

STATISTICAL FACTSHEET 2016

PROVISIONAL VALUES AS OF 4 MAY 2017

European Network of
Transmission System Operators
for Electricity

entsoe
Reliable Sustainable Connected

ENTSO-E in figures – Electricity system data of member TSOs' countries

ENTSO-E Transmission network losses percentage of consumption: 1.62%

Net generation 2016¹

Consumption 2016¹

Country	Non renewable net generation	Nuclear	Fossil fuels	Of which Fossil Brown coal/Lignite	Of which Fossil Coal-derived gas	Of which Fossil Gas	Of which Fossil Hard coal	Of which Fossil Oil	Of which Fossil Oil shale	Of which Fossil Peat	Of which Mixed fuels	Of which Other fossil fuels	Hydro pure pumped storage	Hydro mixed pumped storage	Waste	Other non-renewable	Renewable net generation	Wind offshore	Wind onshore	Solar PV	Solar Thermal	Biomass	Biogas	Geothermal	Renewable Waste	Hydro Pure storage	Hydro Run-of-river and pondage	Hydro mixed pumped storage (renewable part)	Hydro Marine (tidal/wave)	Other renewable	Not identified	Total net generation	Pumping	Consumption	Variation (compared with 2015)	Country	
	TWh		TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh			TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	TWh	%	
AT ²	17.2	–	14.1	–	–	8.4	2.0	1.0	–	–	n.a.	2.7	–	3.1	–	–	43.7	–	5.2	n.a.	–	n.a.	n.a.	n.a.	n.a.	25.3	10.2	–	3.1	6.7	67.6	4.5	70.3	-1.7	AT	²	
BA	10.6	–	10.5	10.5	–	–	–	–	–	–	–	–	–	0.0	–	–	5.5	–	–	–	–	–	–	–	5.4	–	0.1	–	0.1	16.2	0.0	12.3	2.7	BA			
BE	66.3	41.3	22.8	–	–	20.2	2.5	0.1	–	–	–	–	1.1	–	1.2	0.0	13.0	2.4	2.7	2.9	–	2.5	0.9	–	1.2	–	0.3	–	0.0	0.1	79.5	1.5	84.2	-1.0	BE		
BG ³	34.1	14.9	18.5	16.1	–	2.1	0.4	–	–	–	–	–	0.6	0.1	–	–	7.0	–	1.4	1.4	–	0.3	–	–	1.8	1.7	0.4	–	–	41.0	0.9	33.7	1.8	BG	³		
CH	40.3	20.2	1.4	–	–	0.3	–	0.0	–	–	–	1.1	16.6	1.3	0.7	–	21.4	–	0.1	0.5	–	0.2	0.2	–	0.6	10.1	8.3	–	1.4	–	61.6	2.9	63.1	-0.8	CH		
CY	4.5	–	4.5	–	–	–	–	4.5	–	–	–	–	–	–	–	–	0.2	–	0.2	–	–	–	–	–	–	–	–	–	–	4.7	–	4.7	7.9	CY			
CZ ⁴	68.5	22.7	44.6	32.9	–	6.3	5.2	0.0	–	–	–	0.2	1.2	–	–	–	8.8	–	0.5	2.1	–	1.9	2.4	–	1.3	0.7	–	–	–	77.4	1.6	64.9	1.9	CZ	⁴		
DE ⁵	428.3	80.0	337.3	138.4	–	91.1	100.5	4.3	–	–	3.1	–	5.5	0.5	5.0	–	181.3	12.1	66.1	34.9	–	40.7	n.a.	0.2	5.0	0.6	20.3	n.a.	–	1.5	–	609.6	7.5	548.4	2.2	DE	⁵
DK ⁶	10.5	–	10.5	–	–	2.2	8.1	0.1	–	–	–	–	–	–	–	–	18.5	4.7	8.1	0.7	–	3.0	0.5	–	1.4	–	0.0	–	–	28.9	–	34.7	2.2	DK	⁶		
EE	9.0	–	9.0	–	–	–	–	–	9.0	–	–	–	–	–	–	–	1.4	–	0.6	0.0	–	0.7	0.0	–	0.1	–	0.0	–	–	–	10.4	–	8.4	2.4	EE		
ES	161.4	56.1	99.1	3.3	–	51.2	34.2	10.4	–	–	–	–	2.6	0.8	2.6	0.2	100.8	–	47.7	8.0	5.1	2.4	1.0	–	0.8	23.8	8.1	3.9	–	0.0	–	262.2	4.8	265.0	0.7	ES	
FI	36.6	22.3	13.4	–	–	3.5	6.9	0.2	–	2.9	–	–	–	–	–	0.9	29.5	–	3.1	–	–	10.8	–	–	–	15.6	–	–	–	–	66.0	–	85.0	3.1	FI		
FR	436.5	384.0	45.9	–	–	35.1	7.3	3.5	–	–	–	–	–	4.7	2.0	–	94.9	–	20.7	8.4	–	2.2	2.0	–	2.3	–	32.5	26.8	–	–	–	531.4	6.7	483.1	1.5	FR	
GB ⁷	247.2	66.8	180.4	–	–	150.1	30.2	0.1	–	–	–	–	–	–	–	–	73.1	12.7	25.3	9.6	–	18.0	–	–	0.1	3.0	–	4.5	–	–	320.3	4.0	334.0	-1.2	GB	⁷	
GR	27.4	–	27.4	14.9	–	12.5	–	–	–	–	–	–	–	–	–	–	15.1	–	4.3	3.7	–	0.3	–	–	–	4.2	0.7	0.6	–	1.3	–	42.5	0.0	51.3	-0.1	GR	
HR	3.7	–	3.7	–	–	1.3	2.4	–	–	–	–	–	–	–	–	–	7.6	–	1.0	0.1	–	0.1	0.2	–	–	3.7	1.8	0.6	–	0.1	–	11.3	0.3	17.3	-0.1	HR	
HU	25.1	15.1	10.0	5.4	–	4.5	0.1	0.0	–	–	–	–	–	–	–	–	3.0	–	0.7	0.0	–	1.5	0.2	–	0.4	–	0.3	–	–	–	28.1	–	40.9	0.3	HU		
IE	21.8	–	21.4	–	–	14.2	4.6	0.1	–	2.5	–	–	0.3	–	0.1	–	7.0	–	6.1	–	–	–	–	–	0.1	–	0.7	–	0.2	–	28.8	0.5	27.6	2.0	IE		
IS	0.0	–	0.0	–	–	–	–	0.0	–	–	–	–	–	–	–	–	18.1	–	0.0	–	–	–	–	4.7	–	13.3	0.1	–	–	–	18.1	–	18.1	-1.4	IS		
IT	168.2	–	156.5	–	2.1	107.2	41.8	5.4	–	–	–	–	1.0	0.3	2.3	8.1	105.6	–	17.4	22.5	–	8.5	7.9	5.9	2.3	8.1	30.7	2.2	–	–	–	273.8	2.4	308.4	-2.7	IT	
LT	2.0	–	1.1	–	–	0.8	–	–	–	–	0.2	–	0.6	–	0.1	0.2	2.0	–	1.1	0.1	–	0.2	0.1	–	0.1	–	0.4	–	–	–	4.0	0.8	11.4	5.3	LT		
LU	1.8	–	0.3	–	–	0.3	–	–	–	–	–	–	1.4	–	0.1	–	0.3	–	0.1	0.1	–	–	0.1	–	–	0.0	0.1	–	–	–	2.1	1.9	6.5	2.5	LU		
LV	2.9	–	2.9	–	–	2.2	–	–	–	–	0.6	–	–	–	–	–	3.4	–	0.1	–	–	0.4	0.4	–	–	2.5	–	–	–	–	6.3	–	7.3	1.7	LV		
ME	1.5	–	1.2	1.2	–	–	–	–	–	–	–	–	–	0.4	–	–	1.4	–	–	–	–	–	–	–	–	1.4	–	–	–	–	2.9	–	3.2	-5.6	ME		
MK	3.3	–	3.3	2.8	–	0.6	–	–	–	–	–	–	–	–	–	–	1.7	–	0.1	0.0	–	–	0.0	–	–	1.5	0.1	–	–	–	5.1	–	7.1	-4.9	MK		
NL ⁸	96.7	3.1	93.6	–	–	73.0	20.6	–	–	–	–	–	–	–	–	–	12.9	2.0	5.8	1.5	–	3.5	–	–	–	–	0.1	–	–	–	–	109.6	–	114.5	1.5	NL	⁸
NO	3.1	–	3.1	–	–	3.1	–	–	–	–	–	–	–	–	–	–	145.5	–	2.1	–	–	–	–	–	–	143.4	–	–	–	0.2	148.8	n.a.	133.2	3.6	NO		
PL ⁹	132.4	–	126.7	46.5	0.5	6.3	71.7	1.7	–	–	–	–	0.5	0.0	–	5.2	21.6	–	12.2	0.1	–	6.3	0.9	–	–	0.5	1.4	0.2	–	–	154.1	0.8	155.3	2.5	PL	⁹	
PT	24.8	–	23.6	–	–	11.6	11.7	0.1	–	–	–	0.3	–	1.2	–	–	31.1	–	12.2	0.8	–	2.7	–	–	–	–	9.5	5.9	–	–	–	55.9	1.5	49.3	0.6	PT	
RO	33.8	10.4	23.4	12.8	–	4.6	1.4	–	–	–	4.7	–	–	–	–	–	26.9	–	6.5	1.8	–	0.4	–	–	–	7.9	10.1	–	–	–	60.7	0.3	55.4	1.1	RO		
RS	31.6	–	30.8	30.8	–	0.1	–	–	–	–	–	–	0.7	–	–	–	10.6	–	–	–	–	–	–	–	–	1.1	9.5	–	–	–	42.2	1.0	38.8	-1.3	RS		
SE	64.6	60.5	3.3	–	–	1.3	0.3	0.3	–	–	1.4	–	–	–	0.8	–	86.9	–	15.4	–	–	9.0	–	–	1.2	61.2	–	–	–	–	151.5	–	139.8	2.4	SE		
SI	10.3	5.4	4.4	4.4	–	0.0	–	–	–	–	–	–	–	0.3	0.0	0.2	4.9	–	0.0	0.2	–	0.1	0.1	–	–	4.4	–	–	0.1	–	15.2	0.4	13.8	1.3	SI		
SK	18.6	13.8	4.6	1.5	0.4	1.5	0.9	0.3	–	–	–	–	0.2	0.0	0.1	–	6.8	–	0.0	0.5	–	1.1	0.5	–	–	0.7	3.7	0.2	–	0.0	–	25.4	0.3	27.7	2.0	SK	
TR ¹⁰	181.5	–	181.5	37.9	–	88.4	52.7	2.5	–	–	0.0	–	–	–	–	–	88.7	–	15.4	n.a.	–	2.0	–	4.3	–	48.8	18.1	–	–	–	270.2	–	275.2	–	TR	¹⁰	
ENTSO-E ¹¹	2426.0	816.6	1534.8	359.3	3.0	704.0	405.4	34.5	9.0	5.4	10.0	4.1	32.1	12.7	15.0	14.8	1200.0	33.8	282.3	100.0	5.1	118.6	17.4	15.0	15.6	342.0	207.1	55.5	–	7.6	7.2	3633.2	44.7	3593.9	–	ENTSO-E	¹¹
%	66.71	22.46	42.21	9.88	0.08	19.36	11.15	0.95	0.25	0.15	0.28	0.11	0.88	0.35	0.41	0.41	33.00	0.93	7.76	2.75	0.14	3.26	0.48	0.41	0.43	9.40	5.70	1.53	0.00								

Net generation capacity 2016¹²

Country	Non renewable net generation	Nuclear	Fossil fuels	Of which Fossil Brown coal/Lignite	Of which Fossil Coal-derived gas	Of which Fossil Gas	Of which Fossil Hard coal	Of which Fossil Oil	Of which Fossil Oil shale	Of which Fossil Peat	Of which Mixed fuels	Of which Other fossil fuels	Hydro pure pumped storage	Hydro mixed pumped storage	Waste	Other non-renewable	Renewable net generation	Wind offshore	Wind onshore	Solar PV	Solar Thermal	Biomass	Biogas	Geothermal	Renewable Waste	Hydro Pure storage	Hydro Run-of-river and pondage	Hydro mixed pumped storage (renewable part)	Hydro Marine (tidal/wave)	Other renewable	Not identified	Total NGC	Country	
	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW			
AT ¹³	7149		7 059			4 820	1 171	174			480	414				90	17 497		2 489	732		514	82	1	23		5 662	7 994				24 646	AT	
BA	2 316		1 876	1 876										440			1 656															3 972	BA	
BE	14 312	5 926	6 706			6 546		160					1 308		313	59	6 324	712	1 580	3 087		823					122					20 636	BE	
BG	8 680	2 000	5 683	4 199		775	708						864	133			4 021		701	1 043		69				1 537	613	57				12 701	BG	
CH ¹⁴	5 217	3 333	501									501	1 383				13 731		60	1 061		247	1			7 966	3 941	455		244		19 192	CH	
CY ¹⁵	1 478		1 478					1 478									253		155										98			1 731	CY	
CZ	15 947	4 040	10 735	7 929	380	1 226	1 200						1 172				4 241		277	2 027		350	500			753	334					20 188	CZ	
DE ¹⁶	101 960	10 793	84 174	20 863		28 596	26 818	4 889			3 008		5 283	1 062	649		101 149	4 122	45 004	39 791		6 908	n.a.	38	649	287	3 843	n.a.		508		213 109	DE	
DK ¹⁷	7 864		7 864			2 431	4 550	839			44						7 661	1 271	3 978	851		1 068	110		376		8					15 525	DK	
EE	2 470		2 443			204		9	1 711		520				17	10	470		375	1		76	6		4		8			n.a.		2 940	EE	
ES	57 358	7 573	45 752	1 056		32 323	8 949	3 425					3 329		648	57	47 921		23 057	4 674	2 299	511	233		107	11 234	2 718	3 073		16		105 279	ES	
FI	10 624	2 782	7 716			1 795	2 854	1 427		1 077	563	n.a.			126	n.a.	6 387		1 432			1 663			n.a.	n.a.	3 207			85			17 011	FI
FR ¹⁸	84 936	63 130	21 806			11 679	2 997	7 130					n.a.	n.a.			45 938	n.a.	11 762	6 772	n.a.	656	390		881		21 056	2 455	240	1 728	n.a.	130 874	FR	
GB	56 160	9 230	46 930			30 600	15 450	880									31 797	5 000	10 000	11 500		1 377				2 830		1 090					87 957	GB
GR ¹⁴	12 520		12 520	4 456		5 613		2 451									8 377		2 092	2 605		52				2 470	224	699		235		20 897	GR	
HR	2 005		2 005			731	325	320			629						2 665		429	48		26	28			1 397	439	276		22		4 670	HR	
HU	7 498	1 887	5 611	1 049		3 860	292	410									738		328	49		216	60		28	29	28					8 236	HU	
IE ¹⁹	6 514		6 214			4 215	855	916		228			292		8		3 325		2 740						9		238			338	269		10 108	IE
IS	11		11					11									2 635		2					661		1 948	25						2 646	IS
IT	77 344		68 867		779	39 510	6 357	22 221					4 753		163	3 561	55 911		9 416	19 288		2 247	1 724	962	163	5 148	12 447	4 179		337			133 255	IT
LT	2 666		1 734			615					1 119		900		20	12	715		438	73		48	30				126						3 381	LT
LU	1 806		495			495							1 290		21		284		120	121			11			17	15						2 090	LU
LV	1 149		1 149			1 031					118						1 785		71			68	68				1 578						2 934	LV
ME	220		220	220													660									660							880	ME
MK	1 157		1 157	718		250		189									733		36	17		n.a.	4			567	109						1 890	MK
NL	24 391	486	23 905			19 297	4 608										7 358		638	3 479	2 039		486			678		38					31 749	NL
NO	445		445			445					n.a.						31 637		869			2				30 767					0		32 083	NO
PL ²⁰	30 495		28 198	8 576	144	1 240	17 906	332					1 394			903	7 783		5 697	186		730	203		n.a.	175	414	378				38 278	PL	
PT	6 455		6 455			4 657	1 756	42									13 045		5 046	439		615				1 515	2 871	2 559				19 500	PT	
RO	9 485	1 300	8 185	3 448		1 881	1 148				1 708						10 789		2 965	1 301		118				3 761	2 644						20 274	RO
RS	6 214		5 594	5 283		311							620				2 395									404	1 991						8 609	RS
SE	14 215	9 714	4 501			879	225	3 277			120	n.a.			n.a.		25 191		6 029			2 978			n.a.	16 184							39 406	SE
SI	2 370	696	1 379	924		455						n.a.		180	8	107	1 431		3	271		12	29				1 117			n.a.			3 802	SI
SK	5 169	1 940	2 476	458		1 121	220	255			422		734		19		2 679		3	530		224	105			318	1 244	241		14			7 848	SK
TR ¹⁰	43 923		43 923	9 755		25 569	8 229	363			6	2					34 575		5 751	833		489		821		19 559	7 123						78 498	TR
ENTSO-E ¹¹	632 523	124 830	475 767	70 809	1 303	233 169	106 617	51 197	1 711	1 305	8 737	917	23 322	1 815	1 992	4 798	503 759	11 743	146 384	99 338	2 299	22 573	3 583	2 483	2 916	111 182	74 181	23 456	240	3 380	513	1 136 795	ENTSO-E	
%	55.64	10.98	41.85	6.23	0.11	20.51	9.38	4.50	0.15	0.11	0.77	0.08	2.05	0.16	0.18	0.42	44.31	1.03	12.88	8.74	0.20	1.99	0.32	0.22	0.26	9.78	6.53	2.06	0.02	0.30	0.05	100.00	%	
EU [*]	573 020	121 497	422 039	52 958	1 303	206 594	98 389	50 635	1 711	1 305	8 731	414	21 319	1 375	1 992	4 798	415 736	11 743	139 666	97 428	2 299	21 836	3 578	1 001	2 916	47 655	60 993	23 001	240	3 380	269	989 025	EU	
%	57.94	12.28	42.67	5.35	0.13	20.89	9.95	5.12	0.17	0.13	0.88	0.04	2.16	0.14	0.20	0.49	42.03	1.19	14.12	9.85	0.23	2.21	0.36	0.10	0.29	4.82	6.17	2.33	0.02	0.34	0.03	100.00	%	

A dash instead of a value means "Not expected", "n.a." means "Not available" on a monthly basis and "n.d.", "Not delivered".

¹ All values are calculated to represent 100% of the monthly national values. When 0.0 is displayed, the values is higher than 0.0 but lower than 0.05.

² Values for "Of which Mixed fuels", "Solar PV", "Biomass", "Biogas", "Geothermal", "Renewable Waste" and "Hydro Pure storage" are not available on a monthly basis.

³ Losses in the 110kV grid are also included.

⁴ Biogas values coming from Czech Regulatory Office Annual report.

⁵ RES (other than hydro), exchanges and losses from TSO data, rest from official statistics; non-renewable part of Hydro mixed pumped storage also contains renewable parts; biomass also contains biogas.

⁶ Yearly values.

⁷ All data with the country code GB represents data as sum of England, Northern Ireland, Scotland and Wales.

⁸ The values for Gas and Hard coal are derivative values.

⁹ Provisional sum based on monthly values. Other non-renewable net generation represents sources used by industry producers. More detailed share will be known for yearly statistics.

¹⁰ Turkish grid operator, TEİAŞ, joined ENTSO-E as observer member in January 2016.

¹¹ Calculated sum of the ENTSO-E member TSOs' countries, from January 2016 on, ENTSO-E sum includes data from Turkey.

¹² All values are calculated to represent 100% of the national values.

¹³ For Hydro Pure storage and Hydro mixed pumped storage (renewable part) no official separate data available, no official data for 2016 available.

¹⁴ NGC data from 2015 for CH and GR.

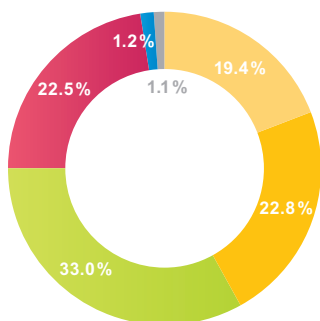
¹⁵ Other RES estimated values, no detailed information.

¹⁶ Biomass also contains biogas. Hydro mixed pumped storage cannot be separated between

Generation

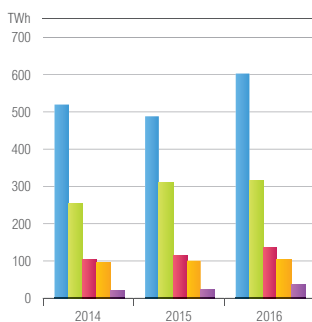
Generation mix in ENTSO-E member TSOs' countries in 2016^{1,2}

	TWh
Fossil fuels net generation (lignite and hard coal, gas, oil, mixed fuels, peat)	1 534.8
Fossil fuels net generation (gas)	707.0
Renewable net generation (hydro, wind, solar, biomass, geothermal)	1 200.0
Thermal nuclear net generation	816.6
Hydro net generation (except renewable part)	44.9
Net generation not identified	40.1



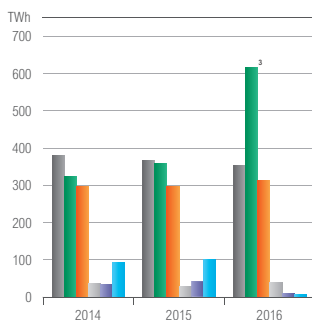
ENTSO-E renewable generation¹

	year	TWh	%	
Renewable net generation	2014	997.2		
	2015	1 042.4		
	2016	1 200.0		
	of which hydro	2014	522.5	52
	2015	489.2	47	
	2016	604.6	50	
	of which wind	2014	254.7	26
	2015	310.6	30	
	2016	316.1	26	
	of which biomass	2014	103.6	10
2015	116.2	11		
2016	136.1	11		
of which solar	2014	95.9	10	
2015	102.0	10		
2016	105.0	9		
of which other renewable	2014	20.4	2	
2015	24.5	2		
2016	38.3	3		

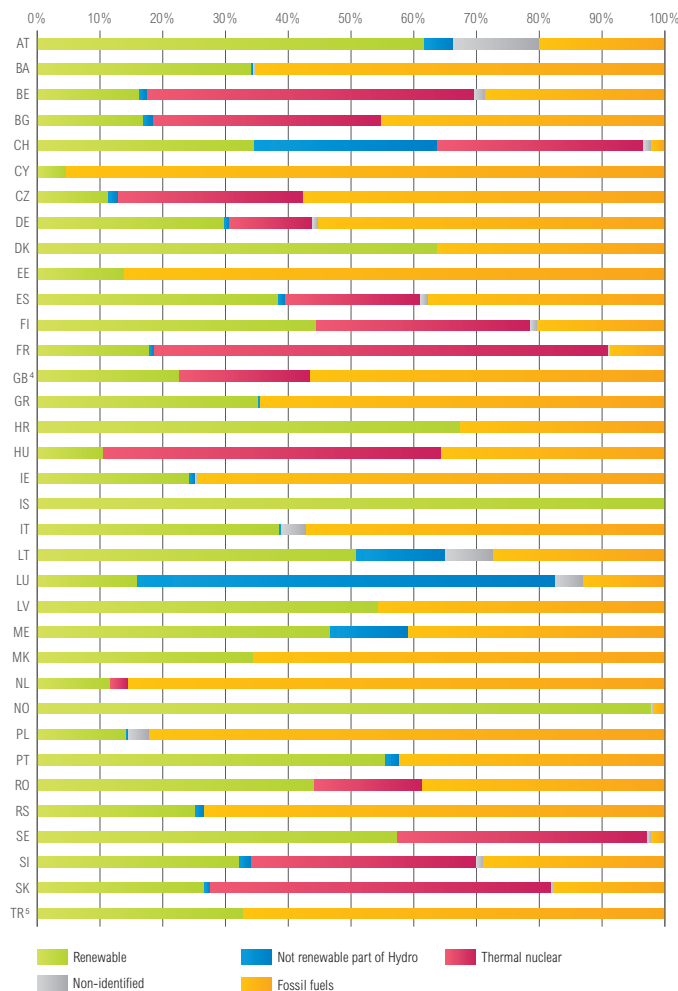


ENTSO-E fossil fuels generation¹

	year	TWh	%	
Fossil fuels net generation	2014	1 332.3		
	2015	1 360.6		
	2016	1 534.8		
	of which hard coal	2014	437.0	33
	2015	418.3	31	
	2016	405.4	26	
	of which gas	2014	371.7	28
	2015	409.4	30	
	2016	707.0	46	
	of which lignite	2014	338.5	25
2015	338.9	25		
2016	359.3	23		
of which oil	2014	40.5	3	
2015	31.9	2		
2016	43.5	3		
of which mixed fuels	2014	37.8	3	
2015	48.8	4		
2016	10.0	1		
of which other fuels	2014	106.76	8	
2015	113.31	8		
2016	9.56	1		



Share of energy produced of each member TSOs' country 2016 in %⁴



¹ All values are calculated to represent 100% of the national values.

² Share of energy produced, based on the net generation for each TSO as a member of ENTSO-E per the table ENTSO-E in figures on page 2-7.

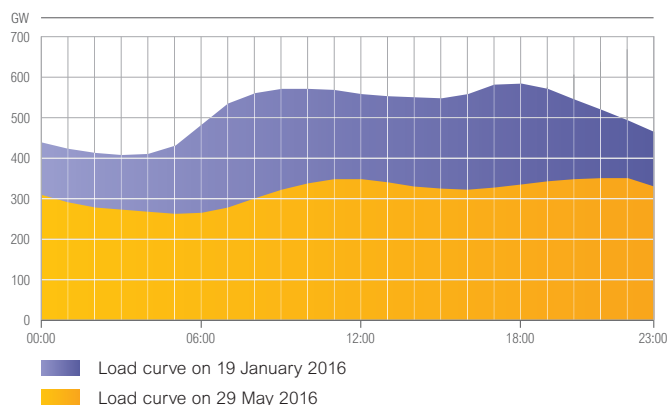
³ The huge increase for the category "of which gas" is mainly due to the following facts:
 - Turkey (with 83 TWh) is included in ENTSO-E statistics since Jan. 2016,
 - Due to the further diversity in categories, a shift is being noticed from the general Fossil Fuels categories to the detailed ones
 - and a general increase of gas power production as very flexible solution to solve congestion.

⁴ All data with the country code GB represents data as sum of England, Northern Ireland, Scotland and Wales.

⁵ Turkish grid operator, TEİAŞ, joined ENTSO-E as observer member in January 2016.

ENTSO-E peak load 2016

ENTSO-E load diagram on the days of the highest and lowest load values¹



Country values in MW on the days of highest and lowest ENTSO-E load values¹

	19.01.16 18:00 19:00	29.05.16 05:00 06:00	19.01.16 18:00 19:00	29.05.16 05:00 06:00	19.01.16 18:00 19:00	29.05.16 05:00 06:00		
AT	11357	4797	FR	86980	31343	MK	1197	519
BA	1938	907	GB ²	68701	26366	NL	17324	9299
BE	13147	6812	GR	8534	3814	NO	23433	9856
BG	6938	2800	HR	2800	1395	PL	22982	10923
CH	9932	5997	HU	6095	3325	PT	7822	3801
CY	712	316	IE	4525	1988	RO	8214	4227
CZ	10233	4816	IS	2258	1926	RS	6660	2488
DE	80575	37658	IT	53373	21815	SE	24628	10250
DK	5603	2340	LT	1663	958	SI	2068	1061
EE	1319	542	LU	1013	635	SK	4205	2323
ES	36577	19901	LV	1123	572	TR	37445	21766
FI	14209	6974	ME	550	211			
						* ENTSO-E³	586 133	264 721

¹ All values are calculated to represent 100% of the national values.

² All data with the country code GB represents data as sum of England, Northern Ireland, Scotland and Wales.

³ Calculated load values as sum of the ENTSO-E member TSOs' countries. From January 2016 on, ENTSO-E sum includes data from Turkey.

Highest and lowest hourly load values of each country 2016 in MW¹

	Highest load Date	Time	value (in MW)	Lowest load Date	Time	value (in MW)
AT	19.01	17:00–18:00	11 728	14.08	03:00–04:00	4 664
BA	31.12	17:00–18:00	2 142	23.05	03:00–04:00	868
BE ²	19.01	18:00–19:00	13 147	05.05	14:00–15:00	6 012
BG	04.01	17:00–18:00	7 105	24.05	02:00–03:00	2 662
CH	19.01	10:00–11:00	10 178	01.08	06:00–07:00	4 547
CY	02.08	14:00–15:00	966	24.04	05:00–06:00	285
CZ	05.12	16:00–17:00	10 512	07.08	05:00–06:00	4 446
DE	07.12	17:00–18:00	81 945	03.07	05:00–06:00	36 670
DK	07.01	17:00–18:00	6 115	17.07	05:00–06:00	2 213
EE	08.01	09:00–10:00	1 538	24.06	04:00–05:00	493
ES	06.09	13:00–14:00	40 144	01.01	05:00–06:00	18 054
FI	07.01	16:00–17:00	15 177	26.06	03:00–04:00	5 534
FR	18.01	18:00–19:00	88 571	07.08	06:00–07:00	30 584
GB ³	18.01	17:00–18:00	69 392	07.08	06:00–07:00	22 590
GR	31.12	17:00–18:00	9 207	02.05	05:00–06:00	3 314
HR	12.07	13:00–14:00	2 869	22.05	05:00–06:00	1 155
HU	08.12	16:00–17:00	6 437	16.05	05:00–06:00	2 994
IE	21.11	18:00–19:00	4 737	31.07	07:00–08:00	1 798
IS	29.11	11:00–12:00	2 320	16.09	05:00–06:00	1 692
IT	19.01	17:00–18:00	53 748	26.12	03:00–04:00	18 656
LT	08.01	09:00–10:00	1 979	10.07	03:00–04:00	813
LU	22.01	10:00–11:00	1 025	15.08	03:00–04:00	394
LV	08.01	08:00–09:00	1 300	24.06	03:00–04:00	449
ME	24.01	19:00–20:00	576	13.06	03:00–04:00	174
MK	24.01	18:00–19:00	1 457	31.05	03:00–04:00	487
NL	20.12	17:00–18:00	18 243	30.04	04:00–05:00	9 115
NO	21.01	08:00–09:00	24 485	24.07	05:00–06:00	9 156
PL ⁴	15.12	16:00–17:00	23 779	15.08	05:00–06:00	10 509
PT	17.02	19:00–20:00	8 139	01.01	06:00–07:00	3 458
RO	19.12	16:00–17:00	8 752	02.05	05:00–06:00	3 785
RS	31.12	17:00–18:00	6 958	05.06	05:00–06:00	2 414
SE	15.01	08:00–09:00	26 576	26.06	04:00–05:00	8 722
SI	21.12	17:00–18:00	2 144	02.05	03:00–04:00	929
SK	14.12	16:00–17:00	4 360	12.06	05:00–06:00	2 285
TR	11.08	14:00–15:00	44 341	13.09	06:00–07:00	17 796
*	19.01	18:00–19:00	586 133	29.05	05:00–06:00	264 721

*** ENTSO-E⁵**

¹ All values are calculated to represent 100% of the national values. Each value represents the average of the given time.

² The reported figures are best estimates based on actual measurements and extrapolations.

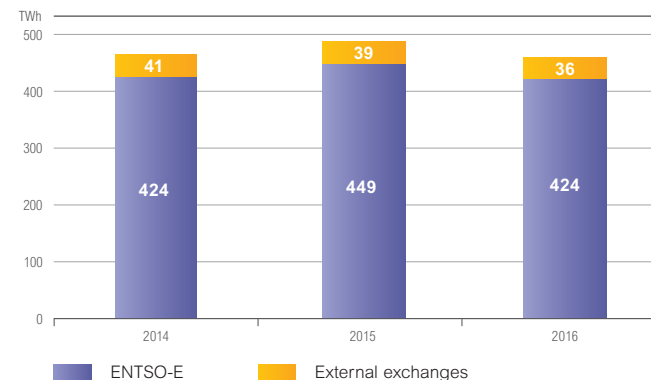
³ All data with the country code GB represents monthly statistical data as sum of England, Northern Ireland, Scotland and Wales.

⁴ Polish TSO data, not scaled.

⁵ Calculated load values as sum of the ENTSO-E member TSOs' countries. From January 2016 on, ENTSO-E sum includes data from Turkey.

Development of exchanges

Development of overall cross-border exchanges of ENTSO-E member TSOs' countries during the past 3 years



Overview electricity exchanges for the past 3 years in GWh

	All Exchanges	ENTSO-E	External ¹
2014	464 395	423 650	40 745
2015	488 227	449 036	39 191
2016	460 612	424 139	36 473

¹ External exchanges include Albania, Azerbaijan, Belarus, Georgia, Iran, Moldova, Morocco, Russia, Ukraine and Ukraine-West

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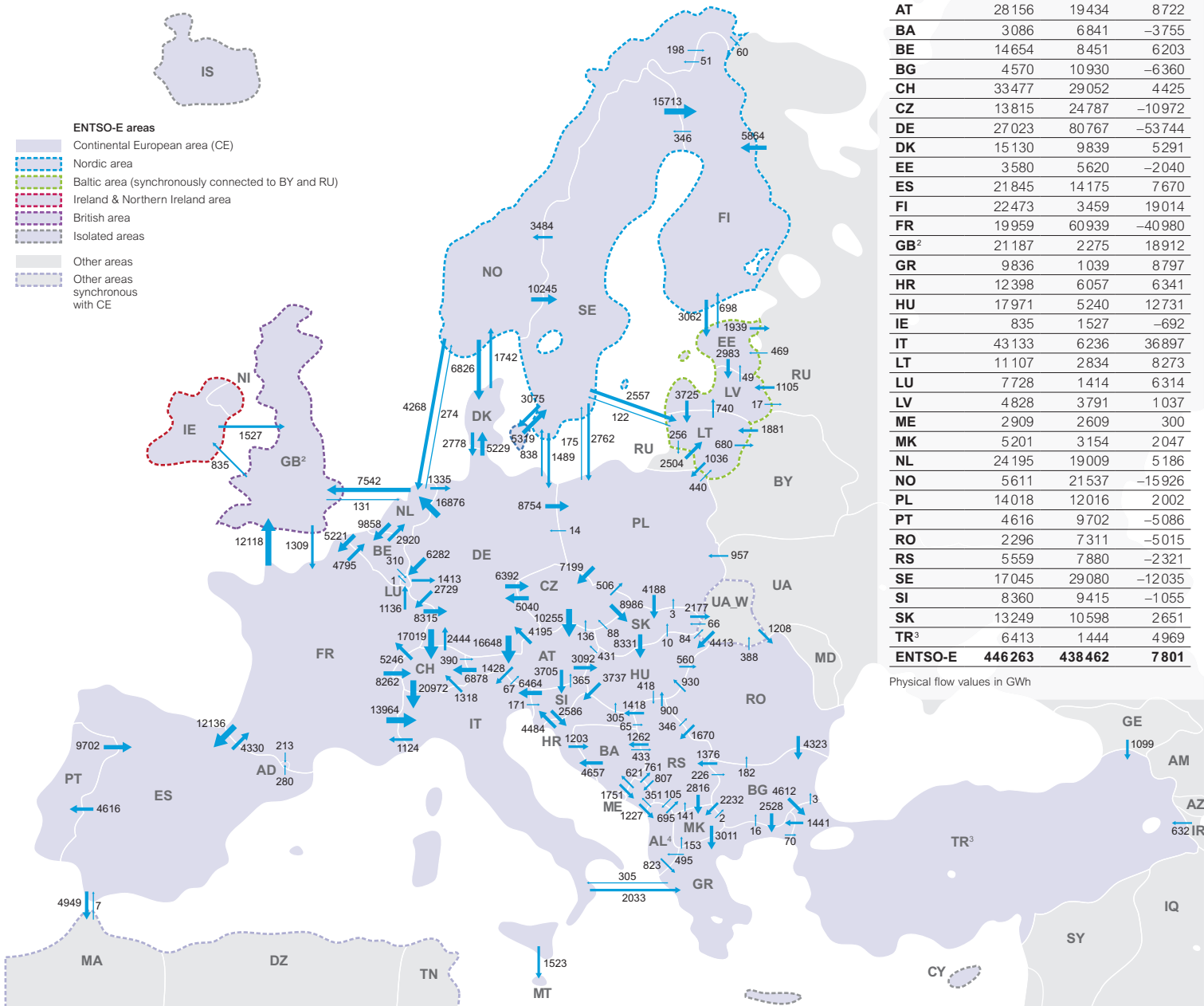
Contribution: ENTSO-E Statistical Data Correspondents and Data Expert Group members

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Physical energy flows



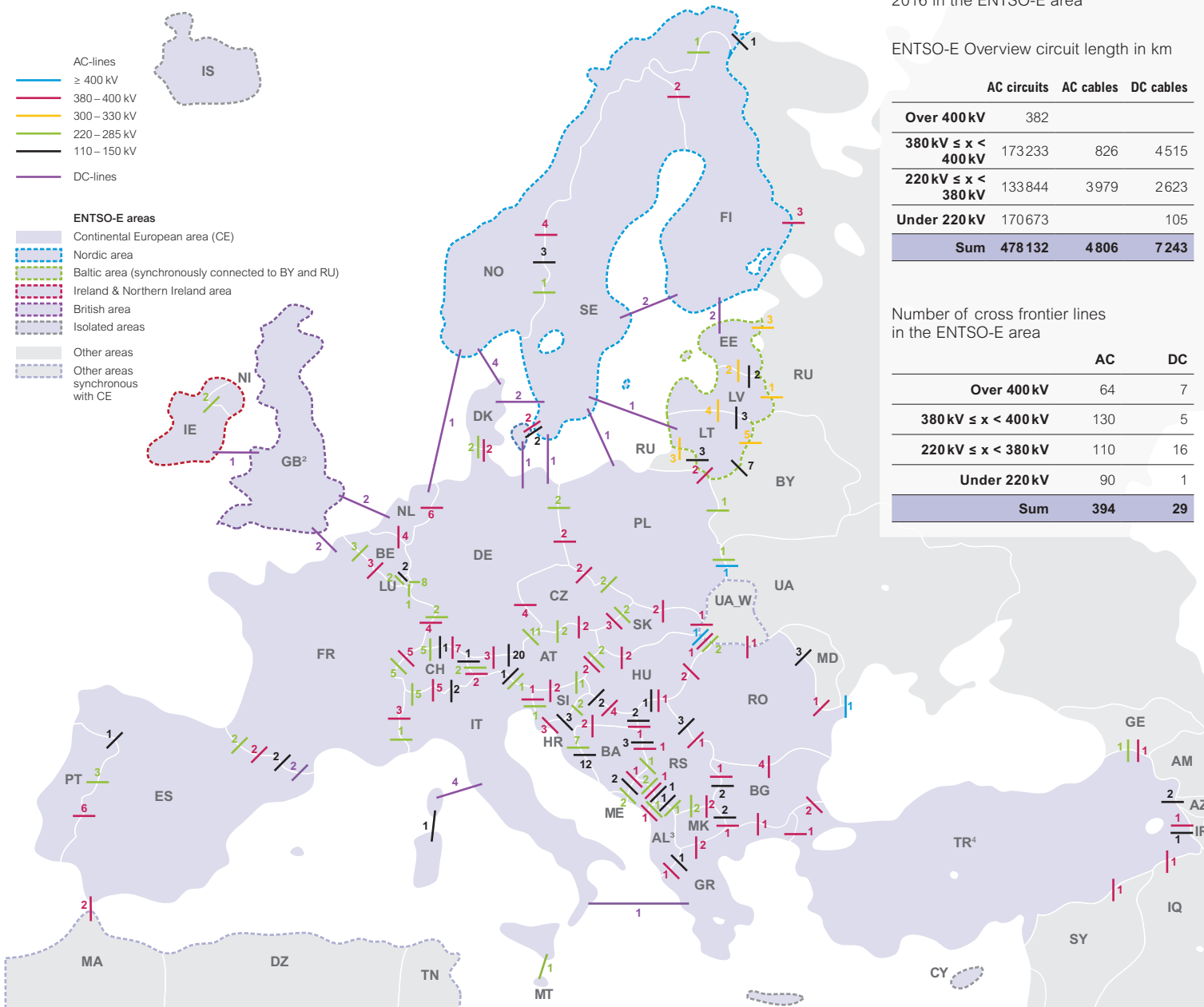
¹ Consolidated yearly values might differ from detailed flow data from the ENTSO-E database due to ex-post consolidation taking into account national statistical resources.

² All data with the country code GB represents monthly statistical data as sum of England, Northern Ireland, Scotland and Wales.

³ Turkish grid operator, TEİAŞ, joined ENTSO-E as observer member in January 2016.

⁴ Albania is ENTSO-E member since 30 March 2017.

Grid information



Number of circuits on cross-frontier transmission lines as of 31 December 2016 in the ENTSO-E area¹

ENTSO-E Overview circuit length in km

	AC circuits	AC cables	DC cables
Over 400 kV	382		
380 kV ≤ x < 400 kV	173233	826	4515
220 kV ≤ x < 380 kV	133844	3979	2623
Under 220 kV	170673		105
Sum	478132	4806	7243

Number of cross frontier lines in the ENTSO-E area

	AC	DC
Over 400 kV	64	7
380 kV ≤ x < 400 kV	130	5
220 kV ≤ x < 380 kV	110	16
Under 220 kV	90	1
Sum	394	29

¹ Only lines operated by TSOs are taken into account. Non geographic location of lines.

² All data with the country code GB represents data as sum of England, Northern Ireland, Scotland and Wales.

³ Albania is ENTSO-E member since 30 March 2017.

⁴ Turkish grid operator, TEİAŞ, joined ENTSO-E as observer member in January 2016.

Members of ENTSO-E

AL	Albania	OST	OST sh.a – Albanian Transmission System Operator
AT	Austria	APG VÜN	Austrian Power Grid AG Vorarlberger Übertragungsnetz GmbH
BA	Bosnia and Herzegovina	NOS BiH	Nezavisni operator sustava u Bosni i Hercegovini
BE	Belgium	Elia	Elia System Operator NV/SA
BG	Bulgaria	ESO	Electroenergien Sistemem Operator EAD
CH	Switzerland	Swissgrid	Swissgrid AG
CY	Cyprus	Cyprus TSO	Cyprus Transmission System Operator
CZ	Czech Republic	ČEPS	ČEPS, a.s.
DE	Germany	TransnetBW TenneT DE Amprion 50Hertz	TransnetBW GmbH TenneT TSO GmbH Amprion GmbH 50Hertz Transmission GmbH
DK	Denmark	Energinet.dk	Energinet.dk
EE	Estonia	Elering AS	Elering AS
ES	Spain	REE	Red Eléctrica de España S.A.U.
FI	Finland	Fingrid	Fingrid Oyj
FR	France	RTE	Réseau de transport d'électricité
GB	United Kingdom	National Grid SONI (NI) SHE Transmission SPTransmission	National Grid Electricity Transmission plc System Operator for Northern Ireland Ltd Scottish Hydro Electric Transmission Ltd Scottish Power Transmission plc
GR	Greece	IPTO	Independent Power Transmission Operator S.A.
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LU	Luxembourg	Creos Luxembourg	Creos Luxembourg S.A.
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RO	Romania	Transelectrica	C.N. Transelectrica S.A.
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SK	Slovak Republic	SEPS	Slovenská elektrizačná prenosová sústava, a.s.
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