

Energy in Poland



Warsaw 2019



MINISTRY OF STATE ASSETS

Energy in Poland

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MINISTRY OF STATE ASSETS



Poland and European Union (2017)

	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	511 373,3	13 444 508	758 209	1 674 924	124,58
Austria	83 882	8 772,9	298 903	12 335	34 424	115,17
Belgium	30 665	11 351,7	368 440	14 864	56 630	153,70
Bulgaria	110 995	7 101,9	33 074	11 674	18 898	571,40
Croatia	56 594	4 154,2	39 642	4 209	8 866	223,66
Cyprus	9 253	854,8	17 555	132	2 561	145,90
Czech Republic	78 870	10 578,8	143 696	27 331	43 432	302,25
Denmark	42 926	5 748,8	240 128	15 856	18 208	75,83
Estonia	45 336	1 315,6	14 264	5 792	5 764	404,12
Finland	338 441	5 503,3	183 112	18 067	33 917	185,22
France	638 474	66 804,1	2 001 529	132 151	255 967	127,89
Germany	357 568	82 521,7	2 770 783	115 788	322 184	116,28
Greece	131 692	10 768,2	162 315	7 501	24 231	149,28
Hungary	93 013	9 797,6	106 177	11 147	26 679	251,27
Ireland	69 946	4 784,4	269 963	4 861	14 654	54,28
Italy	302 073	60 589,4	1 465 844	36 666	159 513	108,82
Latvia	64 586	1 950,1	16 830	2 587	4 551	270,43
Lithuania	65 286	2 847,9	28 619	1 754	7 372	257,58
Luxembourg	2 595	590,7	41 566	192	4 338	104,35
Malta	315	460,3	8 411	30	829	98,58
Netherlands	37 368	17 081,5	643 985	41 712	78 285	121,56
Poland	311 928	37 973,0	390 092	64 028	105 080	269,37
Portugal	92 226	10 309,6	165 335	5 225	23 990	145,10
Romania	238 397	19 644,4	118 378	25 475	33 445	282,53
Slovakia	49 035	5 435,3	59 795	6 370	17 248	288,46
Slovenia	20 273	2 065,9	35 262	3 515	6 781	192,30
Spain	505 983	46 528,0	1 029 815	34 227	131 147	127,35
Sweden	447 424	9 995,2	401 170	36 590	50 466	125,80
United Kingdom	248 536	65 844,1	2 402 235	118 130	185 465	77,21

* Gross inland energy consumption = Primary energy consumption

Poland and European Union (2017)

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* [%]	
947 777	1 060 037	2,07	4,79	78,85	55,12	EU 28
22 192	26 213	2,99	6,74	87,70	64,43	Austria
47 986	32 888	2,90	6,91	89,26	74,84	Belgium
7 499	9 738	1,37	3,35	294,44	39,51	Bulgaria
4 725	6 776	1,63	4,60	170,94	53,25	Croatia
2 711	1 536	1,80	4,78	87,52	96,33	Cyprus
16 151	24 406	2,31	5,20	169,85	37,19	Czech Republic
2 185	13 862	2,41	5,79	57,73	11,66	Denmark
247	2 806	2,13	4,80	196,70	4,07	Estonia
15 072	24 640	4,48	9,28	134,56	43,98	Finland
125 184	141 003	2,11	4,81	70,45	48,59	France
207 369	204 604	2,48	5,02	73,84	63,91	Germany
18 736	16 054	1,49	3,65	98,91	71,06	Greece
16 694	17 975	1,83	4,35	169,29	62,57	Hungary
9 940	10 741	2,25	5,98	39,79	67,14	Ireland
124 564	113 611	1,88	4,39	77,51	76,98	Italy
2 120	3 875	1,99	4,56	230,26	44,06	Latvia
5 706	5 241	1,84	3,86	183,13	75,61	Lithuania
4 138	3 615	6,12	14,91	86,97	95,40	Luxembourg
3 025	495	1,08	2,70	58,88	102,94	Malta
46 598	44 953	2,63	5,75	69,80	51,81	Netherlands
40 363	69 139	1,82	4,78	177,24	38,31	Poland
19 780	15 275	1,48	3,72	92,39	79,87	Portugal
7 738	22 860	1,16	3,06	193,11	23,12	Romania
11 185	9 903	1,82	5,28	165,62	64,85	Slovakia
3 494	4 837	2,34	5,49	137,18	50,38	Slovenia
101 914	79 397	1,71	4,29	77,10	73,94	Spain
14 041	32 370	3,24	6,66	80,69	26,57	Sweden
66 419	121 221	1,84	4,21	50,46	35,35	United Kingdom

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

Poland and European Union (2017)

	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	283 260	86 682	284 137	240 585	0,56	21,13
Austria	6 132	4 592	6 695	5 399	0,76	22,40
Belgium	7 402	1 354	7 919	7 044	0,70	21,49
Bulgaria	3 919	649	3 448	2 572	0,49	104,25
Croatia	1 030	748	1 628	1 374	0,39	41,08
Cyprus	430	38	430	391	0,50	24,51
Czech Republic	7 476	855	6 355	4 930	0,60	44,23
Denmark	2 669	1 848	3 061	2 691	0,53	12,75
Estonia	1 109	149	874	621	0,66	61,30
Finland	5 772	2 663	7 528	6 968	1,37	41,11
France	48 277	8 848	44 828	37 563	0,67	22,40
Germany	56 065	17 610	51 554	44 622	0,62	18,61
Greece	4 752	1 294	5 288	4 641	0,49	32,58
Hungary	2 819	294	3 927	3 309	0,40	36,98
Ireland	2 654	776	2 596	2 223	0,54	9,62
Italy	25 380	9 729	28 627	25 104	0,47	19,53
Latvia	648	349	642	558	0,33	38,15
Lithuania	339	193	1 085	865	0,38	37,90
Luxembourg	192	49	723	550	1,22	17,40
Malta	141	14	215	201	0,47	25,62
Netherlands	10 072	1 433	10 374	9 084	0,61	16,11
Poland	14 652	1 939	14 849	11 676	0,39	38,06
Portugal	5 110	2 562	4 879	4 010	0,47	29,51
Romania	5 528	2 185	5 280	3 843	0,27	44,60
Slovakia	2 372	559	2 632	2 219	0,48	44,02
Slovenia	1 404	433	1 359	1 163	0,66	38,55
Spain	23 700	8 830	24 489	20 169	0,53	23,78
Sweden	14 123	8 223	12 490	10 942	1,25	31,13
United Kingdom	29 092	8 465	30 361	25 854	0,46	12,64

Poland and European Union (2017)

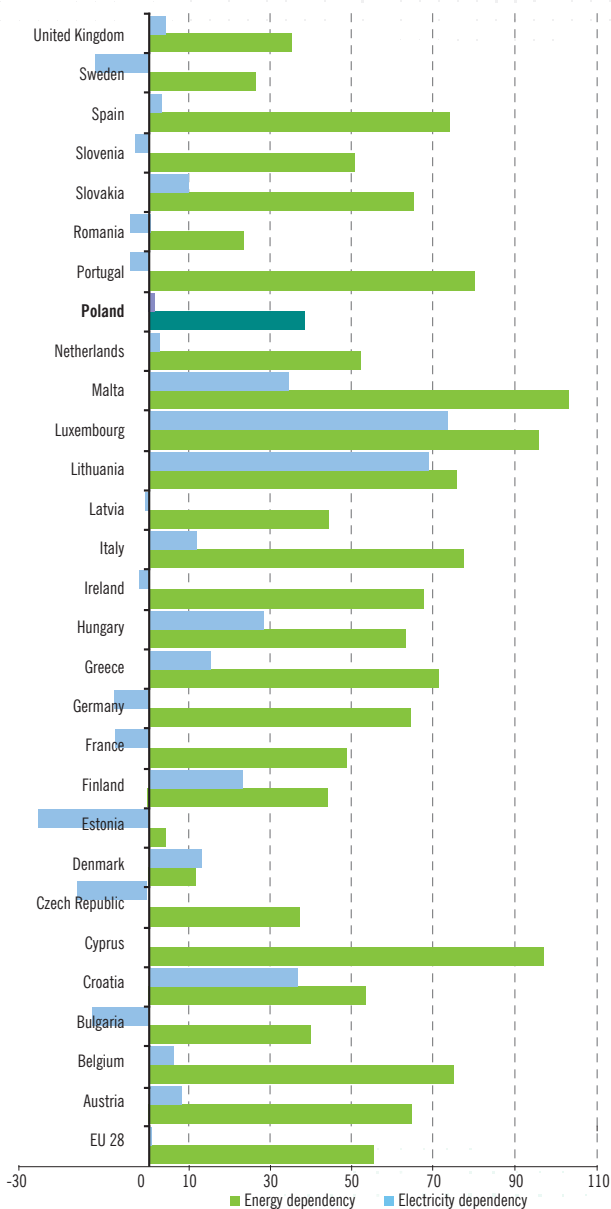
Electricity consumption per household [toe/hh]	Electricity dependency* [%]	Share of energy from RES in gross final energy consumption [%]	Share of energy from RES in gross			
			final electricity consumption [%]	final energy consumption in heating and cooling [%]	final energy consumption in transport [%]	
1,28	0,31	17,53	30,75	19,48	7,42	EU 28
1,72	8,41	32,56	72,17	32,05	9,74	Austria
1,66	6,54	9,06	17,24	8,03	6,58	Belgium
1,19	-13,67	18,73	19,12	29,90	7,24	Bulgaria
1,11	36,72	27,28	46,42	36,55	1,18	Croatia
1,34	0,00	9,85	8,90	24,49	2,57	Cyprus
1,35	-17,64	14,76	13,65	19,65	6,58	Czech Republic
1,28	12,82	35,77	60,36	46,55	6,85	Denmark
1,50	-26,89	29,21	17,03	51,64	0,40	Estonia
2,83	23,33	41,01	35,22	54,85	18,83	Finland
1,53	-7,69	16,30	19,91	21,35	9,14	France
1,27	-8,75	15,45	34,41	13,42	7,03	Germany
1,20	10,14	16,95	24,48	26,57	4,00	Greece
0,95	28,20	13,33	7,49	19,64	6,81	Hungary
1,45	-2,25	10,65	30,09	6,86	7,43	Ireland
1,11	11,34	18,27	34,10	20,08	6,48	Italy
0,76	-0,86	39,01	54,36	54,58	2,54	Latvia
0,80	68,79	25,84	18,25	46,50	3,69	Lithuania
2,98	73,43	6,38	8,05	8,11	6,44	Luxembourg
1,17	34,37	7,17	6,58	19,83	6,80	Malta
1,33	2,91	6,60	13,80	5,93	5,91	Netherlands
1,03	1,32	10,90	13,09	14,48	4,20	Poland
1,19	-4,73	28,12	54,17	34,39	7,93	Portugal
0,71	-4,71	24,47	41,63	26,58	6,56	Romania
1,40	9,89	11,49	21,34	9,84	7,03	Slovakia
1,54	-3,26	21,55	32,43	33,25	2,74	Slovenia
1,32	3,22	17,51	36,34	17,52	5,92	Spain
2,57	-13,07	54,50	65,89	69,07	32,11	Sweden
1,05	4,18	10,21	28,11	7,45	5,05	United Kingdom

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

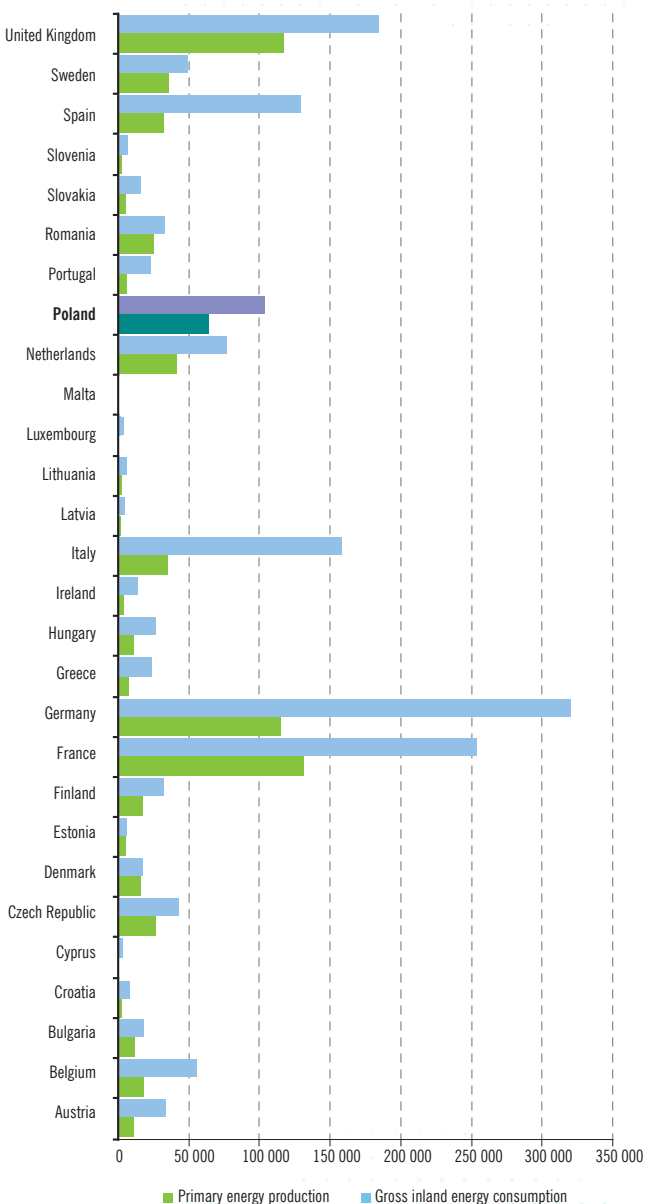
Poland and European Union (2017)

	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	4 481,43	3 672,35	12,96	7,18
Austria	84,53	72,22	11,78	8,23
Belgium	119,38	102,37	13,83	9,02
Bulgaria	62,09	48,11	12,28	6,77
Croatia	25,47	19,17	18,60	4,61
Cyprus	9,95	8,54	19,84	9,99
Czech Republic	129,76	106,68	14,27	10,08
Denmark	50,55	37,70	14,13	6,56
Estonia	21,06	18,83	16,98	14,32
Finland	57,45	46,80	8,11	8,50
France	481,98	363,71	7,53	5,44
Germany	936,00	827,08	14,75	10,02
Greece	98,88	78,28	16,47	7,27
Hungary	64,49	50,34	17,86	5,14
Ireland	63,81	41,76	15,73	8,73
Italy	438,96	360,16	14,19	5,94
Latvia	11,74	7,66	11,83	3,93
Lithuania	20,74	13,72	40,54	4,82
Luxembourg	11,93	10,93	56,85	18,50
Malta	2,58	2,04	14,40	4,42
Netherlands	205,38	176,49	17,52	10,33
Poland	416,30	339,05	23,14	8,93
Portugal	74,42	58,49	11,45	5,67
Romania	114,81	76,00	13,75	3,87
Slovakia	43,48	36,20	15,26	6,66
Slovenia	17,53	14,33	10,21	6,94
Spain	357,30	291,35	12,29	6,26
Sweden	55,45	44,80	3,17	4,48
United Kingdom	505,42	419,52	14,42	6,37

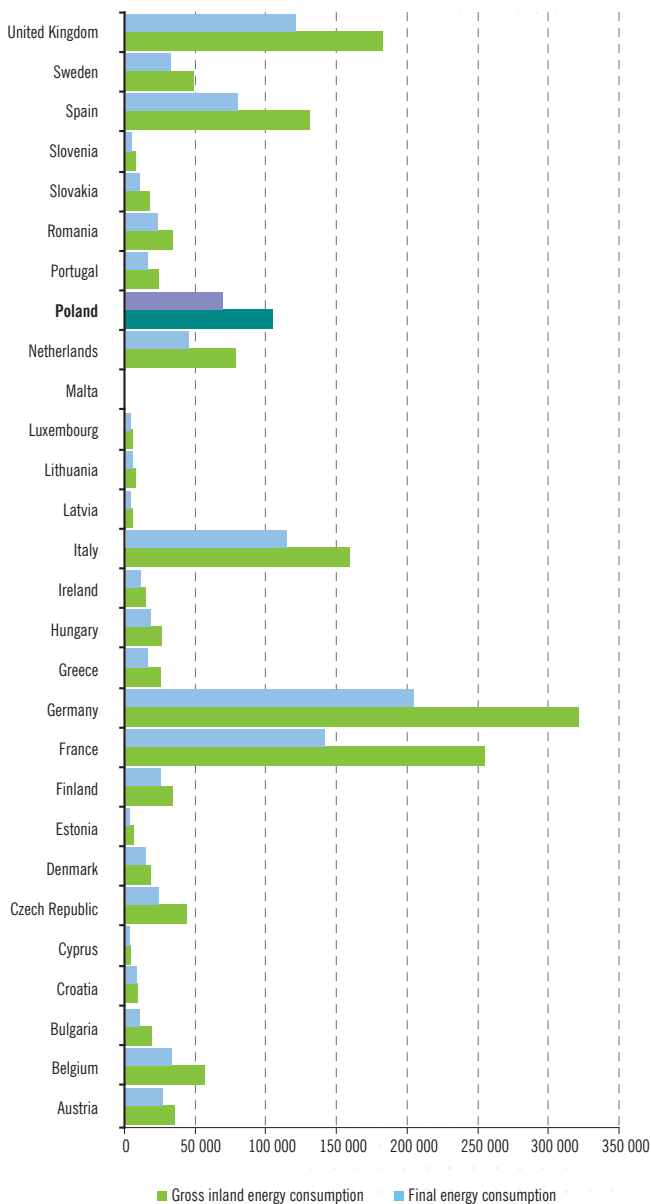
Energy dependency and electricity dependency (2017) [%]



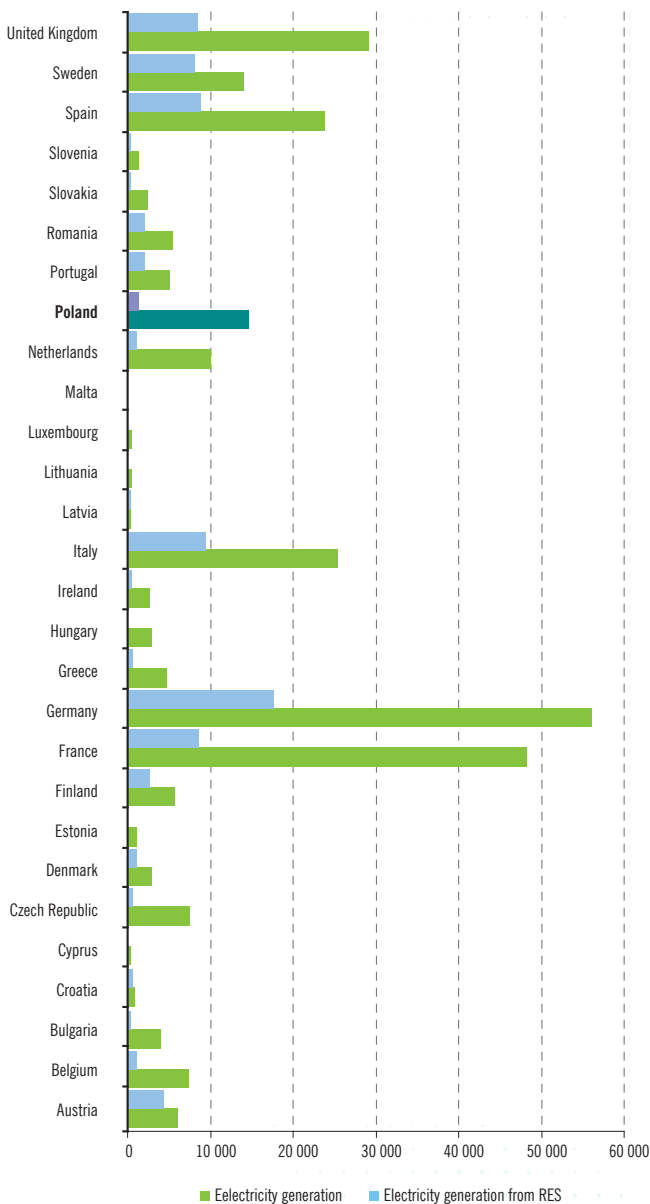
Primary energy production and gross inland energy consumption (2017) [ktoe]



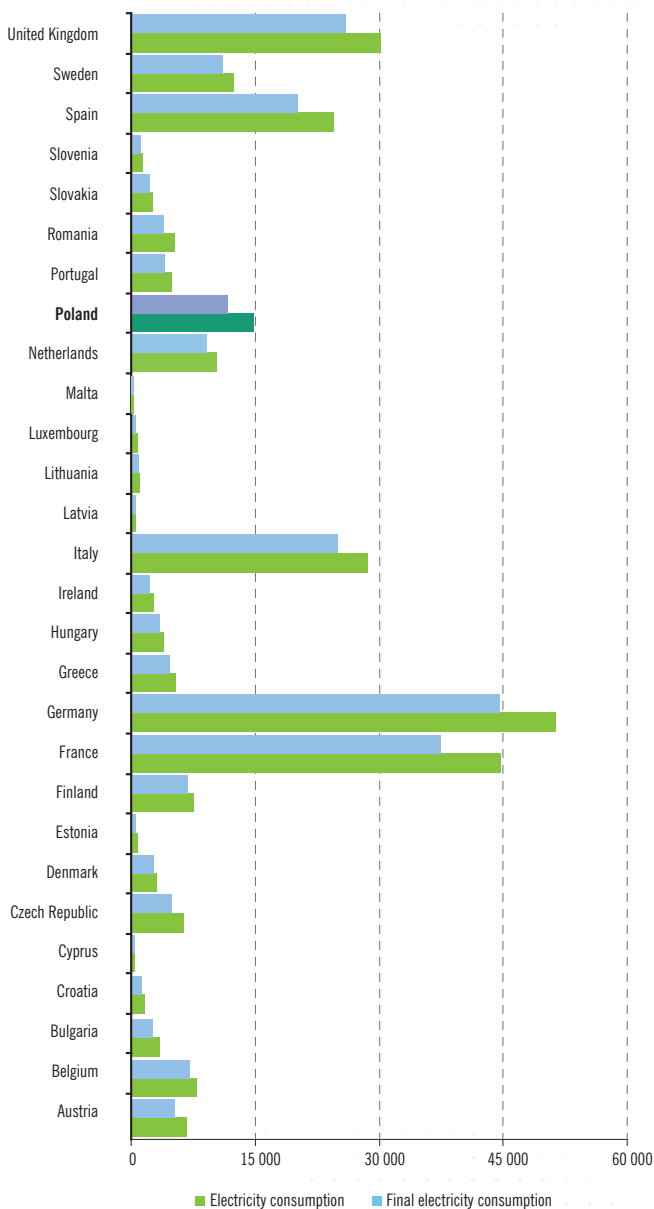
Final energy consumption and gross inland energy consumption (2017) [ktoe]



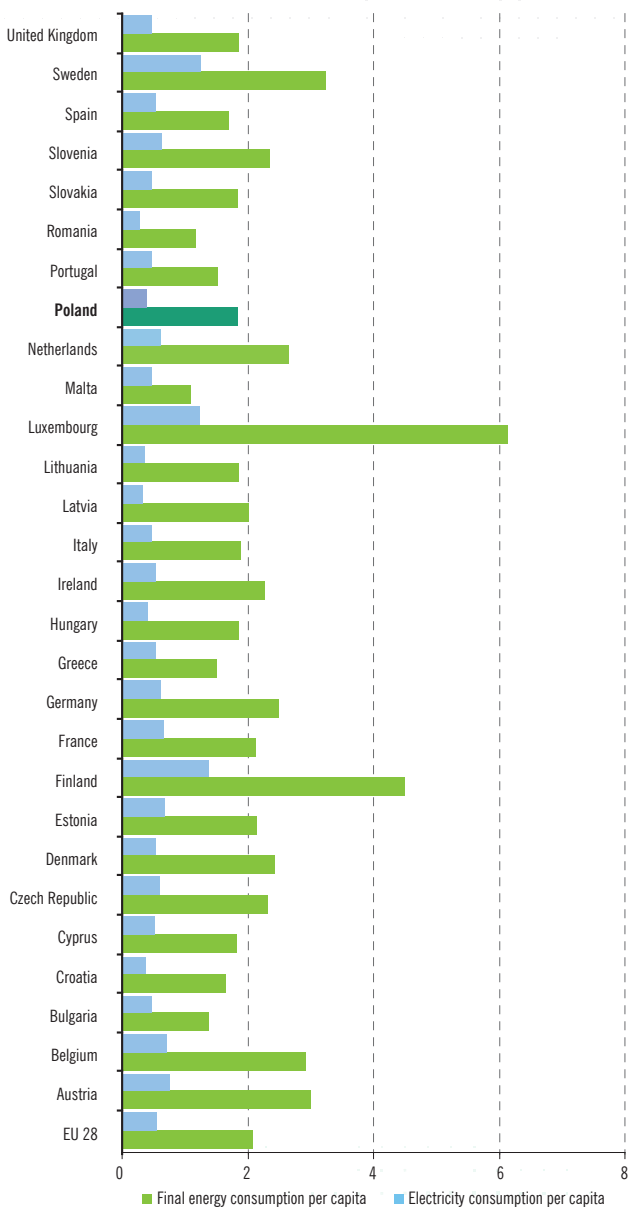
Electricity generation and electricity generation from RES (2017) [ktoe]



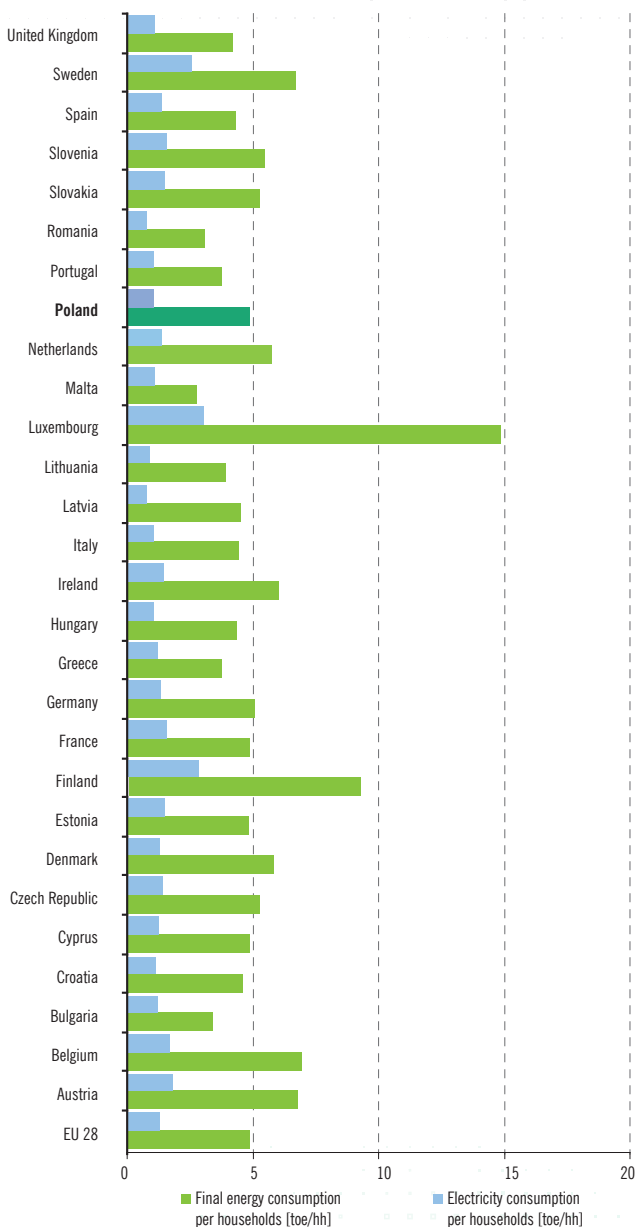
Electricity consumption and final electricity consumption (2017) [ktoe]



Final energy consumption per capita
and electricity consumption per capita (2017) [toe/cap]



Final energy consumption per households and electricity consumption per households (2017) [toe/hh]



Eurostat Basic Balance of Energy – Poland (2018) [ktoe]

	Total	Total Solid fuels	of which	
			Hard coal	Lignite
Primary production	61 283	47 011	35 739	11 273
Recovered & recycled products	343	283	283	-
Imports	64 190	12 149	11 935	46
Exports	16 228	8 103	3 310	55
Change in stock	-2 674	-2 098	-2 006	6
International maritime bunkers	270	-	-	-
International aviation	1 006	-	-	-
Total energy supply	105 638	49 242	42 640	11 269
Transformation input	83 929	44 696	31 904	11 132
Electricity & heat generation	40 832	33 860	22 726	11 132
Coke ovens	9 009	9 009	8 951	-
Blast furnaces	1 710	1 710	215	-
Refineries & petrochemical industry	30 759	-	-	-
Patent fuel plants	11	11	11	-
Liquid biofuels blended	856	-	-	-
Not elsewhere specified	751	106	-	-
Transformation output	62 348	6 682	-	-
Electricity & heat generation	21 665	-	-	-
Coke ovens	8 356	6 674	-	-
Blast furnaces	722	-	-	-
Refineries & petrochemical industry	30 096	-	-	-
Patent fuel plants	8	8	-	-
Liquid biofuels blended	856	-	-	-
Gas-to-liquids plants	645	-	-	-
Energy sector	6 219	110	99	12
Distribution losses	1 443	-	-	-
Available for final consumption	76 396	11 118	10 638	126
Final non-energy consumption	5 645	65	65	-
Final energy consumption	69 765	10 692	10 086	112
Industry sector	16 261	3 021	2 626	32
Iron & steel	1 924	265	56	-
Chemical & petrochemical	2 911	1 200	1 157	-
Non-ferrous metals	520	55	17	-
Non-metallic minerals	3 108	586	519	16
Transport equipment	473	8	8	0
Machinery	815	29	27	0
Mining & quarrying	448	12	12	-
Food, beverages & tobacco	2 252	572	554	-
Paper, pulp & printing	1 763	168	168	-
Wood & wood products	976	39	39	-
Construction	146	30	15	14
Textile & leather	140	10	9	1
Not elsewhere specified (industry)	786	46	46	0
Transport sector	22 444	-	-	-
Other sectors	31 061	7 671	7 459	80
Statistical differences	986	361	487	13

Eurostat Basic Balance of Energy - Poland (2018) [ktoe]

	Total Gas	of which		Crude oil and Feedstocks
		Natural gas	Total Derived gas	
Primary production	3 469	3 469	-	1 032
Recovered & recycled products	-	-	-	-
Imports	13 078	13 078	-	27 827
Exports	565	565	-	301
Change in stock	142	142	-	-578
International maritime bunkers	-	-	-	-
International aviation	-	-	-	-
Total energy supply	16 124	16 124	-	27 981
Transformation input	4 010	3 058	952	29 322
Electricity & heat generation	3 365	2 413	952	-
Coke ovens	-	-	-	-
Blast furnaces	-	-	-	-
Refineries & petrochemical industry	-	-	-	29 322
Patent fuel plants	-	-	-	-
Liquid biofuels blended	-	-	-	-
Not elsewhere specified	645	645	-	-
Transformation output	2 404	-	2 404	1 452
Electricity & heat generation	-	-	-	-
Coke ovens	1 682	-	1 682	-
Blast furnaces	722	-	722	-
Refineries & petrochemical industry	-	-	-	806
Patent fuel plants	-	-	-	-
Liquid biofuels blended	-	-	-	-
Gas-to-liquids plants	-	-	-	645
Energy sector	2 202	1 220	982	-
Distribution losses	12	12	-	-
Available for final consumption	12 303	11 834	469	110
Final non-energy consumption	1 999	1 999	-	-
Final energy consumption	9 804	9 335	469	-
Industry sector	4 379	3 909	469	-
Iron & steel	975	598	377	-
Chemical & petrochemical	377	362	15	-
Non-ferrous metals	225	190	35	-
Non-metallic minerals	1 070	1 030	40	-
Transport equipment	134	134	-	-
Machinery	240	240	0	-
Mining & quarrying	40	38	2	-
Food, beverages & tobacco	867	867	-	-
Paper, pulp & printing	203	203	-	-
Wood & wood products	41	41	-	-
Construction	30	30	-	-
Textile & leather	44	44	-	-
Not elsewhere specified (industry)	133	133	-	-
Transport sector	517	517	-	-
Other sectors	4 908	4 908	-	-
Statistical differences	500	500	-	110

Eurostat Basic Balance of Energy - Poland (2018) [ktoe]

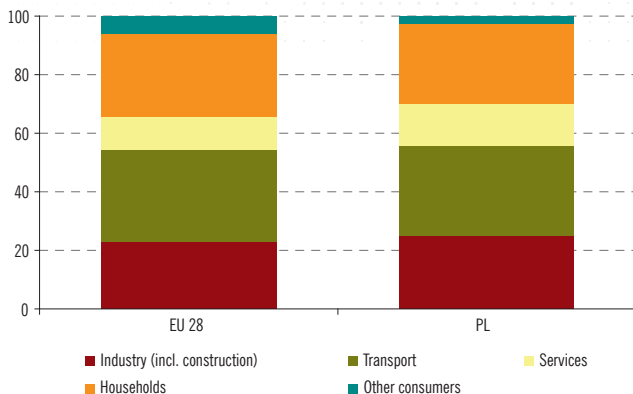
	Total petroleum products	of which				
		LPG	Motor spirit	Kerosenes, jet fuels	Gas/diesel oil	Residual fuels oil
Primary production	-	-	-	-	-	-
Recovered & recycled products	60	-	-	-	-	-
Imports	9 050	2 815	455	32	4 894	47
Exports	5 889	599	377	323	37	2 706
Change in stock	-123	-3	-6	-15	-107	2
International maritime bunkers	270	-	-	-	194	76
International aviation	1 006	-	-	1 006	-	-
Total energy supply	1 821	2 213	72	-1 312	4 556	-2 733
Transformation input	1 835	87	-	-	99	321
Electricity & heat generation	398	0	-	-	45	315
Coke ovens	-	-	-	-	-	-
Blast furnaces	-	-	-	-	-	-
Refineries & petrochemical industry	1 436	87	-	-	53	6
Patent fuel plants	-	-	-	-	-	-
Liquid biofuels blended	-	-	-	-	-	-
Not elsewhere specified	-	-	-	-	-	-
Transformation output	29 290	702	4 322	1 341	12 839	3 541
Electricity & heat generation	-	-	-	-	-	-
Coke ovens	-	-	-	-	-	-
Blast furnaces	-	-	-	-	-	-
Refineries & petrochemical industry	29 290	702	4 322	1 341	12 839	3 541
Patent fuel plants	-	-	-	-	-	-
Liquid biofuels blended	-	-	-	-	-	-
Gas-to-liquids plants	-	-	-	-	-	-
Energy sector	834	8	1	-	30	402
Distribution losses	-	-	-	-	-	-
Available for final consumption	28 442	2 820	4 393	29	17 266	85
Final non-energy consumption	3 580	109	-	-	-	-
Final energy consumption	24 847	2 820	4 393	29	17 226	78
Industry sector	769	90	6	0	308	68
Iron & steel	6	1	0	-	3	0
Chemical & petrochemical	304	7	0	-	41	8
Non-ferrous metals	11	1	0	-	4	6
Non-metallic minerals	93	9	0	-	33	4
Transport equipment	22	8	-	0	14	-
Machinery	45	11	1	0	32	0
Mining & quarrying	78	5	0	-	72	-
Food, beverages & tobacco	80	27	1	-	32	19
Paper, pulp & printing	38	3	2	-	11	22
Wood & wood products	24	3	0	-	20	2
Construction	42	4	0	-	32	5
Textile & leather	6	1	0	-	4	1
Not elsewhere specified (industry)	20	10	1	-	9	1
Transport sector	20 726	2 064	4 386	29	14 243	-
Other sectors	3 352	666	1	-	2 675	10
Statistical differences	16	-109	-	0	40	7

Eurostat Basic Balance of Energy - Poland (2018) [ktoe]

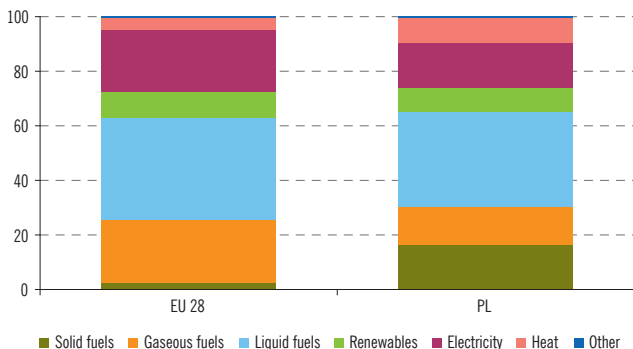
	Total Renewables	Other fuels	Derived heat	Electrical energy
Primary production	8 770	1 002	.	.
Recovered & recycled products	-	.	.	.
Imports	899	-	-	1 188
Exports	672	-	-	698
Change in stock	-17	-	.	.
International maritime bunkers	-	.	.	.
International aviation	-	.	.	.
Total energy supply	8 978	1 002	-	490
Transformation input	3 792	203	14	57
Electricity & heat generation	2 936	203	14	57
Coke ovens	-	.	.	.
Blast furnaces	-	.	.	.
Refineries & petrochemical industry	.	.	.	.
Patent fuel plants	-	-	.	.
Liquid biofuels blended	856	.	.	.
Not elsewhere specified	-	-	.	.
Transformation output	856	.	7 044	14 621
Electricity & heat generation	.	.	7 044	14 621
Coke ovens	-	.	.	.
Blast furnaces	.	.	.	.
Refineries & petrochemical industry	-	.	.	.
Patent fuel plants	.	.	.	.
Liquid biofuels blended	856	.	.	.
Gas-to-liquids plants	.	.	.	.
Energy sector	4	0	782	2 285
Distribution losses	-	-	666	765
Available for final consumption	6 038	798	5 583	12 003
Final non-energy consumption	-	.	.	.
Final energy consumption	6 038	798	5 583	12 003
Industry sector	1 610	793	911	4 778
Iron & steel	0	-	92	587
Chemical & petrochemical	4	9	326	691
Non-ferrous metals	-	-	22	205
Non-metallic minerals	67	773	29	490
Transport equipment	0	0	45	263
Machinery	1	0	60	441
Mining & quarrying	0	2	74	242
Food, beverages & tobacco	39	0	61	633
Paper, pulp & printing	865	9	81	400
Wood & wood products	531	-	76	264
Construction	1	0	8	35
Textile & leather	0	0	9	71
Not elsewhere specified (industry)	101	1	29	456
Transport sector	912	-	.	288
Other sectors	3 516	5	4 671	6 937
Statistical differences	-	-	0	0

Energy balance

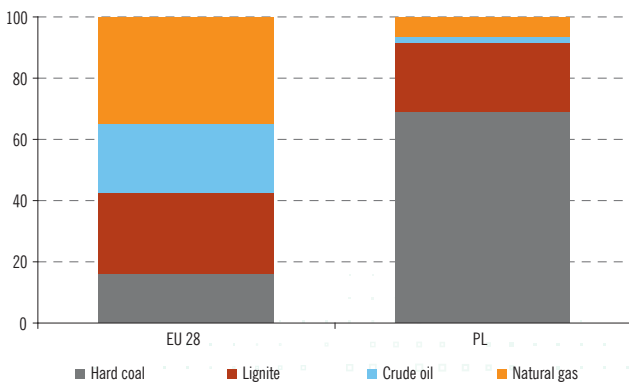
Structure of final energy consumption by sectors (2017) [%]



Structure of final energy consumption by fuels (2017) [%]



Structure of primary energy production by fuels (2017) [%]



Balance of Renewables - Poland (2018) [ktoe]

	Total Re- newables	Solar energy	Geothermal energy	Solid biofuels	Biogases
Primary production	8 770	83	83	6 039	291
Recovered & recycled products	-	.	.	.	.
Imports	899	-	-	524	-
Exports	672	-	-	324	-
Change in stock	-17	.	.	-	-
International maritime bunkers	-	.	.	.	.
International aviation	-	.	.	.	.
Total energy supply	8 978	83	83	6 239	291
Transformation input	3 792	26	0	1 397	205
Electricity & heat generation	2 936	26	0	1 397	205
Liquid biofuels blended	856	.	.	.	.
Transformation output	856	.	.	.	-
Liquid biofuels blended	856	.	.	.	.
Energy sector	4	-	-	1	3
Distribution losses	-	-	-	-	-
Available for final consumption	6 038	57	83	4 841	82
Final non-energy consumption	-	.	.	.	.
Final energy consumption	6 038	57	83	4 841	82
Industry sector	1 610	-	-	1 535	13
Iron & steel	0	-	-	0	-
Chemical & petrochemical	4	-	-	3	0
Non-metallic minerals	67	-	-	5	1
Transport equipment	0	-	-	0	-
Machinery	1	-	-	1	-
Mining & quarrying	0	-	-	0	-
Food, beverages & tobacco	39	-	-	30	9
Paper, pulp & printing	865	-	-	863	2
Wood & wood products	531	-	-	530	1
Construction	1	-	-	1	-
Textile & leather	0	-	-	0	-
Not elsewhere specified (industry)	101	-	-	101	-
Transport sector	912	-	-	-	-
Other sectors	3 516	57	83	3 306	69
Statistical differences	-	-	-	-	-

Balance of Renewables – Poland (2018) [ktoe]

	Municipal waste (renewable)	Bioliquids pure	Bioliquids blended	Wind	Hydro
Primary production	98	906	.	1 100	169
Recovered & recycled products	.	.	-	.	.
Imports	-	319	55	.	.
Exports	-	349	-	.	.
Change in stock	-	-17	-	.	.
International maritime bunkers	.	.	-	.	.
International aviation	.	.	-	.	.
Total energy supply	98	859	55	1 100	169
Transformation input	37	857	-	1 100	169
Electricity & heat generation	37	1	-	1 100	169
Liquid biofuels blended	.	856	.	.	.
Transformation output	.	.	856	.	.
Liquid biofuels blended	.	.	856	.	.
Energy sector	-	-	-	.	.
Distribution losses	-	-	-	.	.
Available for final consumption	61	2	912	-	-
Final non-energy consumption	.	.	-	.	.
Final energy consumption	61	2	912	.	.
Industry sector	61	0	-	.	.
Iron & steel	-	-	-	.	.
Chemical & petrochemical	-	0	-	.	.
Non-metallic minerals	61	-	-	.	.
Transport equipment	-	-	-	.	.
Machinery	-	-	-	.	.
Mining & quarrying	-	-	-	.	.
Food, beverages & tobacco	-	-	-	.	.
Paper, pulp & printing	-	-	-	.	.
Wood & wood products	-	-	-	.	.
Construction	-	-	-	.	.
Textile & leather	-	-	-	.	.
Not elsewhere specified (industry)	-	-	-	.	.
Transport sector	-	1	912	.	.
Other sectors	0	1	-	.	.
Statistical differences	-	-	-	-	-

Gross final consumption of renewable energy [ktoe]

		2005	2010	2017	2018
Gross final consumption of renewable energy	PL	4 245	6 399	8 073	8 355
	EU 28	111 591	158 116	204 171	•
Gross final consumption of renewable electricity	PL	283	842	1 856	1 878
	EU 28	41 114	55 498	84 743	•
Gross final consumption of renewable energy in heating and cooling	PL	3 868	4 642	5 530	5 479
	EU 28	66 156	88 310	102 189	•
Gross final consumption of renewable energy in transport	PL	95	916	687	998
	EU 28	4 322	14 308	17 240	•

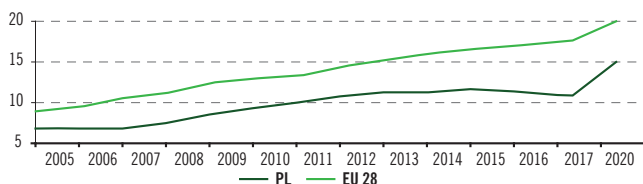
Sectoral and total share of renewable energy in gross final consumption of energy [%]

		2005	2010	2017	2018
Share of energy from RES in gross final energy consumption	PL	6,9	9,3	10,9	11,2
	EU 28	9,1	13,1	17,5	•
Share of electricity generation from RES	PL	2,7	6,6	13,1	13,0
	EU 28	14,8	19,7	30,7	•
Share of energy from RES in heating and cooling	PL	10,2	11,7	14,5	14,6
	EU 28	11,1	15,4	19,5	•
Share of energy from RES in transport	PL	1,6	6,6	4,2	5,6
	EU 28	1,8	5,2	7,4	•

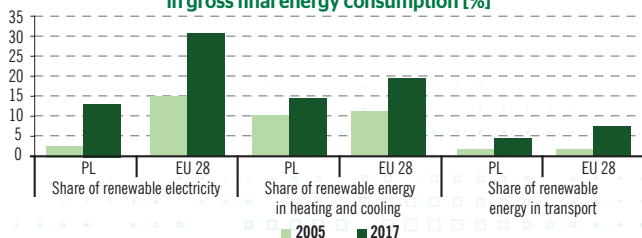
Share of renewable energy in primary energy production and in final energy consumption [%]

		2005	2010	2017	2018
Share of renewable energy in primary production	PL	5,8	10,3	14,2	14,3
	EU 28	13,3	20,4	29,9	•
Share of renewable energy in final consumption	PL	6,7	8,1	8,4	8,6
	EU 28	5,3	7,7	9,7	•

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



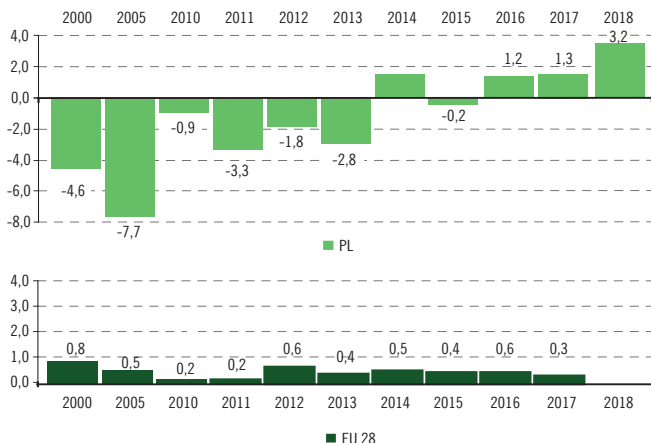
Sectoral and total share of renewable energy in gross final energy consumption [%]



Synthetic balance of electricity in Poland [GWh]		2000	2005	2010	2015	2017	2018
Supply		148 473	161 937	163 968	179 403	183 736	183 855
Generation		145 183	156 935	157 658	164 944	170 465	170 039
Import*		3 290	5 002	6 310	14 459	13 271	13 816
Use		148 473	161 937	163 968	179 403	183 736	183 855
Consumption		138 810	145 749	156 304	164 610	172 752	175 734
Export*		9 663	16 188	7 664	14 793	10 984	8 121

* Physical flows

Electricity dependency [%]



Electricity generation in Poland [GWh]		2000	2005	2010	2015	2017	2018
Gross electricity generation		145 183	156 935	157 658	164 944	170 465	170 039
Main activity producers		137 979	148 915	150 107	156 527	158 975	155 726
Autoproducers		7 204	8 020	7 551	8 417	11 490	14 313
Share of CHP in total generation [%]		•	16,8	17,6	16,2	16,8	17,1
Share of high-efficiency CHP in total generation [%]		•	•	17,1	15,9	16,5	16,6

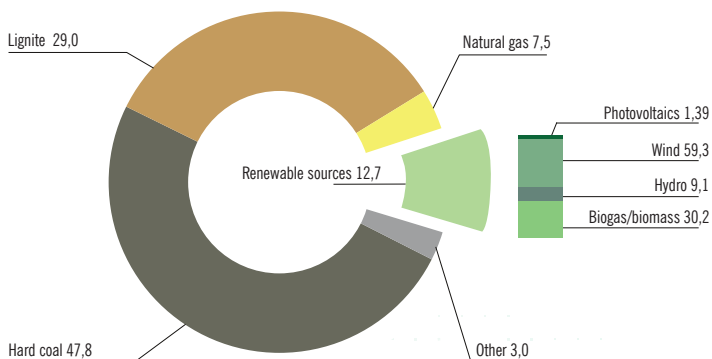
Structure of electricity generation [%]		2000	2005	2010	2015	2017	2018
Solid fuels	PL	93,6	90,4	86,6	79,1	76,9	76,8
	EU 28	30,5	28,6	24,3	24,2	20,1	•
Gaseous fuels	PL	2,0	4,2	4,2	5,3	7,2	8,9
	EU 28	16,9	21,2	23,8	16,4	21,1	•
Oil	PL	1,3	1,8	1,8	1,3	1,2	1,1
	EU 28	6,2	4,6	2,9	2,2	1,8	•
Renewables	PL	1,6	2,4	6,9	13,8	14,1	12,7
	EU 28	13,8	13,8	20,2	28,9	30,5	•
Nuclear energy	PL	—	—	—	—	—	—
	EU 28	31,1	30,0	27,2	26,5	25,1	•
Other sources	PL	1,5	1,2	0,5	0,5	0,5	0,6
	EU 28	1,5	1,8	1,6	1,8	1,4	•

Electricity generation in Poland by sources [GWh]	2000	2005	2010	2015	2017	2018
Total	145 183	156 936	157 658	164 944	170 465	170 039
Hard coal	86 211	87 123	87 863	77 693	79 022	81 257
Lignite	49 677	54 758	48 651	52 825	52 166	49 331
Natural gas	928	5 165	4 890	6 405	10 141	12 709
Other*	6 035	6 043	5 365	5 342	5 087	5 162
Renewable sources	2 332	3 847	10 889	22 679	24 050	21 580
of which: biogas and biomass	221	1 511	6 305	9 932	6 416	6 511
hydro	2 106	2 201	2 920	1 832	2 560	1 970
wind	5	135	1 664	10 858	14 909	12 799
photovoltaics	•	•	•	57	165	300

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

Fuel input to electricity generation in Poland [ktoe]	2000	2005	2010	2015	2017	2018
Total	30 840	32 419	32 328	31 719	31 071	31 246
Hard coal	17 992	17 977	18 166	15 982	15 972	16 431
Lignite	11 830	12 584	11 226	11 972	11 705	11 012
Natural gas	180	750	674	845	1 296	1 720
Biogas/biomass	7	208	1 260	1 933	1 137	1 156
Other fuels	831	901	1 002	988	962	926

Structure of electricity generation by sources (2018) [%]



Available generation capacity in Poland [MW]	2000	2005	2010	2015	2017	2018
Total	33 418	34 857	36 059	39 984	42 990	43 266
Main activity producers	31 071	32 619	34 205	38 045	40 375	40 008
Autoproducers	2 347	2 238	1 854	1 939	2 615	3 258

Of which newly constructed capacities	388	114	564	1 412	2 173	949
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Structure of capacities in Poland [%]	2000	2005	2010	2015	2017	2018
Hard coal	66,3	63,2	61,2	51,3	50,0	49,6
Lignite	25,1	25,3	24,5	23,4	21,9	20,4
Natural gas	0,4	2,8	2,9	3,1	4,6	6,0
Other*	5,7	5,6	5,4	4,8	4,7	4,7
Biogas and biomass	0,0	0,2	0,4	2,6	2,4	2,4
Hydro	2,4	2,6	2,6	2,4	2,2	2,2
Wind	0,0	0,3	3,1	12,2	13,4	13,3
Photovoltaics	•	•	•	0,3	0,7	1,3

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

Electricity network in Poland	2000	2005	2010	2015	2017	2018
Total length of power lines [1000 km]	713,2	754,0	780,3	837,2	836,2	843,8
Highest voltage (750 – 220 kV)	12,9	13,0	13,5	14,3	14,4	14,9
High voltage (110 kV)	32,3	32,4	32,8	33,4	33,8	33,9
Medium voltage	278,1	295,9	303,7	312,4	313,6	315,4
Low voltage	389,9	412,8	430,3	477,1	474,4	479,5

Power demand at 50 Hz [MW]	2000	2005	2010	2015	2017	2018
Average in December	20 963	22 849	24 465	23 887	24 933	25 342
Maximum in a year	22 289	23 477	25 449	25 101	26 231	26 448
Date of maximum (day, month)	25.01	21.12	26.01	07.01	09.01	28.02

Wholesale electricity trading in 2018		Volume [GWh]	Price [PLN/MWh]
Total generators (public thermal plants)		152 092	185,3
of which:	trading companies	105 999	178,2
	electricity exchange	35 067	193,1
	balancing market	9 192	238,5
Total trading companies		225 060	188,6
of which:	trading companies	130 162	182,9
	electricity exchange	70 114	195,5
	balancing market	6 413	219,3
	export*	2 584	207,7

* Trade flows

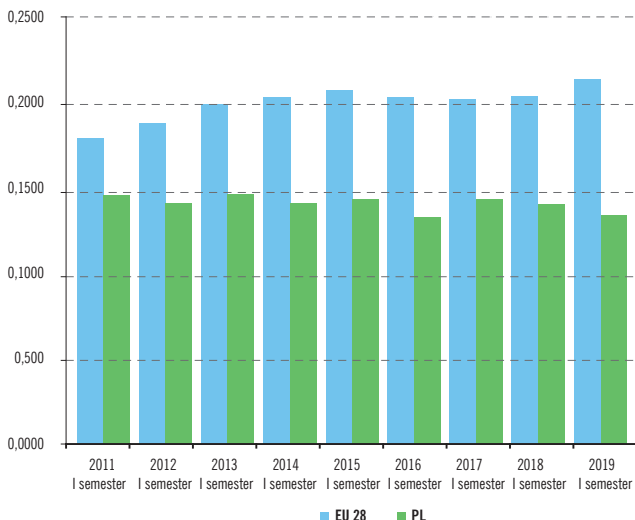
Supply of electricity to final consumers from the networks of distribution system operators	2000	2005	2010	2015	2017	2018
Number of consumers [1000]	15 289	15 762	16 488	17 168	17 503	17 714
Urban	9 985	10 344	10 821	11 342	11 568	11 717
Rural	5 303	5 418	5 667	5 826	5 935	5 997

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	0,5	0,5
Medium voltage consumers	26,2	27,4	31,3	36,5	38,3	39,5
of which TPA	•	0,1	4,0	15,2	18,6	20,4
Low voltage business consumers	1 925	2 086	2 256	2 290	2 266	2 277
of which TPA	•	•	•	533,0	590	589
Households and individual farms	13 337	13 648	14 200	14 841	15 198	15 397
of which TPA	•	•	•	364	273	191

Supply of electricity [GWh]	2000	2005	2010	2015	2017	2018
Total	100 506	106 523	117 814	126 521	133 009	135 949
High voltage consumers	26 472	24 169	23 352	25 501	25 414	25 786
of which TPA	•	9 858	15 764	21 871	22 909	23 474
Medium voltage consumers	29 565	34 526	40 433	47 174	51 677	53 844
of which TPA	•	1 128	12 994	30 774	36 664	39 070
Low voltage business consumers	18 682	21 492	24 216	24 375	25 599	25 813
of which TPA	•	•	2 864	12 210	13 816	14 178
Households and individual farms	25 787	26 336	29 813	29 471	30 319	30 506
of which TPA	•	•	•	1 120	1 027	873

Electricity prices [PLN/MWh] – net of VAT, from 2010 excl. excise tax	2000	2005	2010	2015	2017	2018
High voltage consumers - non-TPA	144,3	194,0	290,3	262,8	247,6	262,4
High voltage consumers - TPA	•	173,7	273,9	234,1	230,3	246,9
Medium voltage consumers - non-TPA	177,5	227,1	338,4	328,8	323,3	326,0
Medium voltage consumers - TPA	•	212,9	306,8	298,2	291,0	304,8
Low voltage business consumers - non-TPA	267,0	337,9	486,1	568,6	569,0	572,3
Low voltage business consumers - TPA	•	•	420,5	435,1	435,6	444,5
Households and individual farms - non-TPA	233,7	320,2	431,0	482,3	485,1	487,6
Households and individual farms - TPA	•	•	•	475,9	471,5	481,1

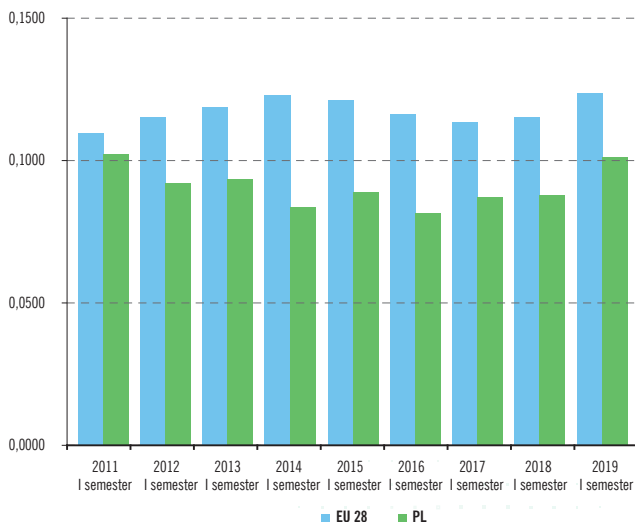
Electricity prices for household consumers in euro per kWh



Comment:

Electricity prices for household consumers are the average national prices with all taxes included. Prices for years 2011-2019 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 2011-2019 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	2017	2018
Production	PL	8 137,1	8 032,2	8 021,3	6 721,0	7 159,6	7 044,2
	EU 28	52 242,8	61 934,6	64 739,5	57 313,8	59 391,4	•
solid fuels	PL	7 471,1	7 157,2	6 846,3	5 467,2	5 754,8	5 578,6
	EU 28	19 174,7	18 778,8	18 668,9	14 875,0	13 378,4	•
natural gas	PL	427,2	630,1	739,1	816,9	921,2	935,0
	EU 28	20 043,6	28 070,1	27 443,8	21 826,8	22 607,1	•
oil	PL	189,6	159,6	155,3	81,3	98,2	96,1
	EU 28	6 082,9	5 530,8	4 549,4	2 553,4	2 342,4	•
renewables	PL	43,9	60,8	254,5	307,8	311,6	353,7
	EU 28	4 486,8	6 693,0	10 401,3	13 302,6	15 270,7	•
nuclear energy	PL	-	-	-	-	-	-
	EU 28	76,5	156,0	119,6	102,8	108,2	•
other sources	PL	5,3	24,5	26,1	47,8	73,7	80,7
	EU 28	2 378,3	2 705,9	3 556,5	4 653,2	5 684,5	•
Consumption by end-users	PL	6 886,2	6 634,3	6 546,9	5 462,3	5 817,1	5 582,7
	EU 28	45 333,1	52 686,6	53 504,3	46 455,1	48 527,9	•

Energy efficiency

Selected energy efficiency indicators – Poland

	2000	2005	2010	2015	2017	2018
Primary energy intensity of GDP (toe/1000 PLN)	0,106	0,094	0,082	0,066	0,067	0,065
Final energy intensity of GDP (toe/1000 PLN)	0,063	0,058	0,053	0,042	0,044	0,042
Electricity intensity of GDP (kWh/1000 PLN)	164,3	148,0	126,2	113,6	110,2	106,8
Energy consumption per capita (toe/cap.)	1,431	1,533	1,723	1,623	1,848	1,816
Electricity consumption per capita (kWh/cap.)	3 592,0	3 819,7	4 056,7	4 282,6	4 494,8	4 575,1
Energy consumption per 1 employee in the services (toe/per.)	0,695	0,936	1,110	0,907	0,873	0,873
Electricity consumption per 1 employee in the services (kWh/per.)	3 841,7	4 625,0	5 488,8	5 283,6	5 100,6	5 100,6
Residential energy consumption per 1 dwelling (toe/dwelling)	1,479	1,541	1,621	1,336	1,374	1,374
Residential electricity consumption per 1 dwelling (kWh/dwelling)	1 775,8	1 976,6	2 123,9	2 002,6	2 020,5	2 020,5
Thermal efficiency of power plants and CHP plants (%)	46,5	47,9	47,4	46,5	47,6	47,8
Thermal efficiency of heat-only plants (%)	77,9	77,3	81,0	81,8	82,9	82,2

Final energy consumption in Poland [ktoe]

	2005	2010	2015	2017	2018
Total	57 480	65 238	60 777	69 139	69 765
Industry (incl. construction)	14 618	13 499	14 096	15 841	16 261
Transport	12 221	17 187	16 561	21 431	22 444
Services	6 730	8 837	7 842	8 049	7 861
Households	19 469	21 983	18 948	19 936	19 283
Other consumers	4 442	3 731	3 330	3 881	3 916

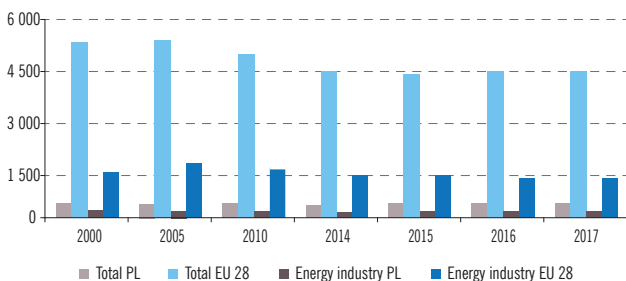
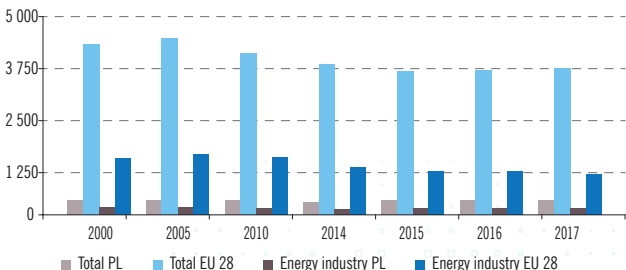
Emissions in Poland

	2000	2005	2010	2015	2017
CO ₂ [Tg]	319,0	323,4	334,9	312,3	339,1
Energy combustion sector	176,3	177,3	172,3	162,6	164,0
CO [Gg]	3 355,6	3 089,4	3 077,3	2 342,6	2 543,3
Energy combustion sector	52,1	42,2	59,4	62,8	69,5
SO _x [Gg]	1 410,7	1 171,6	874,6	711,5	582,7
Energy combustion sector	1015,2	865,0	545,4	422,2	282,0
NO _x [Gg]	851,8	869,5	887,9	725,3	803,7
Energy combustion sector	304,0	307,9	297,5	227,2	192,9
Hg [Gg]	0,011	0,011	0,010	0,010	0,010
Energy combustion sector	0,007	0,007	0,006	0,005	0,005

Emission factors in Poland*

	2000	2005	2010	2015	2017	2018
CO ₂ [g/ktoe]	10 611,2	10 113,4	10 022,7	9 961,1	9 949,5	9 876,2
CO [g/ktoe]	2,559	2,210	2,675	3,024	3,373	3,489
SO ₂ [g/ktoe]	60,360	46,171	25,470	19,538	10,700	9,653
NO _x [g/ktoe]	17,910	16,980	16,166	12,212	9,769	8,257
Dust [g/ktoe]	4,536	2,675	1,512	0,930	0,698	0,582

* Data derived from the 1.44.02 statistical survey

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

Data sources:

MAP, 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.



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