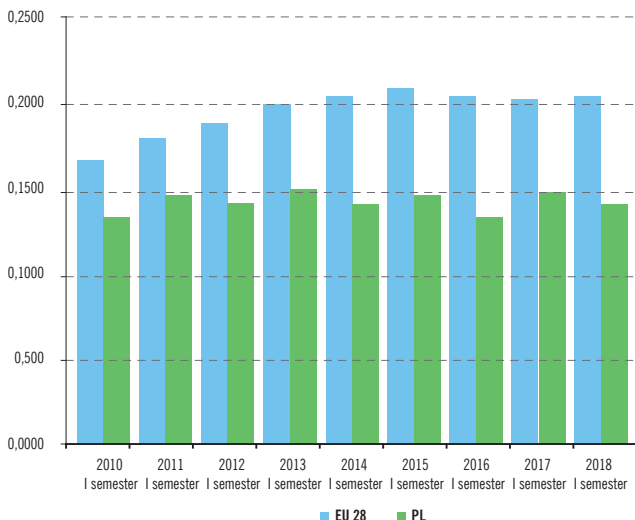
Supply of electricity to final consumers from the networks of distribution system operators	2000	2005	2010	2015	2016	2017
Number of consumers [1000]	15 289	15 762	16 488	17 168	17 363	17 503
Urban	9 985	10 344	10 821	11 342	11 478	11 568
Rural	5 303	5 418	5 667	5 826	5 885	5 935

By voltages [1000 consumers]						
High voltage consumers	0,3	0,3	0,3	0,4	0,5	0,5
of which TPA	•	0,1	0,2	0,3	0,4	0,5
Medium voltage consumers	26,2	27,4	31,3	36,5	37,4	38,3
of which TPA	•	0,1	4,0	15,2	17,0	18,6
Low voltage business consumers	1 925	2 086	2 256	2 290	2 268	2 266
of which TPA	•	•	•	533,0	575,0	590,4
Households and individual farms	13 337	13 648	14 200	14 841	15 057	15 198
of which TPA	•	•	•	364	347	273

Supply of electricity [GWh]	2000	2005	2010	2015	2016	2017
Total	100 506	106 523	117 814	126 521	129 808	133 009
High voltage consumers	26 472	24 169	23 352	25 501	24 919	25 414
of which TPA	•	9 858	15 764	21 871	22 123	22 909
Medium voltage consumers	29 565	34 526	40 433	47 174	49 611	51 677
of which TPA	•	1 128	12 994	30 774	34 062	36 664
Low voltage business consumers	18 682	21 492	24 216	24 375	25 264	25 599
of which TPA	•	•	2 864	12 210	13 346	13 816
Households and individual farms	25 787	26 336	29 813	29 471	30 014	30 319
of which TPA	•	•	•	1 120	1 150	1 027

Electricity prices [PLN/MWh] – net of VAT, from 2010 excl. excise tax	2000	2005	2010	2015	2016	2017
High voltage consumers - non-TPA	144,3	194,0	290,3	262,8	248,7	247,6
High voltage consumers - TPA	•	173,7	273,9	234,1	232,0	230,3
Medium voltage consumers - non-TPA	177,5	227,1	338,4	328,8	317,4	323,3
Medium voltage consumers - TPA	•	212,9	306,8	298,2	288,9	291,0
Low voltage business consumers - non-TPA	267,0	337,9	486,1	568,6	556,3	569,0
Low voltage business consumers - TPA	•	•	420,5	435,1	426,7	435,6
Households and individual farms	233,7	320,2	431,0	482,3	477,0	485,1
of which TPA	•	•	•	475,9	456,2	471,5

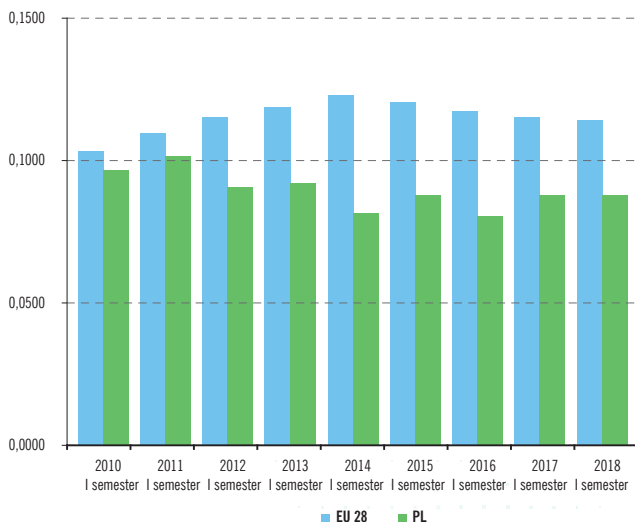
Electricity prices for household consumers in euro per kWh



Comment:

Electricity prices for household consumers are the average national prices with all taxes included. Prices for years 2010-2018 are referring to first semesters of each year for medium size household consumers (Consumption Band Dc with annual consumption between 2500 and 5000 kWh).

Electricity prices for non-household consumers in euro per kWh



Comment:

Electricity prices for non-household consumers are the average national prices without VAT. Prices for years 2009-2018 are referring to first semesters of each year for medium size non-household (until 2016 – industrial) consumers (Consumption Band Ic with annual consumption between 500 and 2000 MWh).

Heat balance [ktoe]							
		2000	2005	2010	2015	2016	2017
Production	PL	8 137,1	8 032,2	8 021,3	6 721,0	6 993,4	7 237,9
	EU 28	52 242,8	61 934,6	64 739,5	57 313,8	59 191,6	•
solid fuels	PL	7 471,1	7 157,2	6 846,3	5 467,2	5 760,3	5 833,1
	EU 28	19 174,7	18 778,8	18 668,9	14 875,0	14 774,2	•
natural gas	PL	427,2	630,1	739,1	816,9	765,6	921,2
	EU 28	20 043,6	28 070,1	27 443,8	21 826,8	22 440,8	•
oil	PL	189,6	159,6	155,3	81,3	86,6	98,2
	EU 28	6 082,9	5 530,8	4 549,4	2 553,4	2 603,1	•
renewables	PL	43,9	60,8	254,5	307,8	333,9	320,4
	EU 28	4 486,8	6 693,0	10 401,3	13 302,6	14 363,0	•
nuclear energy	PL	-	-	-	-	-	-
	EU 28	76,5	156,0	119,6	102,8	103,2	•
other sources	PL	5,3	24,5	26,1	47,8	47,0	64,9
	EU 28	2 378,3	2 705,9	3 556,5	4 653,2	4 907,3	•
Consumption by end-users	PL	6 886,2	6 634,3	6 546,9	5 462,3	5 669,1	6 302,8
	EU 28	45 333,1	52 686,6	53 504,3	46 455,1	47 931,6	•

Energy efficiency

Selected energy efficiency indicators – Poland							
		2000	2005	2010	2015	2016	2017
Primary energy intensity of GDP (toe/1000 PLN)		0,101	0,094	0,082	0,066	0,071	0,069
Final energy intensity of GDP (toe/1000 PLN)		0,065	0,059	0,054	0,043	0,045	0,046
Electricity intensity of GDP (kWh/1000 PLN)		164,3	148,2	126,2	113,6	113,0	110,7
Energy consumption per capita (toe/cap.)		1,431	1,533	1,723	1,623	1,732	1,848
Electricity consumption per capita (kWh/cap.)		3 592,0	3 819,7	4 056,7	4 282,6	4 387,7	4 494,8
Energy consumption per 1 employee in the services (toe/per.)		0,695	0,936	1,110	0,907	0,952	0,952
Electricity consumption per 1 employee in the services (kWh/per.)		3 841,7	4 625,0	5 488,8	5 283,6	5 350,6	5 350,6
Residential energy consumption per 1 dwelling (toe/dwelling)		1,479	1,541	1,621	1,336	1,385	1,385
Residential electricity consumption per 1 dwelling (kWh/dwelling)		1 775,8	1 976,6	2 124,3	2 003,0	2 025,6	2 025,6
Thermal efficiency of power plants and CHP plants (%)		46,5	47,9	47,4	46,5	47,1	47,6
Thermal efficiency of heat-only plants (%)		77,9	77,3	81,0	81,8	82,8	83,0

Final energy consumption in Poland [ktoe]						
		2005	2010	2015	2016	2017
Total		58 471	66 356	62 437	66 548	71 026
Industry (incl. construction)		15 348	14 138	15 124	15 573	16 534
Transport		12 539	17 693	17 244	19 163	22 539
Services		6 698	8 825	7 813	8 502	8 245
Households		19 454	21 965	18 927	19 773	19 835
Other consumers		4 432	3 735	3 328	3 537	3 872

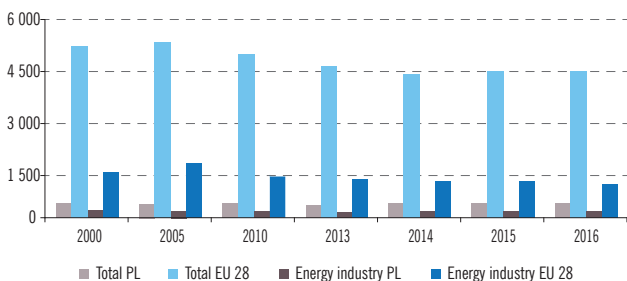
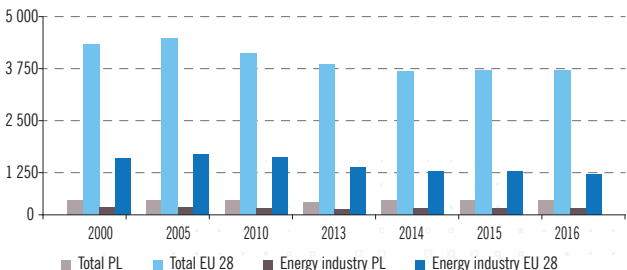
Emissions in Poland

	2000	2005	2010	2015	2016
CO ₂ [Tg]	317,6	322,0	333,1	312,4	323,2
Energy combustion sector	176,3	177,3	172,2	162,6	162,4
CO [Gg]	3 252,1	3 059,2	3 069,0	2 370,4	2 505,6
Energy combustion sector	57,4	52,8	74,1	65,0	65,8
SO _x [Gg]	1 403,5	1 163,8	866,2	701,8	581,5
Energy combustion sector	1 015,2	865,0	545,4	422,2	296,8
NO _x [Gg]	846,3	859,4	858,5	704,8	726,4
Energy combustion sector	301,7	305,4	297,5	227,2	205,3
Hg [Gg]	0,010	0,010	0,009	0,011	0,010
Energy combustion sector	0,007	0,007	0,006	0,005	0,005

Emission factors in Poland*

	2000	2005	2010	2015	2016	2017
CO ₂ [g/ktoe]	10 611,2	10 113,4	10 022,7	9 961,1	9 844,8	10 106,9
CO [g/ktoe]	2,559	2,210	2,675	3,024	3,024	3,399
SO ₂ [g/ktoe]	60,360	46,171	25,470	19,538	11,397	10,822
NO _x [g/ktoe]	17,9102	16,980	16,166	12,212	10,583	9,954
Dust [g/ktoe]	4,536	2,675	1,512	0,930	0,814	0,716

* Data derived from the 1.44.02 statistical survey

Total greenhouse gases emissions (CO₂ equivalent) [Tg]CO₂ emissions [Tg]

Data sources:

ME, ARE S.A., GUS, URE, EUROSTAT, EEA, KOBIZE.

Warning:

Due to the differences between the EU and Polish methodologies of energy balance preparation, some data presented under the similar or identical titles may slightly differ.

Conversion factor:

1 ktoe = 41,868 TJ = 41,868/3,6 GWh

Explanation of the signs:

- (-) – magnitude zero
- (•) – data not available or not reliable
- (0) – magnitude zero, but less than 0,5 of a unit
- (0,0) – magnitude zero, but less than 0,05 of a unit
- “of which” – indicates that not all elements of the sum are given

Glossary of terms

Electricity dependency: Net imports / Inland consumption of electricity.

Energy dependency: Net imports /(Gross inland consumption of primary energy + Marine bunkers).

Final energy intensity of GDP: Final energy consumption / Gross domestic product.

Electricity intensity of GDP: Electricity consumption / Gross domestic product.

Final energy consumption: the quantity of energy consumed in the economic sectors of industry, transport, residential, commercial and public services, agriculture etc., without being transformed to the other forms of energy or being used as the own consumption of energy transformations.

Fuels:

Solid fuels: hard coal, brown coal (lignite), coke, hard coal briquettes, brown coal briquettes;

Liquid fuels: crude oil, LPG, gasoline, gas/diesel oil, fuel oil, liquid waste fuels, refinery gas;

Gaseous fuels: natural gas, town gas, manufactured gases (blast furnace gas, coke-oven gas etc.);

Other fuels: non-organic municipal and industrial waste, energy from pumped water.

Gross final energy consumption: the final consumption for energy purposes, including the own consumption of electricity and heat for the electricity and heat production and including losses of electricity and heat in transmission and distribution.

Gross inland consumption: Primary production + Recovered products + Imports – Exports + Stock change – Marine bunkers.

Net imports: Import - Export.

Physical flows of electricity in international trade: all flows at the cross-border connections, both planned (i.e. in accordance with the existing contracts) and unplanned (i.e. resulting from the specific technical characteristics of the co-operating electric systems).

Primary energy intensity of GDP: Gross inland consumption of primary energy / Gross domestic product.

Primary energy production: the quantity of energy extracted from natural sources.

Share of renewable energy in final energy consumption: Final consumption of renewable energy (excluding non-organic municipal waste) / Final energy consumption.

Share of renewable energy in primary energy production: Renewable energy production (excluding non-organic municipal waste) / Primary energy production (including coal recovery from heaps and refinery products backflows from petrochemical industry).

Trade flows of electricity in international trade: planned flows, in accordance with the existing contracts.



MINISTRY OF ENERGY



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