

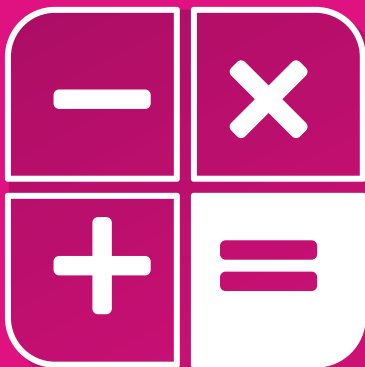


KEY STATISTICS 2017

E-CONTROL

A BETTER DEAL.

BECAUSE KNOWING IS BETTER THAN GUESSING.



WORKING FOR YOU –
WHEREVER YOU NEED ENERGY.

Table of contents

Preface	03
Overview	08
Economic indicators	08
Energy industry indicators	10
Energy reserves	17
Operational statistics	18
Natural gas in Austria	18
Natural gas infrastructure in Austria	22
Electricity in Austria (total electricity supply)	24
Power plants in Austria	29
Public grid in Austria	34
Market statistics	36
Austrian gas market	36
Austrian electricity market (public grid)	42
Wholesale markets	49
Retail markets	57
Terms and definitions	62

Preface

E-Control is mandated by law to draw up the Austrian electricity and natural gas statistics and to publish them at www.e-control.at. Among these publications are our annual statistical reports, which have become key tools for all those who work in the areas of electricity and natural gas.

E-Control has published this statistics booklet since 2009, presenting key data on the Austrian electricity and natural gas markets in an effort to give an overview of the Austrian economy as a whole, the energy industry and volume trends, and to offer more detailed information from our market statistics, capturing the effects of liberalisation on the electricity and gas markets or relating facts and figures about our wholesale and retail markets.

This brochure is meant as a quick introduction to the most important statistical information for all those who are interested in finding out about developments and interrelations on the Austrian energy market.



Andreas Eigenbauer
Executive Director
E-Control



Wolfgang Urbantschitsch
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Austrian energy statistics

Energy supply is crucial for our daily lives and for our economy, and energy statistics carry particular importance as well; this is also reflected in the way powers and duties in this field are distributed. While Statistics Austria is involved, most statistical duties for energy lie directly with the Minister for Science, Research and Economy. By virtue of section 92 Elektrizitätswirtschafts- und -organisationsgesetz (Electricity Act) 2010 and section 147 Gaswirtschaftsgesetz (Natural Gas Act) 2011, the Minister entrusts the statistical duties for electricity and natural gas to the regulatory authority E-Control.

Though this construction deviates from the usual Austrian distribution of competences, the operational statistics produced by E-Control are firmly integrated into the Austrian statistical system and represent the main primary statistical source for the electricity and natural gas part of the Austrian energy balance.

A major difference between statistics drawn up by Statistics Austria and those produced by E-Control consists in that the former must comply with the rules for energy balances and in particular for international comparability, while the latter depict commodity flows and markets.

This means different approaches to reflecting energy transformation and an exclusive focus of the energy balance on the energetic use of primary energy sources. For instance, any use of electrical energy or natural gas is counted as (potential) consumption in E-Control's operational statistics, i.e. we consider that it forms part of the market. The energy balance e.g. counts gas used in power plants as part of transformation when looking at primary energy use but as part of the electricity/heat balance (depending what it is transformed into) when looking at final energy. When natural gas is used e.g. by the chemical industry, it appears as non-energetic use (not at energetic use in chemical processes).

The documentation accompanying the energy balance for 2015 for the first time contained a detailed referencing that enabled going back and forth between the two approaches.

The economic situation in 2016

The Austrian economy had its best year since 2011 and expanded by 1.5% in real terms. Even so, per capita income was below 2011 and 2012 levels. Statistics Austria detected a 0.9% rise in consumer prices. In this, gas prices had a dampening effect, sinking by 1.1%, while electricity prices were up by 1.9%.

Consumption trends in 2016

Both electricity and gas consumption were up in 2016. Natural gas use increased by 3.9% to reach 87.9 TWh or 7.8 billion (bn) normal cubic metres (n cu m), in an upwards trend that started last year. Electricity consumption edged up by 1.1% and stood at 70.7 TWh, i.e. the upwards tendency of the last 20 years (only reversed in 2009 and 2014) continued.

A more detailed analysis of electricity consumption trends among individual consumer groups is not possible as the statistical system was overhauled in 2015/2016: previously, the category 'households' only included consumers with a load profile from group 'H'; now, interruptible contracts held by households are covered in this category as well. Also, categorisation now depends on a consumer's consumption instead of the consumption registered at a single metering point. This has meant quite some changes and it is the reason why we do not present year-on-year developments in this edition of our key statistics booklet.

Similar changes for gas statistics will only be carried out in 2017, i.e. we can still provide an analysis of developments this year. Households showed an above-average increase in gas consumption in 2016 (+4.7%), as did other small consumers (+6.0%) and medium-sized industry (+5.1%). As last year, this was largely due to more space heating, both at consumers' homes and in district heating facilities.

Energy inputs in 2016

Natural gas inputs were again down, this year by 6.1% (close to 12.5 TWh). Injections into storage and withdrawals from storage were nearly balanced at 61.7 TWh and 62.0 TWh, respectively. Net imports, at 80.4 TWh, were up by about 25%.

Domestic electricity production increased markedly (by 4.8%), mostly due to a 2.4 TWh increase in hydro output (particularly run-of-river plants upped their production considerably). Production from RES in general was up by 8.8%, while that of thermal power plants went sideways. Net imports were down by 2.9 TWh (28.9%).

Storage situation at year-end 2016

Austrian natural gas storage held 55.0 TWh or 4.9 bn n cu m at year-end 2016, making for a 57.9% fill level. This corresponds to a year-on-year decrease by about 2% but still covers close to two-thirds (62.5%, to be precise) of domestic gas consumption in 2016.

Overall, gas storage facilities with a capacity of 95.0 TWh (8.5 bn n cu m) are located on Austrian territory. The hourly withdrawal capacity is 45.9 GWh (4.1 million (m) n cu m).

Fill levels of Austrian electricity storage at year-end 2016 stood at 1.4 TWh (43.0%). While this was a 15-year low at year-end, it was due to low fill levels at the beginning of the year and changes in storage use.

Electricity storage in Austria has an overall capacity of 3.2 TWh and installed capacity is 8.4 GW.

Market structures and consumer behaviour in 2016

About 94% of the over 1.3 m customers (metering points) on the Austrian natural gas market are households, but they only account for just over one-fifth (about 21%) of consumption. Non-households (including gas-fired power plant) make for close to 80% of the natural gas consumed.

A little over 68,000 natural gas consumers (metering points) switched suppliers in 2016, which results in a 5.1% switching rate. Most switchers (63,000) were households, but a switching rate of 7.0% among non-household consumers confirms that this group is more dynamic. Even so, a household switching rate of 5% is considerable. Overall, 2016 has been the most active switching year Austria has seen since the gas market was opened.

On the electricity side, Austria has just over 6.1 m electricity metering points for 4.6 m consumers. 82% of these metering points, and 87% of consumers, are households, which means the non-household sector accounts for no more than 18% of metering points and 13% of consumers. Looking at domestic consumption, the picture is reversed: non-households account for about 76%, households are just shy of 25%.

Overall, more than 128,000 electricity metering points were switched to different suppliers in 2016, i.e. the overall switching rate was 3.6%. Large industrial consumers were least active, with a switching rate of just 1%. Medium-sized industry (3.2%) and households (3.5%) were more involved, but the field was led by the group of other small consumers, with a switching rate of 4.0%.

Retail and wholesale price developments in 2016

While oil prices were on an upwards trend in 2016, forward prices for gas imports fell markedly (28%). This tendency has not continued in 2017 and gas prices have already recovered about half of the previous year's drop. A similar pattern emerged on the electricity market: after an 8% decrease in 2016, they have rallied in 2017 and are almost at 2015 levels again.

Between H1 2015 and H1 2017, the household prices offered by the largest electricity suppliers (including grid charges and taxes etc.) fell by 5.5%, those posted by gas retailers by 10.6%.

Overview

Economic indicators

Consumer price index, Jan 2005 = 100						
	Total		Natural gas		Electricity	
	Annual average	Change in % (*)	Annual average	Change in % (*)	Annual average	Change in % (*)
1995	84.4		70.8		89.0	
2000	90.4	1.4	79.9	2.6	94.3	1.2
2005	100.0	2.1	100.0	5.0	100.0	1.2
2010	109.5	1.9	120.6	4.1	120.9	4.2
2011	113.0	3.2	131.1	8.7	121.0	0.1
2012	115.9	2.5	137.6	4.9	122.0	0.8
2013	118.2	2.0	137.3	-0.2	127.4	4.4
2014	120.1	1.6	137.0	-0.2	127.4	0.0
2015	121.2	0.9	136.3	-0.5	128.3	0.7
2016	122.3	0.9	133.7	-1.9	129.7	1.1

(*) average or annual change rates

Source: Statistics Austria

Gross domestic product		
	m€ (rate of 2010)	Change in % (*)
1995	219 276	
2000	254 069	3.2
2005	277 307	1.8
2010	295 897	1.3
2011	304 545	2.9
2012	306 617	0.7
2013	306 696	
2014	309 237	0.8
2015	312 614	1.1
2016	317 149	1.5

(*) average or annual change rates

Source: Statistics Austria

The economic context for the electricity and gas statistics

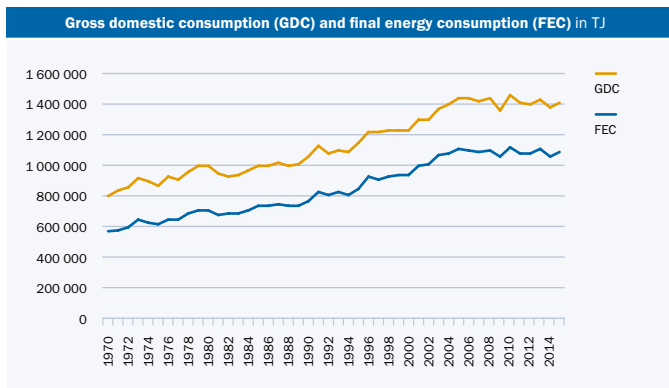
Population, annual average		
	Population numbers	Change in % (*)
1990	7 677 850	0.3
1995	7 948 278	0.7
2000	8 011 566	0.2
2005	8 225 278	0.5
2010	8 361 069	0.6
2014	8 543 932	0.8
2015	8 629 519	1.0
2016	8 739 806	1.3

(*) average or annual change rates
Source: Statistics Austria

Households				
	Single-person households	Multi-person households	Total	Average household size (persons)
1990	814 417	2 098 708	2 913 125	2.61
1995	892 546	2 200 689	3 093 235	2.54
2000	976 630	2 260 453	3 237 083	2.45
2005	1 198 477	2 276 865	3 475 342	2.34
2010	1 300 166	2 323 587	3 623 754	2.28
2014	1 395 302	2 373 613	3 768 915	2.23
2015	1 418 449	2 398 317	3 816 766	2.22
2016	1 429 495	2 435 324	3 864 819	2.22

Source: Statistics Austria

Energy industry indicators



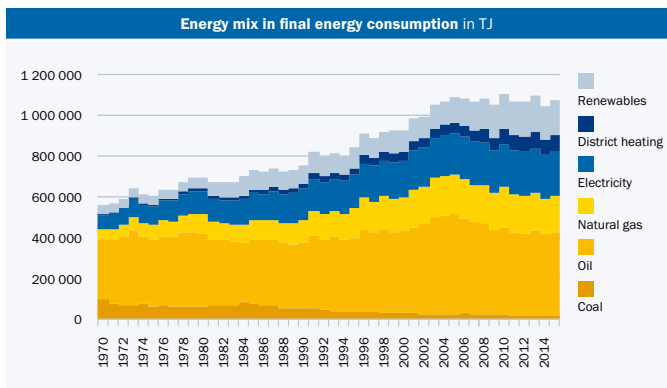
Source: Statistics Austria

Gross domestic consumption and final energy consumption in TJ		
	Gross domestic consumption	Final energy consumption
1990	1 052 188	763 926
1995	1 139 762	847 212
2000	1 224 463	937 129
2005	1 439 149	1 102 093
2010	1 454 362	1 117 306
2013	1 424 749	1 109 294
2014	1 374 407	1 055 610
2015	1 409 496	1 087 062

Source: Statistics Austria

Main economic and energy consumption indicators

ENERGY BALANCE

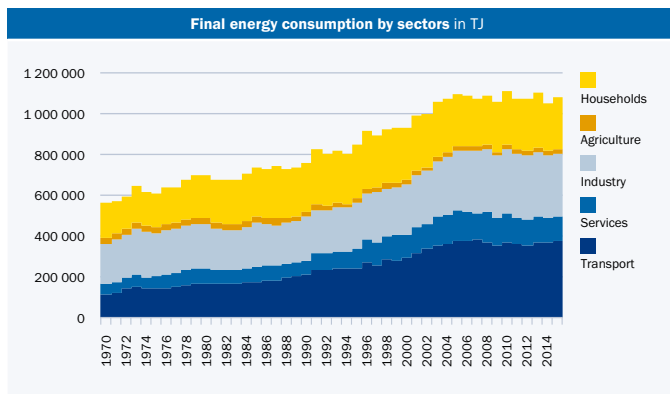


Source: Statistics Austria

Energy mix in final energy consumption in TJ							
	Coal	Oil	Natural gas	Electricity	District heating	Renewables	Total
1990	50 757	327 577	114 375	152 453	25 636	93 130	763 926
1995	38 011	364 905	144 612	166 122	35 515	98 047	847 212
2000	32 870	401 577	167 475	183 336	42 699	109 172	937 129
2005	25 066	496 129	193 033	206 083	53 754	128 029	1 102 093
2010	19 862	434 233	198 367	215 444	76 572	172 828	1 117 306
2013	18 550	415 471	190 956	220 769	80 662	182 886	1 109 294
2014	17 737	402 711	175 953	215 861	72 911	170 437	1 055 610
2015	17 845	413 041	182 063	218 928	76 537	178 648	1 087 062

Source: Statistics Austria

The input side of the Austrian energy balance



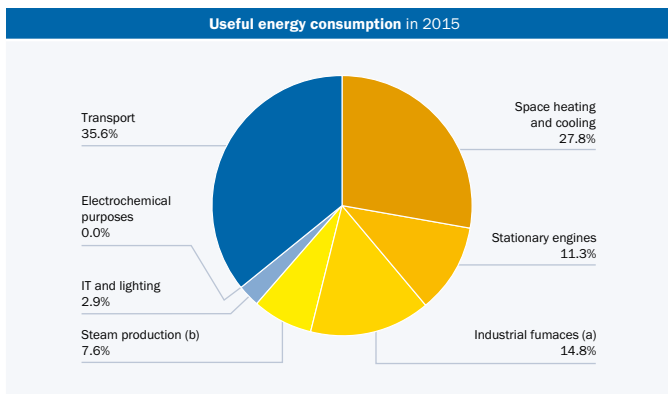
Source: Statistics Austria

	Households	Agriculture	Industry	Services	Transport	Total
1990	243 488	24 491	213 974	73 137	208 836	763 926
1995	262 861	22 490	220 779	96 395	244 687	847 212
2000	259 565	22 206	249 475	113 156	292 726	937 129
2005	258 260	23 136	296 388	145 076	379 233	1 102 093
2010	264 980	22 408	319 385	141 235	369 297	1 117 306
2013	272 945	23 875	317 913	124 182	370 379	1 109 294
2014	237 527	22 168	309 668	120 180	366 067	1 055 610
2015	255 246	22 995	314 276	116 991	377 555	1 087 062

Source: Statistics Austria

The output side of the Austrian energy balance

USEFUL ENERGY



Source: Statistics Austria

Useful energy consumption in 2015		
	TJ	Share in %
Space heating and cooling	301 904	27.8
Stationary engines	123 156	11.3
Industrial furnaces (a)	160 751	14.8
Steam production (b)	82 412	7.6
IT and lighting	31 421	2.9
Electrochemical purposes	376	0.0
Transport	387 043	35.6
Total	1 087 062	100.0

(a) Cooling and freezing, electrical appliances

(b) Warm water and cooking

Source: Statistics Austria

Uses of energy in Austria as reflected in the energy balance (this and next page)

Natural gas – useful energy consumption in 2015			
	TJ	Share in %	Share in total in %
Space heating and cooling	72 866	40.0	6.7
Stationary engines	4 921	2.7	0.5
Industrial furnaces (a)	51 904	28.5	4.8
Steam production (b)	41 136	22.6	3.8
IT and lighting	0	0.0	0.0
Electrochemical purposes	0	0.0	0.0
Transport	11 236	6.2	1.0
Summe	182 063	100.0	16.7

(a) Cooling and freezing, electrical appliances

(b) Warm water and cooking

Source: Statistics Austria

Electricity – useful energy consumption in 2015			
	TJ	Share in %	Share in total in %
Space heating and cooling	26 141	11.9	2.4
Stationary engines	101 333	46.3	9.3
Industrial furnaces (a)	47 542	21.7	4.4
Steam production (b)	920	0.4	0.1
IT and lighting	31 421	14.4	2.9
Electrochemical purposes	376	0.2	0.0
Transport	11 195	5.1	1.0
Summe	218 928	100.0	20.1

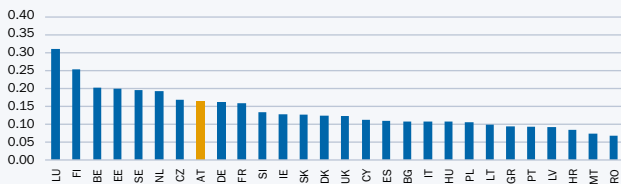
(a) Cooling and freezing, electrical appliances

(b) Warm water and cooking

Source: Statistics Austria

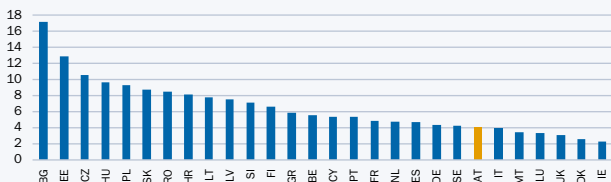
INTERNATIONAL ENERGY INDICATORS

Per capita energy consumption in EU countries in 2015, TJ/inhabitant



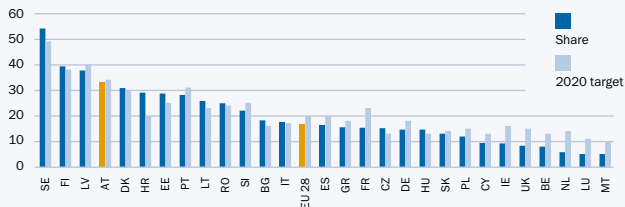
Source: Eurostat

Gross domestic consumption of energy divided by GDP in 2015, TJ/m€



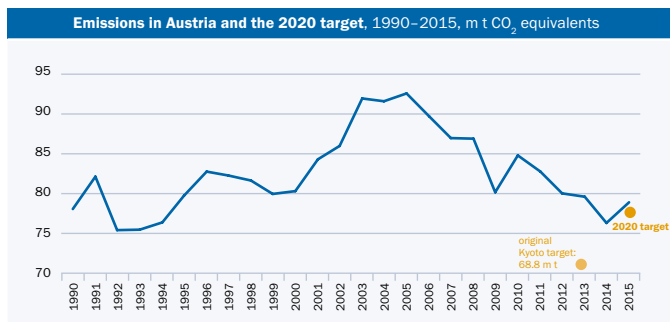
Source: Eurostat

Renewables shares in the EU in 2015 and the 2020 target, %

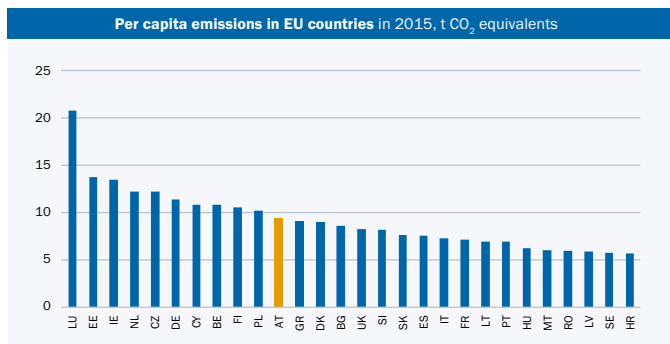


Source: Eurostat

GREENHOUSE GAS EMISSIONS



Source: UNFCCC



Source: Eurostat

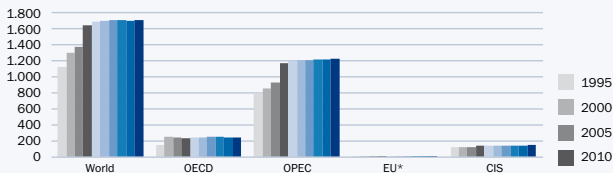
Austrian emissions compared to emissions in other countries (this page)

Primary sources of energy across the globe (right)

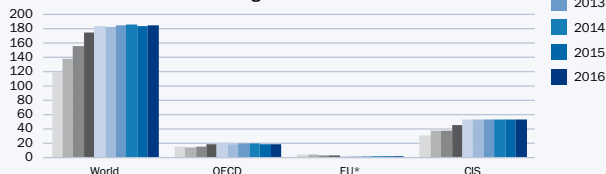
Energy reserves

Global energy reserves

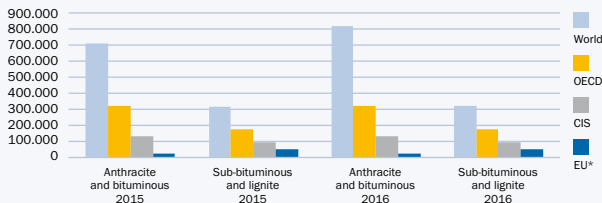
Global oil reserves¹ in bn barrels



Global gas reserves² in bcm



Global coal reserves³ in m tons



* Does not include Estonia, Latvia and Lithuania before 1996 or Slovenia before 1990

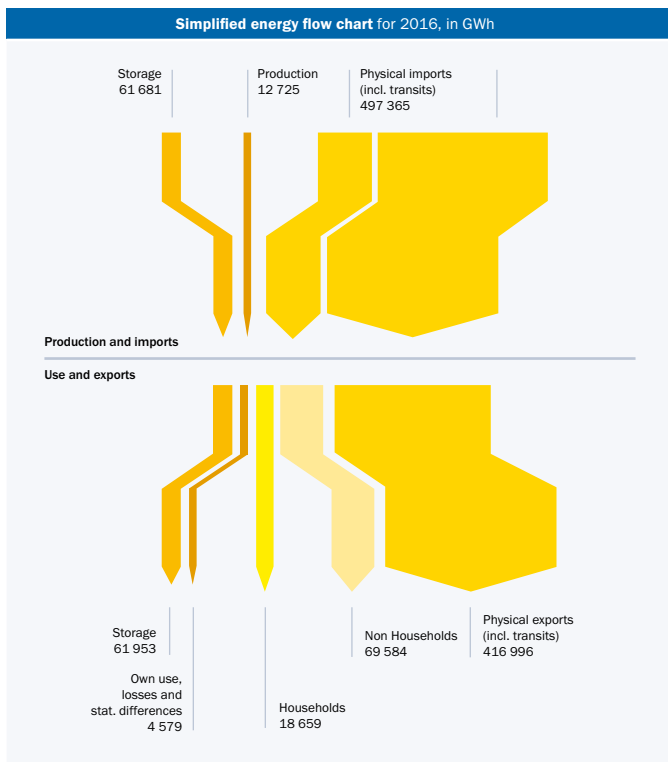
¹ Source: BP Statistical Review of World Energy 2017

² Source: BP Statistical Review of World Energy 2017

³ Source: BP Statistical Review of World Energy 2017 & German Federal Institute for Geosciences and Natural Resources, Energy Study 2016

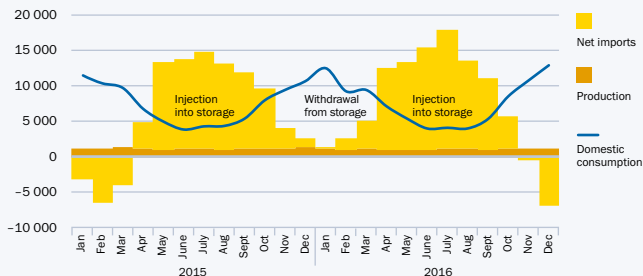
Operational statistics

Natural gas in Austria



Flow chart for natural gas in Austria

Natural gas balance in GWh



Natural gas balance for 2016

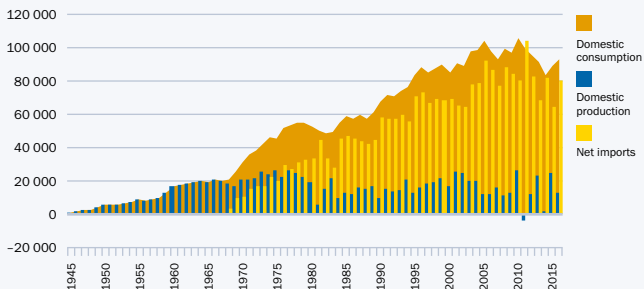
	m Nm ³	GWh	Year-on-year change in %
Supply to consumers (a)	7 846	87 880	3.9
Own use and losses (b) and statistical differences (c)	441	4 942	—
Domestic consumption	8 288	92 822	4.7
Injection into storage (d)	5 532	61 953	14.7
Exports (d)	37 232	416 996	2.5
Consumption and exports = production and imports	51 051	571 771	4.1
Imports (d)	44 408	497 365	5.7
Production (d)	1 124	12 594	-6.1
Injection of biogas (d)	12	131	23.1
Withdrawal from storage (d)	5 507	61 681	-5.2

(a) Supply to consumers (here: households, industry, chemical industry, refineries, thermal power plants etc.)

(b) For production, storage operation and transports (including transits)

(c) Statistical difference between calculated and metered supply to consumers

(d) Physical flow data (imports and exports include transits)

Natural gas consumption and supply in GWh**Natural gas balance in GWh**

	Supply to consumers (d)	Statistical difference (c)	Own use and losses (b)	Domestic consumption	Net imports	Domestic production (a)
1990	64 847	—	2 569	67 416	57 785	9 631
1995	79 631	1	3 265	82 897	70 275	12 621
2000	80 514	—	4 612	85 126	68 635	16 491
2005	100 420	-401	4 065	104 083	92 019	12 065
2010	102 093	803	2 873	105 769	79 817	25 952
2014	78 910	185	4 448	83 543	82 015	1 528
2015	84 585	-343	4 398	88 641	64 091	24 550
2016	87 880	16	4 926	92 822	80 369	12 452

(a) Production and net storage movements

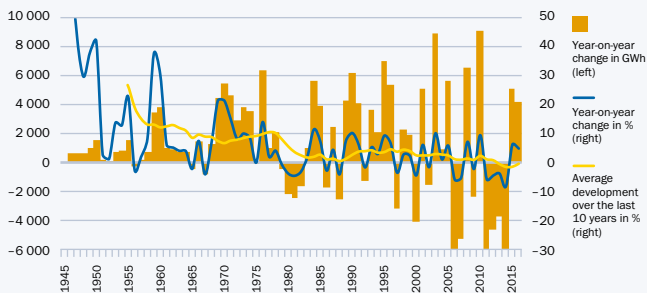
(b) For production, storage and transports (including transits)

(c) Statistical difference between calculated and metered supply to consumers

(d) Supply to consumers (here: households, industry, chemical industry, refineries, thermal power plants etc.)

Sources: Federal Ministry of Economics and Labour (for data up to 2002), E-Control (for data from 2002 onwards)

Natural gas consumption trends in GWh and %



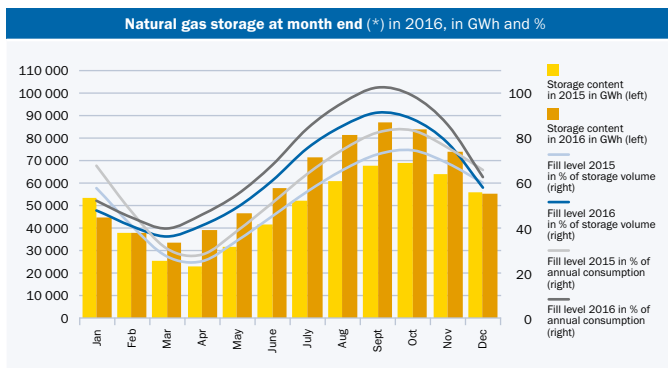
Physical imports and exports of natural gas in 2016

	Imports (*)		Exports (*)	
	in m Nm ³	in GWh	in m Nm ³	in GWh
Germany	8 634	96 697	2 909	32 577
Switzerland			59	665
Italy			26 299	294 544
Slovenia			2 046	22 915
Hungary			3 794	42 495
Slovakia	35 774	400 668	2 125	23 799
Czech Republic				
Total	44 408	497 365	37 232	416 996

(*) Physical flows metered at Austrian borders (including transits)

Main natural gas indicators for Austria (pages 19 – 21)

Natural gas infrastructure in Austria



(*) Includes all storage facilities on the Austrian territory.

Natural gas storage facilities (*)			
	Storage volume in GWh	Max. injection rate in MWh per hour	Max. withdrawal rate in MWh per hour
2005	32 202	13 254	14 887
2010	51 906	21 966	25 905
2014	91 983	36 148	44 684
2015	92 685	36 272	44 817
2016	94 971	37 412	45 872

(*) Includes all storage facilities on the Austrian territory.

Domestic gas production in 2016		
	Max. production rate in MWh per hour	Max. production rate in 1,000 Nm ³ per hour
2010	2 319	207
2014	1 957	175
2015	1 982	177
2016	1 611	144

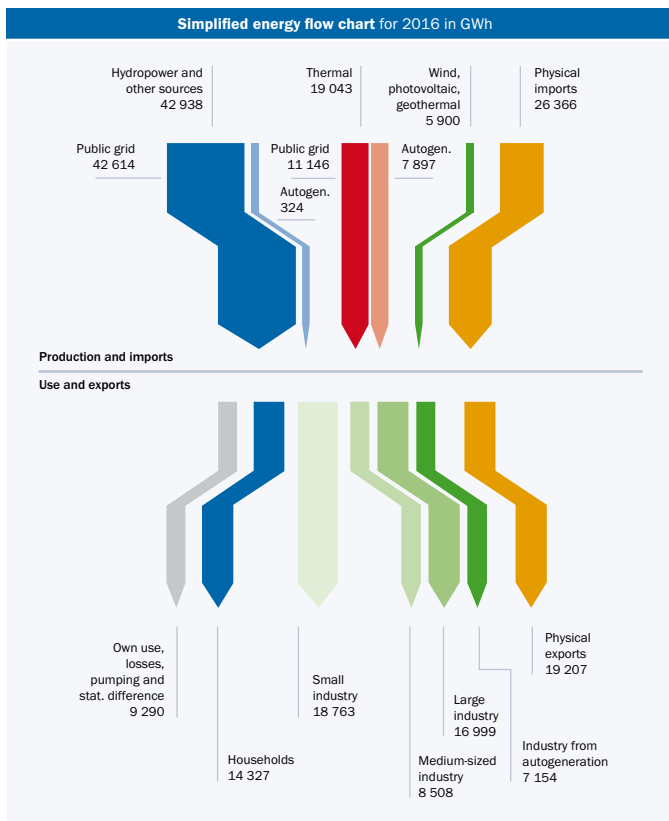
Network length at year end in km			
	Grid level 1, including transmission lines	Distribution lines at grid level 2	Local grids and distribution lines at grid level 3
2000 (*)	2 377	3 266	n.a.
2005	2 757	3 425	30 195
2010	3 143	3 685	33 027
2014	3 129	4 041	34 758
2015	3 089	4 096	35 115
2016	3 092	4 111	35 625

(*) Partly estimated based on year of start of operation

Key figures on natural gas infrastructure in Austria (pages 22 and 23)

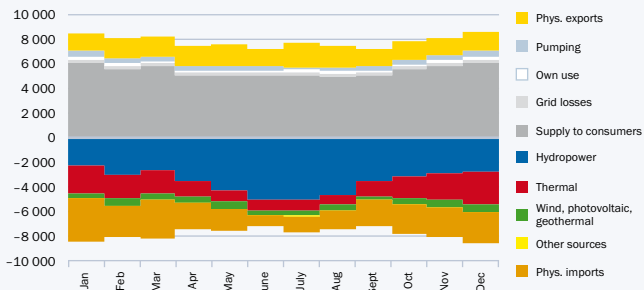
Electricity in Austria

(total electricity supply)



Electricity flow chart for Austria

Electricity balance 2016, in GWh

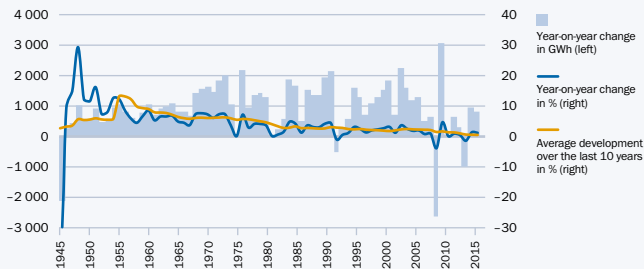


Electricity balance 2016

		2015 in GWh	2016 in GWh	Year-on-year change in GWh in %	
Supply to consumers (1)		64 494	65 338	844	1.3
Grid losses		3 443	3 339	-104	-3.0
Own use		1 980	2 025	46	2.3
Domestic consumption		69 917	70 702	785	1.1
Pumping		4 907	4 339	-568	-11.6
Physical exports		19 328	19 207	-121	-0.6
Use and exports = generation and imports		94 151	94 248	97	0.1
Gross generation	Hydro	40 465	42 906	2 441	6.0
	Thermal	18 833	19 043	210	1.1
	Renewables (2)	5 421	5 900	479	8.8
	Other sources	43	33		
Physical imports		29 389	26 366	-3 023	-10.3

(1) Includes final energy consumption and the electricity consumption of the non-electricity energy sector

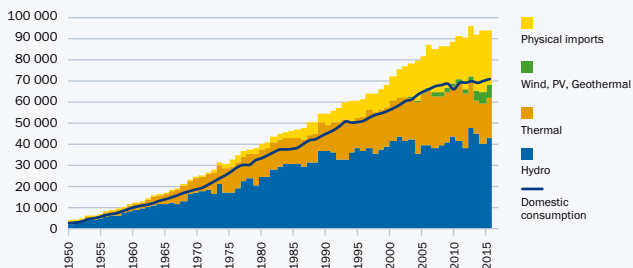
(2) Photovoltaics, wind and geothermal

Electricity consumption trends in GWh and %**Electricity balance in GWh**

	Supply to consumers	Own use	Grid losses	Domestic consumption	Electricity for pumping	Physical exports	Use and exports = generation and imports
1990	43 995	1 563	2 971	48 529	1 425	7 298	57 252
1995	47 722	1 556	3 328	52 606	1 511	9 757	63 874
2000	53 751	1 566	3 195	58 512	1 990	15 216	75 718
2005	60 465	2 051	3 567	66 083	3 276	17 732	87 091
2010	63 308	2 089	3 534	68 931	4 576	17 472	90 979
2014	63 658	1 874	3 410	68 942	5 466	17 437	91 846
2015	64 494	1 980	3 443	69 917	4 907	19 328	94 151
2016	65 338	2 025	3 339	70 702	4 339	19 207	94 248

Austrian electricity indicators (pages 25 – 28)

Domestic consumption and supply in GWh



Electricity balance in GWh

	Gross generation					Physical imports	Generation and imports = use and exports
	Hydro-power	Thermal	Wind, PV, Geothermal	Other sources	Total		
1990	32 492	17 921			50 413	6 839	57 252
1995	38 477	18 110			56 587	7 287	63 874
2000	43 461	18 270	67		61 798	13 920	75 718
2005	39 574	26 126	1 347	-312	66 735	20 355	87 091
2010	41 575	27 384	2 096	16	71 070	19 909	90 979
2014	44 730	15 932	4 326	147	65 134	26 712	91 846
2015	40 465	18 833	5 421	43	64 762	29 389	94 151
2016	42 906	19 043	5 900	33	67 881	26 366	94 248

Gross generation mix in 2016							
Energy source			GWh	Share in %			
Hydropower	Run of river	over 10 MW	23 903	35.2	55.7		
		up to 10 MW	5 366	7.9	12.5		
	Pumped storage	over 10 MW	13 061	19.2	30.4		
		up to 10 MW	576	0.8	1.3		
	Total hydro			42 906	63.2	100.0	
Thermal	Fossil fuels and derivatives	Hard coal	2 036	3.0		10.7	
		Lignite	—	—	—	—	
		Coal derivatives (1)	1 930	2.8		10.1	
		Oil derivatives (1)	959	1.4		5.0	
		Natural gas	8 561	12.6		45.0	
		Total	13 486	19.9		70.8	
	Biofuels	Solid (2)	2 531	3.7		13.3	
		Liquid (2)	1	0.0		0.0	
		Gaseous (2)	611	0.9		3.2	
		Sewage and landfill gases (2)	35	0.1		0.2	
		Total (2)	3 178	4.7		16.7	
	Other biofuels (3)		1 388	2.0		7.3	
	Other fuels		991	1.5		5.2	
	Total thermal (of which CHP)		19 043 (16 519)	28.1 (24.3)		100.0 (86.7)	
	Renewables	Wind (4)		5 231	7.7	88.7	
		Photovoltaics (4)		669	1.0	11.3	
Geothermal (4)		0	0.0	0.0			
Total renewables (4)		5 900	8.7	100.0			
Other sources (5)			33	0.0			
Total			67 881	100.0			

(1) Coal and oil derivatives used for electricity generation

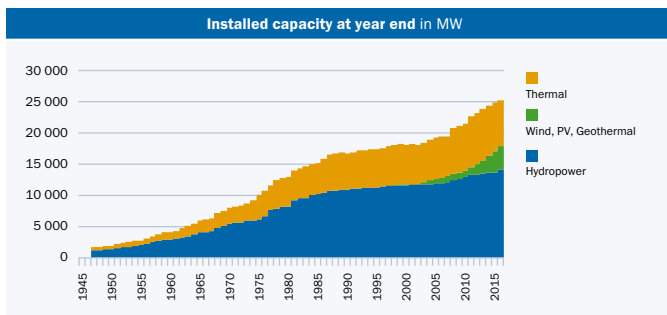
(2) Only biofuels as defined by Austrian law

(3) Biofuels as defined by Union law, except for (2)

(4) Injection by certified renewable power plants as defined by Austrian law

(5) Generation that can neither be broken down by primary energy source nor assigned to a type of power station

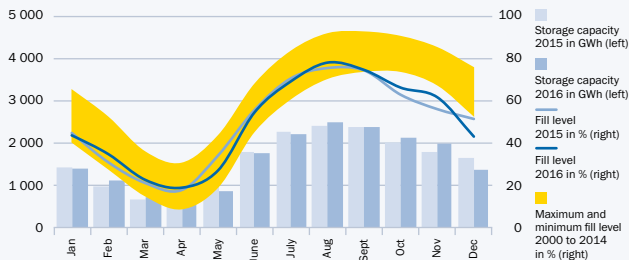
Power plants in Austria



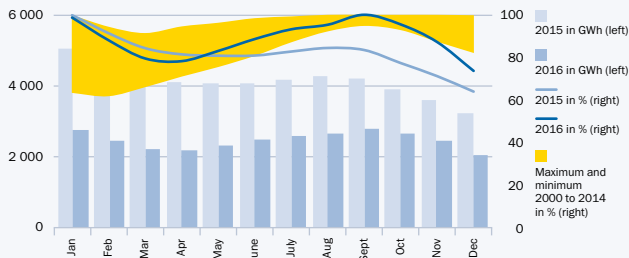
Installed capacity at year end in MW							
Gross maximum capacity							
	Hydropower plants			Wind, PV, Geothermal	Thermal	Total	Net maximum capacity
	Run of river	Pumped storage	Total				
1990	—	—	10 947	—	5 740	16 687	16 233
1995	—	—	11 306	—	6 134	17 440	16 959
2000	5 256	6 407	11 664	49	6 315	18 028	17 532
2005	5 318	6 519	11 837	841	6 527	19 206	18 696
2010	5 396	7 524	12 919	1 054	7 431	21 404	20 829
2014	5 615	7 966	13 581	2 836	7 977	24 394	23 780
2015	5 656	7 993	13 650	3 362	7 768	24 780	24 177
2016	5 692	8 424	14 116	3 762	7 323	25 201	24 621

Key figures on electricity infrastructure in Austria (pages 29 – 34)

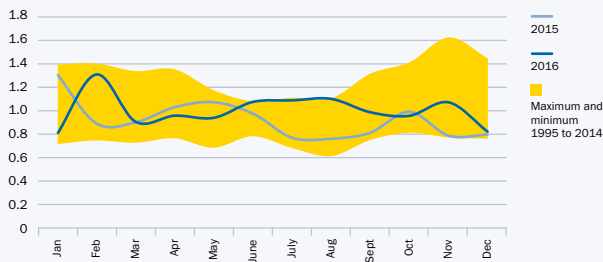
Storage capacity and fill levels at month end – large reservoirs of public generators, in GWh and %



Fossil fuel stocks at month end – thermal power plants of public generators, in GWh and %



Energy capability factor – run-of-river power plants of public generators



Annual energy capability factor – large run-of-river power plants of public generators

2015	2016	1995 to 2014 maximum	1995 to 2014 minimum
0.92	1.00	1.16	0.87

Energy availability – power plants of public generators (*), in %						
	Thermal power plants			Pumped storage power plants		
	Availability factor	Utilisation factor	Outages	Availability factor	Utilisation factor	Outages
2000	76.7	32.6	5.9	93.6	18.6	2.6
2005	85.3	42.7	5.3	93.3	19.7	1.1
2010	84.3	35.9	15.0	84.2	18.7	7.7
2014	83.0	15.5	13.5	86.2	19.6	5.0
2015	80.4	12.1	13.7	93.0	17.3	2.3
2016	79.1	16.1	13.7	88.8	15.6	2.2

(*) Power plants with a capacity of at least 25 MW that inject into Austrian control areas

Combined heat and power (CHP)						
	Efficiency of thermal power plants in %			Capacity of thermal power plants in MW		
	With CHP		Without CHP	With CHP		Without CHP
	Overall efficiency (1)	Effective electric efficiency (2)	Efficiency (3)	Thermal capacity	Maximum capacity	Maximum capacity
2000	68.9	49.5	42.8	6 648	3 964	2 351
2005	69.9	52.9	41.5	7 545	4 511	2 016
2010	72.7	57.2	40.2	8 680	5 761	1 670
2014	72.6	51.2	37.5	8 960	6 285	1 692
2015	72.0	52.5	37.7	8 667	6 063	1 705
2016	75.1	56.9	36.9	8 902	6 027	1 295

(1) Electricity and heat output divided by total fuel input

(2) Electricity output divided total by fuel input minus heat output

(3) Electricity output divided by fuel input

Firm capacity in 2016 – run-of-river plants of public generators (*)					
Type of power plant	Up to 50 MW	50 MW to 100 MW	100 MW to 250 MW	Over 250 MW	Total
Capacity in MW					
Run-of-river plants with pondage	204	250	—	—	454
Run-of-river plants without pondage	126	83	444	310	963
Total	330	333	444	310	1 418
Share in maximum capacity in %					
Run-of-river plants with pondage	51.9	46.3	—	—	48.6
Run-of-river plants without pondage	34.1	53.6	38.5	34.1	37.3
Total	43.3	47.8	38.5	34.1	40.3

(*) Power plants with a capacity of at least 25 MW that inject into Austrian control areas

Public grid in Austria

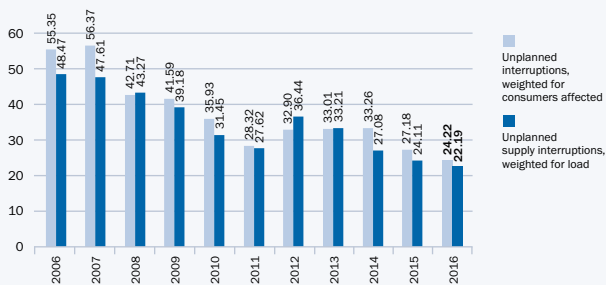
Route length (*) of the public grid at year-end 2016					
Voltage level	Overhead lines		Cables		Total
	km	Share in %	km	Share in %	km
380 kV	1 371	0.6	55	0.0	1 426
220 kV	1 880	0.8	7	0.0	1 886
110 kV	6 066	2.5	617	0.3	6 683
1 kV to 110 kV	25 730	10.7	40 738	17.0	66 468
Up to 1 kV	32 982	13.8	130 046	54.3	163 028
Total	68 029	28.4	171 463	71.6	239 491

(*) Including high and ultra-high voltage lines of public generators

High voltage substations in the public grid at year-end 2016		
Voltage level	Number of transformers	Total capacity in MVA
Primary voltage up to 200 kV	1 028	42 834
Primary voltage over 200 kV	87	29 945
High voltage to high, medium and low voltage	1 115	72 779

Medium voltage substations in the public grid at year-end 2016		
Voltage level	Number of transformers	Total capacity in MVA
Medium voltage to medium and low voltage	78 530	31 275

Interruption of electricity supply, in minutes



Quality of electricity supply in Austria

Market statistics

Austrian gas market

Consumption structure					
Supply to consumers					
Consumer category	Unit	2015	2016	Change absolute	Change in %
Households	GWh	17 819	18 659	840	4.7
Small business and industry (1)	GWh	8 749	9 273	524	6.0
Medium-sized industry (2)	GWh	7 196	7 565	369	5.1
Large industry (3)	GWh	51 001	52 745	1 744	3.4
Statistical difference	GWh	-181	-363		
Total supply to consumers	GWh	84 585	87 880	3 295	3.9
Number of metering points (MP)					
Consumer category	Unit	2015	2016	Change absolute	Change in %
Households	1 000	1 268.5	1 269.7	1.3	0.1
Small business and industry (1)	1 000	76.8	75.7	-1.1	-1.5
Medium-sized industry (2)	1 000	0.8	0.9	0.1	6.0
Large industry (3)	1 000	0.2	0.2	0.0	5.1
Total number of metering points	1 000	1 346.3	1 346.5	0.2	0.0
Average consumption					
Consumer category	Unit	2015	2016	Change absolute	Change in %
Households	MWh/ZP	14.0	14.7	0.6	4.6
Small business and industry (1)	MWh/ZP	114	122	9	7.6
Medium-sized industry (2)	MWh/ZP	8 588	8 520	-68	-0.8
Large industry (3)	MWh/ZP	261 543	257 292	-4 251	-1.6
Total	MWh/ZP	62.8	65.3	2.4	3.9

(1) annual withdrawal up to 2.8 GWh/a

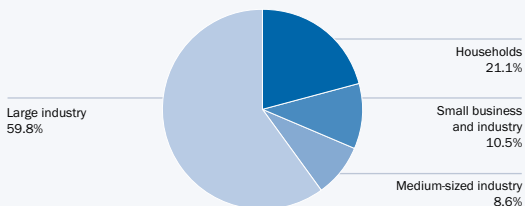
(2) annual withdrawal from 2.8 GWh/a to 28 GWh/a

(3) annual withdrawal exceeding 28 GWh/a

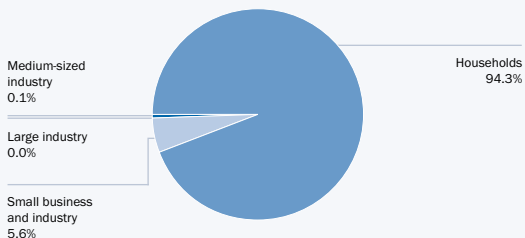
Statistical difference: Difference between metered consumption and individual reporting. Negative values may result from discrepancies between the settlement period and calendar year

Structure of the Austrian natural gas market in terms of consumer groups and areas within Austria (pages 36 – 38)

Consumption structure – supply to consumers 2016



Consumption structure – number of metering points 2016

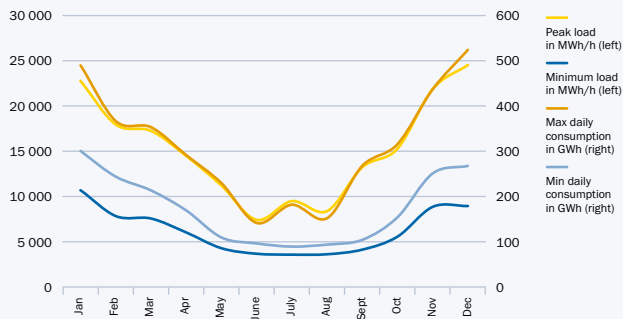


Consumption structure – supply to consumers by grid zone in GWh					
Federal province / grid zone		2015	2016	Change absolute	Change in %
Burgenland		2 229	2 330	101	4.5
Carinthia		2 201	2 222	21	0.9
Lower Austria		18 621	19 723	1 101	5.9
Upper Austria		21 283	22 650	1 367	6.4
Salzburg		2 867	3 191	324	11.3
Styria		12 753	12 658	−95	−0.7
Tyrol		3 918	3 963	44	1.1
Vorarlberg		2 280	2 329	49	2.1
Vienna		18 613	19 179	565	3.0
Austria	Statistical difference	−181	−363	—	—
	Total supply to consumers	84 585	87 880	3 295	3.9

Statistical difference: Difference between metered consumption and individual reporting per consumer category

Consumption structure – number of metering points by grid zone in 1 000				
Federal province / grid zone	2015	2016	Change absolute	Change in %
Burgenland	51.0	51.9	0.9	1.7
Carinthia	13.9	13.8	0.0	-0.1
Lower Austria	293.4	293.5	0.2	0.1
Upper Austria	145.5	144.8	-0.7	-0.5
Salzburg	36.4	36.5	0.1	0.3
Styria	66.9	67.0	0.1	0.1
Tyrol	47.7	49.4	1.7	3.6
Vorarlberg	35.2	35.6	0.4	1.2
Vienna	656.4	654.0	-2.4	-0.4
Austria	1 346.3	1 346.5	0.2	6.1

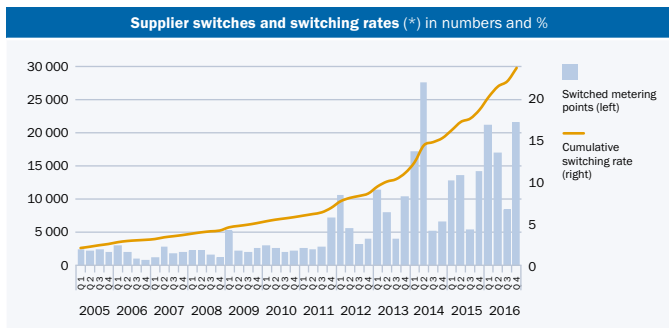
Load indicators for 2016 in MWh/h and GWh



Load indicators

	Annual peak load	Annual minimum load	Maximum daily minimum load	Maximum daily consumption	Minimum daily consumption	Peak load utilisation period
Year	MWh/h	MWh/h	MWh/h	GWh	GWh	h
2012	28 280	3 945	22 296	615	100	3 225
2013	23 871	3 153	16 033	489	80	3 640
2014	20 291	3 674	14 679	428	94	3 889
2015	20 684	3 310	14 180	432	90	4 080
2016	24 591	3 559	18 226	525	89	3 574

Load indicators of natural gas supply in Austria

THE EFFECTS OF LIBERALISATION: GAS SWITCHING RATES

(*) By number of metering points

Supplier switches and switching rates (*)					
	2005	2010	2014	2015	2016
Number of supplier switches					
Households	8 058	8 018	53 916	42 662	62 854
Small business and industry			2 763	3 330	5 266
Medium-sized industry	837	1 781	70	58	92
Large industry			28	9	34
Total	8 895	9 799	56 777	46 059	68 246
Switching rates in %					
Households	0.6	0.6	4.2	3.4	5.0
Small business and industry			3.6	4.3	7.0
Medium-sized industry	1.2	2.3	8.7	6.9	10.4
Large industry			14.4	4.6	16.6
Total	0.7	0.7	4.2	3.4	5.1

(*) By number of metering points

Supplier switches (*) by grid zone					
Federal province / grid zone	2005	2010	2014	2015	2016
Burgenland	50	139	1 332	1 160	1 761
Carinthia	37	28	524	585	893
Lower Austria	2 180	3 142	16 020	12 557	15 426
Upper Austria	1 273	1 582	9 791	7 972	11 611
Salzburg	78	65	495	568	989
Styria	158	643	4 026	3 172	4 968
Tyrol	—	2	255	400	1 140
Vorarlberg	—	2	136	304	562
Vienna	5 119	4 196	24 198	19 341	30 896
Austria	8 895	9 799	56 777	46 059	68 246

(*) By number of metering points

Switching rates (*) by grid zone in %					
Federal province / grid zone	2005	2010	2014	2015	2016
Burgenland	0.1	0.3	2.6	2.3	3.4
Carinthia	0.3	0.2	3.8	4.2	6.4
Lower Austria	0.8	1.1	5.5	4.3	5.3
Upper Austria	0.9	1.1	6.6	5.5	8.0
Salzburg	0.3	0.2	1.4	1.6	2.7
Styria	0.3	1.0	6.0	4.7	7.4
Tyrol	—	0.0	0.5	0.8	2.3
Vorarlberg	—	0.0	0.4	0.9	1.6
Vienna	0.8	0.6	3.7	2.9	4.7
Austria	0.7	0.7	4.2	3.4	5.1

(*) By number of metering points

Gas switching rates (pages 40 – 41)

Austrian electricity market (public grid)

Consumption structure					
Supply to consumers					
Consumer category	Unit	2015	2016	Change	
Households	GWh	13 138	14 327		
Small business and industry	GWh	20 125	18 763		
Medium-sized industry	GWh	10 161	8 508		
Large industry	GWh	14 394	16 999		
Statistical difference	GWh	-416	-413		
Total supply to consumers	GWh	57 402	58 184	781	1.4%
Number of metering points				... of consumer	
Consumer category	Unit	2015	2016	2015	2016
Households	1 000	4 368.8	4 954.9		3 997.0
Small business and industry	1 000	1 667.6	1 056.0		624.6
Medium-sized industry	1 000	2.0	34.4		1.0
Large industry	1 000	0.2	31.3		0.2
Total number of metering points	1 000	6 038.7	6 076.6		4 622.9
Average consumption per metering point				... per consumer	
Consumer category	Unit	2015	2016	2015	2016
Households	kWh/...	3 007	2 892		3 585
Small business and industry	kWh/...	12 068	17 768		30 038
Medium-sized industry	kWh/...	5 116 334	247 415		8 156 858
Large industry	kWh/...	68 870 617	543 786		71 423 284
Total	kWh/...	9 506	9 575		12 586

Households: residential sector

Small business and other small consumers: Consumers with an annual withdrawal from the public grid of less than 4 GWh

Medium-sized industry: Consumers with an annual withdrawal from the public grid between 4 GWh and 20 GWh

Large industry: Consumers with an annual withdrawal from the public grid of more than 20 GWh

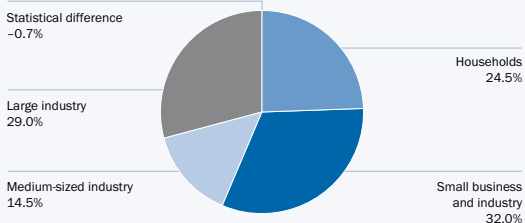
Statistical difference: Difference between metered consumption and individual reporting. Negative values may result from discrepancies between the settlement period and calendar year

Remarks:

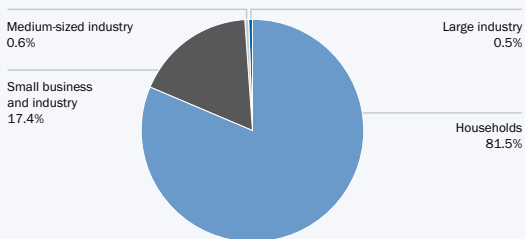
The breakdown by the two consumer categories households and non-households starts only with the reporting year 2016. An assignment to these two consumer categories before this date can only be modelled.

Consumer (Sites) are to be reported from 2016 onwards.

Consumption structure – supply to consumers 2016



Consumption structure – number of metering points 2016



Consumption structure – supply to consumers by grid zone in GWh

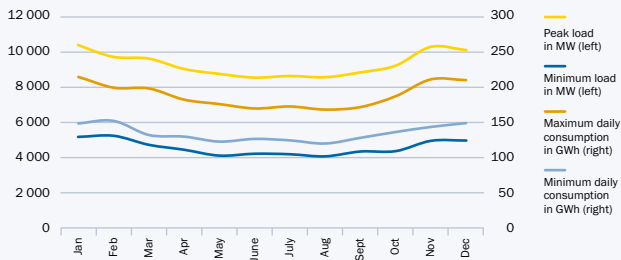
Federal province / grid zone		2015	2016	Change	
Burgenland		1 624	1 644	20	1.3%
Carinthia		4 199	4 211	11	0.3%
Lower Austria		8 245	8 282	37	0.4%
Upper Austria		10 953	11 278	324	3.0%
Salzburg		3 548	3 665	118	3.3%
Styria		8 690	8 716	25	0.3%
Tyrol		5 606	5 726	120	2.1%
Vorarlberg		2 593	2 622	28	1.1%
Vienna		12 359	12 452	94	0.8%
Austria	Statistical difference	-416	-413	—	—
	Total supply to consumers	57 402	58 184	781	1.4%

Statistical difference: Difference between metered consumption and individual reporting. Negative values may result from discrepancies between the settlement period and calendar year

Consumption structure – number of metering points and consumer by grid zone in 1 000

Federal province / grid zone		Number of metering points		Number of consumer	
		2015	2016	2015	2016
Burgenland		202.1	206.8	—	166.9
Carinthia		389.3	390.5	—	277.4
Lower Austria		846.7	849.3	—	652.9
Upper Austria		1 014.5	1 021.1	—	742.9
Salzburg		432.1	430.9	—	326.2
Styria		931.9	938.8	—	666.3
Tyrol		474.1	478.7	—	374.3
Vorarlberg		229.4	233.3	—	185.0
Vienna		1 518.7	1 527.2	—	1 231.0
Austria		6 038.7	6 076.6	—	4 622.9

Load indicators for 2016 in MW and GWh



Load indicators

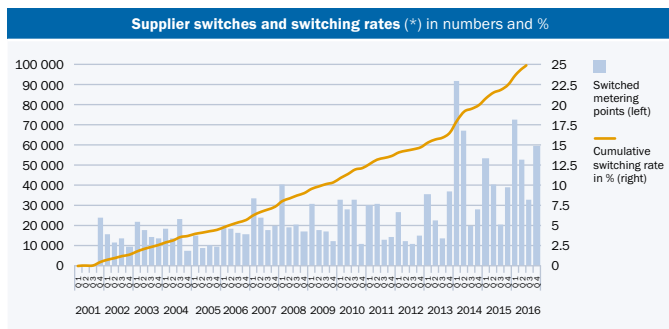
	Annual peak load	Annual minimum load	Maximum daily min. load	Daily baseload supply	Peak load utilisation time	Load factor (M)
	MW	MW	MW	GWh	h	
2012	10 113	3 894	6 785	44 189	5 873	0.67
2013	10 092	3 887	6 724	45 341	6 005	0.69
2014	10 132	4 030	6 661	44 685	5 932	0.68
2015	10 062	4 079	6 559	46 007	6 079	0.69
2016	10 398	4 084	6 967	46 763	5 945	0.68

Peak load utilisation time = consumption / peak load [during reference period]

Load factor = peak load utilisation time / number of hours [in the reference period]

Structure of the Austrian electricity market in terms of consumer groups and areas within Austria (pages 42 – 44)

Load indicators of electricity supply in Austria (this page)

THE EFFECTS OF LIBERALISATION: ELECTRICITY SWITCHING RATES

(*) By number of metering points

Supplier switches and switching rates (*)					
	2005	2010	2014	2015	2016
Number of supplier switches					
Households	22 768	69 781	159 747	102 571	173 981
Small business and industry	19 686	34 387	46 752	50 039	42 716
Medium-sized industry	164	224	109	163	1 094
Large industry	21	10	16	35	300
Total	42 639	104 402	206 624	152 808	218 091
Switching rates in %					
Households	0.6	1.7	3.7	2.3	3.5
Small business and industry	1.2	2.1	2.8	3.0	4.0
Medium-sized industry	6.3	12.2	5.8	8.2	3.2
Large industry	11.0	5.2	8.0	16.7	1.0
Total	0.8	1.8	3.4	2.5	3.6

(*) By number of metering points

Supplier switches (*) by grid zone					
Federal province / grid zone	2005	2010	2014	2015	2016
Burgenland	335	1 402	4 837	3 826	5 292
Carinthia	5 078	3 760	11 912	13 795	16 920
Lower Austria	6 322	21 580	30 203	17 570	23 369
Upper Austria	11 952	20 077	52 828	36 731	58 472
Salzburg	1 057	1 476	2 935	3 757	3 909
Styria	3 502	26 180	40 385	32 533	41 910
Tyrol	2 028	1 706	3 194	4 140	6 711
Vorarlberg	240	607	1 500	2 221	2 535
Vienna	12 125	27 614	58 830	38 235	58 973
Austria	42 639	104 402	206 624	152 808	218 091

(*) By number of metering points

Switching rates (*) by grid zone in %					
Federal province / grid zone	2005	2010	2014	2015	2016
Burgenland	0.2	0.7	2.4	1.9	2.6
Carinthia	1.4	1.0	3.1	3.5	4.3
Lower Austria	0.8	2.6	3.6	2.1	2.8
Upper Austria	1.3	2.1	5.2	3.6	5.7
Salzburg	0.3	0.4	0.7	0.9	0.9
Styria	0.4	2.9	4.3	3.5	4.5
Tyrol	0.5	0.4	0.7	0.9	1.4
Vorarlberg	0.1	0.3	0.7	1.0	1.1
Vienna	0.8	1.9	3.9	2.5	3.9
Austria	0.8	1.8	3.4	2.5	3.6

(*) By number of metering points

Electricity switching rates (pages 46 – 47)

Green electricity injection and support payments (Austria, 2016 and 2015)				
Primary energy source	Injection in GWh	Net support in m €	Supported green electricity share in total supply, in %	Average support in cent/kWh
2016	(1)			
Supported small hydro	1 772.2	86.2	3.0	4.86
Other renewables	7 997.9	924.3	13.7	11.56
Wind	4 931.8	440.3	8.5	8.93
Wastes with high biog. fraction	1 981.6	262.7	3.4	13.26
Biogas (*)	564.5	97.7	1.0	17.31
Liquid biomass	0.2	0.0	0.0003	12.62
Photovoltaics	500.5	122.9	0.86	24.56
Sewage and landfill gas	19.2	0.7	0.03	3.73
Geothermal	0.0	0.0	0.0000	2.56
Total small hydro and other renewables	9 770.1	1 010.5	16.7	10.34
2015	(2)			
Supported small hydro	1 519.0	74.5	2.6	4.78
Other renewables	7 649.3	883.3	13.3	11.55
Wind	4 591.8	404.5	8.0	8.67
Wastes with high biog. fraction	2 043.3	270.4	3.6	13.38
Biogas (*)	558.9	98.4	1.0	17.53
Liquid biomass	0.1	0.0	0.0001	13.21
Photovoltaics	436.6	109.3	0.76	26.56
Sewage and landfill gas	18.6	0.8	0.03	4.58
Geothermal	0.1	0.0	0.0001	3.48
Total small hydro and other renewables	9 168.3	957.8	16.0	10.45

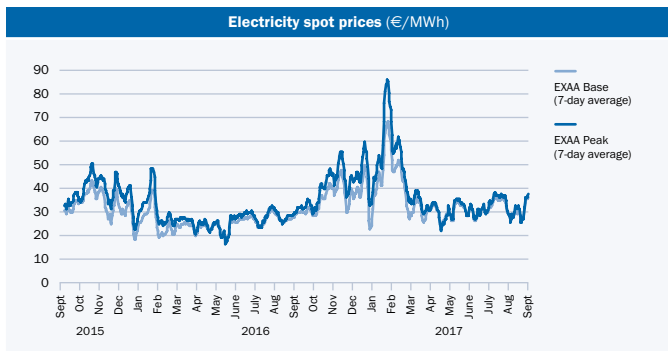
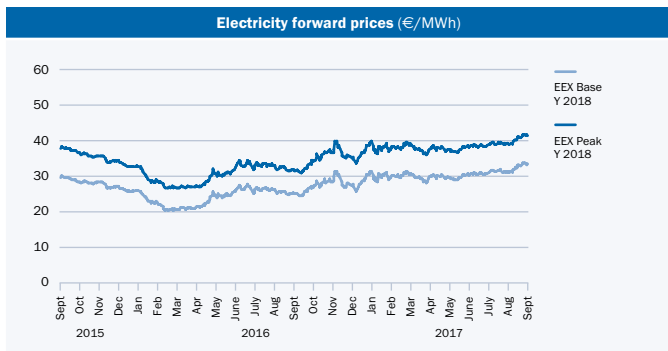
(*) incl. operation markups

(1) Relating to the total electricity supplied to consumers from the public grid in 2016, i.e. 58 335 GWh (as of 03/2017)

(2) Relating to the total electricity supplied to consumers from the public grid in 2015, i.e. 57 501 GWh (as of 03/2017)

Source: Green power settlement agent OeMAG, E-Control, March 2017 – preliminary values

Wholesale markets



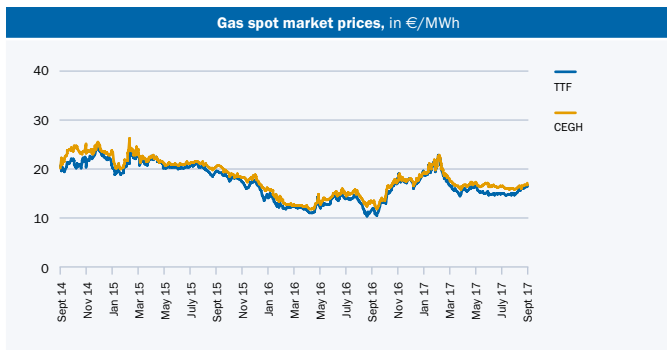
Price developments in a variety of relevant wholesale markets (pages 49 – 55)

Electricity forward and spot prices in €/MWh				
	EEX Base		EEX Peak	
	Day-ahead average	Y 2018 average	Day-ahead average	Y 2018 average
2015	31.63	30.25	35.06	38.47
2016	29.14	25.15	32.26	31.99
January 2016	29.59	23.50	35.76	29.66
February 2016	22.44	20.80	26.51	27.10
March 2016	24.11	20.86	26.01	26.75
April 2016	24.29	22.73	24.72	28.62
May 2016	23.01	24.60	23.18	30.75
June 2016	27.63	26.52	29.48	33.15
July 2016	27.14	26.34	27.86	33.17
August 2016	27.26	25.32	28.20	32.03
September 2016	30.14	25.52	32.25	32.17
October 2016	36.87	28.11	41.39	35.99
November 2016	39.20	28.66	45.74	36.76
December 2016	37.75	28.48	45.82	36.50
January 2017	51.37	29.88	62.82	37.85
February 2017	40.56	30.34	47.41	38.42
March 2017	31.47	29.47	33.74	37.38
April 2017	29.00	29.93	28.67	37.81
May 2017	31.66	29.64	32.59	37.48
June 2017	30.23	30.69	30.68	38.50
July 2017	33.50	31.46	34.55	39.22
August 2017	30.77	32.48	31.77	40.41

Source: EXAA, EEX

Gas spot market prices, in €/MWh					
	TTF (NL) average	CEGH (AT) average		TTF (NL) average	CEGH (AT) average
2015	19.80	20.65	October 2016	16.05	16.58
2016	14.01	14.81	November 2016	18.03	18.15
January 2016	13.76	15.03	December 2016	17.66	18.12
February 2016	12.39	13.16	January 2017	20.09	20.35
March 2016	12.28	12.70	February 2017	19.77	20.26
April 2016	12.05	12.63	March 2017	15.82	16.94
May 2016	13.01	13.93	April 2017	16.17	17.03
June 2016	14.44	15.30	May 2017	15.67	16.96
July 2016	14.26	15.33	June 2017	15.08	16.66
August 2016	12.01	13.56	July 2017	15.05	16.29
September 2016	12.20	13.22	August 2017	15.93	16.58

Sources: ICIS Heren, CEGH



Sources: ICIS Heren, CEGH

Gas and coal forward prices in €/MWh, €/t

Y 2018					
	Gas average	Coal average		Gas average	Coal average
January 2016	14.85	38.80	December 2016	17.57	60.45
February 2016	14.60	37.39	January 2017	18.21	65.73
March 2016	14.44	39.93	February 2017	18.00	67.01
April 2016	14.78	43.30	March 2017	16.76	64.83
May 2016	15.62	46.81	April 2017	16.95	66.19
June 2016	16.97	54.11	May 2017	16.67	65.59
July 2016	17.31	58.55	June 2017	16.25	68.71
August 2016	16.20	56.97	July 2017	16.20	72.56
September 2016	15.94	57.50	August 2017	16.48	76.88
October 2016	17.01	61.21	September 2017	17.24	81.13
November 2016	17.06	63.21			

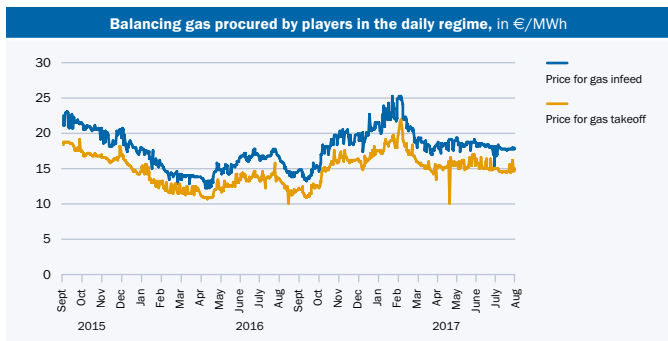
Source: EEX, ICE

Gas and coal forward prices in €/MWh, €/t

Source: EEX, ICE

Gas import price (2002 = 100)					
	Import index	Change in %		Import index	Change in %
2002	100.00		2012	240.63	10.38
2003	103.82	3.82	2013	241.84	0.50
2004	102.00	-1.75	2014	200.64	-17.03
2005	135.12	32.47	2015	178.90	-10.83
2006	174.62	29.23	2016	127.52	-28.72
2007	160.87	-7.87	January 2017	150.83	18.27
2008	226.46	40.77	February 2017	163.20	8.20
2009	164.19	-27.50	March 2017	159.15	-2.48
2010	182.52	11.16	April 2017	141.45	-10.80
2011	218.01	19.44	May 2017	139.52	-1.72

Source: Statistics Austria



Source: Austrian Gas Clearing and Settlement (AGCS)

Brent oil forward market (next month) in €/barrel and \$/barrel

	€/barrel	USD/barrel	Month-on-month change of € in %
January 2016	29.50	32.04	
February 2016	30.24	33.53	2.49
March 2016	35.82	39.79	18.47
April 2016	38.23	43.34	6.70
May 2016	42.15	47.65	10.26
June 2016	44.46	49.93	5.49
July 2016	42.04	46.53	-5.44
August 2016	42.05	47.16	0.03
September 2016	42.13	47.24	0.19
October 2016	46.61	51.39	10.62
November 2016	43.62	47.08	-6.40
December 2016	52.01	54.82	19.23
January 2017	52.30	55.51	0.56
February 2017	52.68	56.07	0.73
March 2017	49.23	52.58	-6.56
April 2017	50.15	53.84	1.86
May 2017	46.51	51.44	-7.25
June 2017	42.40	47.61	-8.85
July 2017	42.69	49.15	0.70
August 2017	43.93	51.87	2.91
September 2017	46.57	55.48	6.00

Source: ICE, Oesterreichische Nationalbank (OeNB)

Brent oil forward market in €/barrel

Source: ICE, Oesterreichische Nationalbank (OeNB)

CO₂ emissions forward prices in €/t

	EEX CO ₂ Y17 (MidDec)		EEX CO ₂ Y17 (MidDec)
2015	7.92	October 2016	5.73
2016	5.41	November 2016	5.67
January 2016	6.96	December 2016	5.24
February 2016	5.22	January 2017	5.25
March 2016	4.99	February 2017	5.15
April 2016	5.75	March 2017	5.11
May 2016	6.03	April 2017	4.77
June 2016	5.67	May 2017	4.70
July 2016	4.69	June 2017	4.98
August 2016	4.73	July 2017	5.27
September 2016	4.35	August 2017	5.66

Source: EEX

CO₂ emissions forward prices in €/t

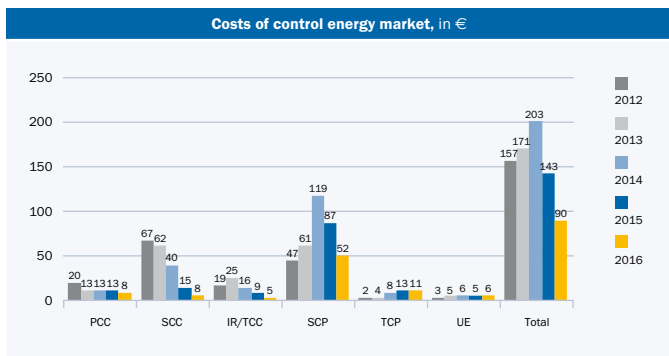


Source: EEX

Pellet price index (*)										
	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017
Index 2000 = 100	100	80	92	100	96	104	100	96	92	92
Year-on-year change in %		-20.00	15.00	8.70	-4.00	8.33	-3.85	-4.00	-4.17	0.00

(*) Based on average annual values, corrected for inflation

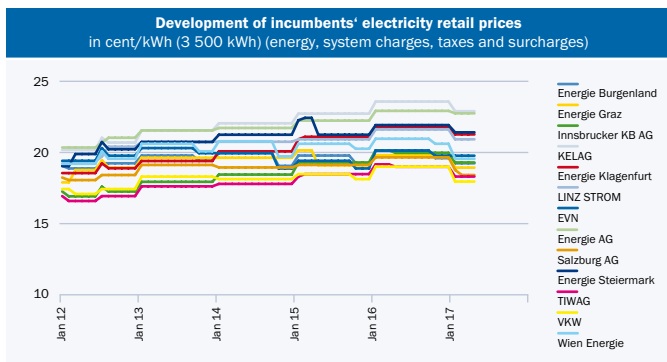
Sources: proPellets Austria, E-Control calculations



Source: E-Control

The above graph displays the balancing costs in Austria [in million €], itemised into primarily control capacity (PCC), secondary control capacity (SCC), incident reserve and tertiary control capacity (IR/TCC), secondary control power (SCP), tertiary control power (TCP) and unintentional exchange (UE); 2012 to 2014 weeks 1 through 52; 2015 and 2016 1 January through 31 December

Retail markets

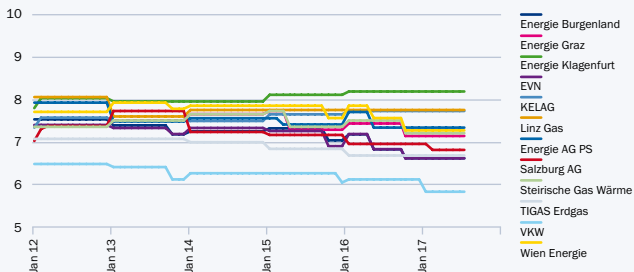


Source: E-Control, tariff calculator

Development of electricity retail prices in cent/kWh (3 500 kWh)						
	Incumbent energy prices with general discounts, volume weighted			Energy prices of all suppliers		
	Minimum	Maximum	Average	1st quartile	Median	3rd quartile
H1 2012	6.473	8.799	8.013	6.723	7.665	8.260
H2 2012	6.121	8.750	7.757	6.528	7.665	8.260
H1 2013	6.121	8.750	7.730	6.550	7.574	8.043
H2 2013	6.120	8.750	7.670	6.430	7.300	7.839
H1 2014	6.120	8.750	7.577	6.405	7.146	7.781
H2 2014	6.120	8.750	7.405	6.020	6.638	7.330
H1 2015	6.093	8.750	7.155	6.053	6.488	7.314
H2 2015	5.966	8.750	7.025	5.870	6.211	6.958
H1 2016	5.740	8.750	6.895	5.423	6.088	6.975
H2 2016	5.669	8.750	6.825	5.306	5.924	6.920
H1 2017	5.668	8.750	6.760	5.317	5.836	6.623

Retail price developments for electricity and gas (pages 57 – 58)

Development of incumbents' gas retail prices
in cent/kWh (15 000 kWh) (energy, system charges, taxes and surcharges)



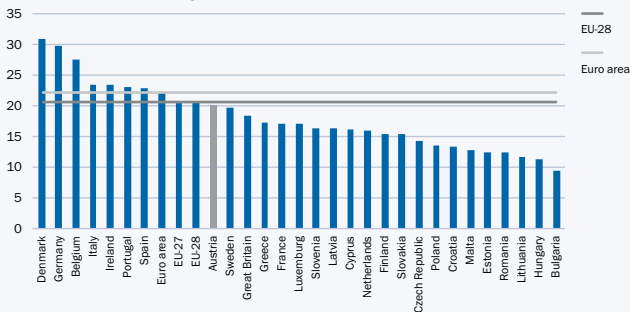
Source: E-Control, tariff calculator

Development of gas retail prices in cent/kWh (15 000 kWh)

	Incumbent energy prices with general discounts, volume weighted			Energy prices of all suppliers		
	Minimum	Maximum	Average	1st quartile	Median	3rd quartile
H1 2012	3.030	4.007	3.793	—	—	—
H2 2012	3.030	4.007	3.795	—	—	—
H1 2013	3.250	4.020	3.809	3.381	3.590	3.754
H2 2013	3.250	4.017	3.762	3.304	3.588	3.753
H1 2014	3.090	4.007	3.685	3.175	3.445	3.632
H2 2014	3.090	4.007	3.686	3.192	3.427	3.589
H1 2015	2.990	4.007	3.664	3.150	3.330	3.526
H2 2015	2.990	4.010	3.359	3.097	3.270	3.512
H1 2016	2.690	3.830	3.442	2.792	3.117	3.363
H2 2016	2.690	3.832	3.344	2.639	3.009	3.182
H1 2017	2.690	3.832	3.275	2.637	3.000	3.186

Household electricity prices in Europe, H2 2016 (2 500 – 5 000 kWh)

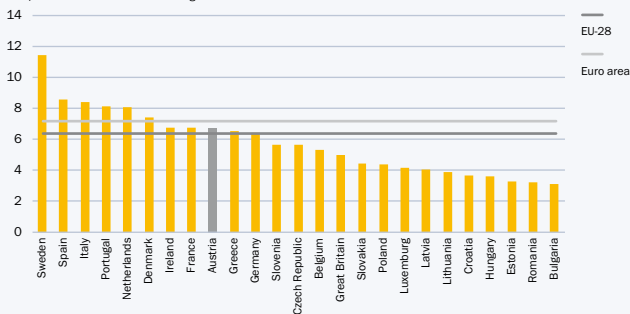
Cent/kWh incl. all taxes and surcharges



Source: Eurostat

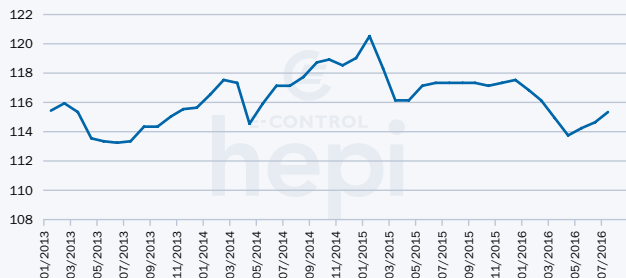
Household gas prices in Europe, H2 2016 (5 555.6 – 55 556 kWh)

Cent/kWh incl. all taxes and surcharges



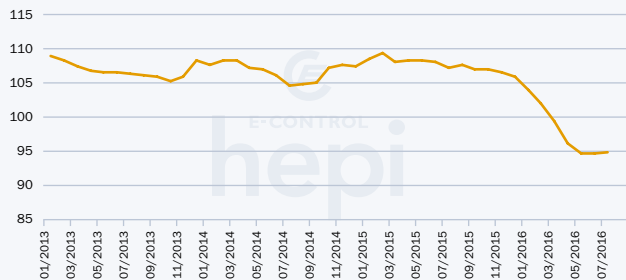
Source: Eurostat

Household Energy Price Index for Europe (HEPI) – electricity



Sources: E-Control, MEKH and VaasaETT Ltd.

Household Energy Price Index for Europe (HEPI) – gas



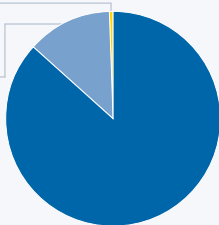
Sources: E-Control, MEKH and VaasaETT

International electricity and gas price comparisons (pages 59 – 60)

Electricity labelling in Austria in 2016

Other known
primary sources:
0.40%

Known fossil
primary sources:
12.86%



Known renewable
primary sources:
86.74%

Austrian electricity labelling in 2016

Terms and definitions

When using material from this brochure, please quote E-Control as your source of information.

Austrian electricity, natural gas and renewables statistics

The responsibility for statistical data collection on fossil fuels and electricity lies with the Austrian Federal Minister of Science, Research and Economy.

Statistical work on electricity and gaseous energy carriers is conducted by E-Control (section 52 Electricity Act and section 59 Natural Gas Act). The details and scope of this statistical work and regulations on the publication of the results are contained in the Electricity Statistics Ordinance 2016 (issued by the Ministry of Science, Research and Economy, FLG II no 17/2016) and the Gas Statistics Ordinance 2017 (issued by E-Control's Executive Board, FLG II no 417/2017).

The results of data collection and analyses are published on our website at www.e-control.at/en/statistics.

Glossary

Final energy consumption in energy statistics is the consumption of energy for any purpose other than transformation into other forms of energy. Final energy is the useful energy available to a consumer (e.g. for heating, lighting, mechanical uses). Neither transformation losses nor transport losses or natural gas supplied to gas-fired power stations are part of final energy consumption.

Supply to consumers in gas and electricity statistics is the energy withdrawn from the grid or autogenerated by consumers (final customers) and consumed by them. The concept embraces both gas supplied to gas-fired power plants and electricity supplied to refineries. This also holds for the electricity generated by refineries in their own power plants and used to process oil.

Gross domestic consumption in energy statistics is the energy needed to cover all domestic energy demand. Apart from final energy consumption and final non-energy consumption, it includes transformation losses, own use of the energy sector and non-energetic uses of fossil fuels (e.g. the use of coal for making electrodes). Please note that breakdown according to individual energy sources or regional breakdown of the gross domestic consumption might yield negative values where export rates are high.

Useful energy consumption in energy statistics is the final energy consumption minus consumption losses (depending on the equipment's efficiency e.g. in lighting, heating or cooling devices). Useful energy can normally be broken down into space heating and cooling, process heat (steam production and industrial furnaces), mechanical uses (stationary engines), transport, IT and lighting, and electrochemical uses.

Electricity and natural gas balances in electricity and natural gas statistics cover the respective markets and rely solely on physical flow data. Please note that the electricity balance includes the total gross electricity production at the generator terminals (i.e. also electricity produced in pumped storage plants) but also energy consumption for pumping. The natural gas balance includes all imports and exports metered at Austria's borders, and all storage movements, regardless of whether the gas is destined for domestic or foreign consumption.

Natural gas conditions

All volumes in Nm^3 refer to natural gas in normal state, i.e.

temperature: 0°C

humidity: 0 percent

absolute pressure: 1 013.25 mbar

Latest valid calorific value (kWh/Nm^3): 11.200

Public grid means the grid in the Austrian control areas APG, TIRAG (up to 2010) and VKW (incl. VIW) as well as the Austrian supply areas connected to foreign control areas.

Fossil fuels are fuels from natural resources formed from biomass through natural processes over time. The term is also used to refer to secondary fuels produced from primary fossil fuels (e.g. coke or gasoline).

Renewable energy is generated from geothermal energy, solar power or gravity, i.e. from non-finite energy sources, or from biomass as a finite energy source.

Please note that electricity statistics differentiate between (i) hydropower, (ii) wind, solar and geothermal energy, and (iii) biofuels; renewables shares are itemised according to generation types.

Biofuels as used in the Austrian Green Electricity Act are in particular the following renewable, non-fossil energy sources: biomass, wastes containing a high biogenous fractions, landfill and sewage gas, biogas, meat and bone meal, black liquor, and sewage sludge.

Units of mass and volume are physical units for the purpose of metering mass or volume in different states of matter (solid, liquid, gaseous), such as litres or cubic metres.

Energy units quantify a fuel's or energy source's energy content. Electric energy and hydropower are measured in kilowatt hours (kWh), the heat of thermal energy in calories or joule. In the interest of comparability, solid, liquid and gaseous fuels may also be measured in energy units; converting physical into energy units is achieved by means of conversion factors that relate one unit of a fuel to the heat produced from it (see the calorific values in different energy balances).

Units of measurement

1 V	=	1 volt		
1 A	=	1 ampere		
1 W	=	1 watt		
1 Hz	=	1 hertz	=	1 oscillation/sec
1 J	=	1 joule	=	1 watt second (Ws) = $0.27778 \cdot 10^{-3}$ Wh
1 Wh	=	1 watt hour	=	$3.6 \cdot 10^3$ joule

Most common multiple and sub-multiple prefixes

Multiple	Sub-multiple
10^1 deca (da)	10^{-1} deci (d)
10^2 hecto (h)	10^{-2} centi (c)
10^3 kilo (k)	10^{-3} milli (m)
10^6 mega (M)	10^{-6} micro (μ)
10^9 giga (G)	10^{-9} nano (n)
10^{12} tera (T)	10^{-12} pico (p)
10^{15} peta (P)	10^{-15} femto (f)
10^{18} exa (E)	10^{-18} atto (a)

Units used

1 kV	= 1 kilovolt	= 1 000 V
1 kW	= 1 kilowatt	= 1 000 W
1 MW	= 1 megawatt	= 1 000 kW
1 GW	= 1 gigawatt	= 1 000 MW
1 TW	= 1 terawatt	= 1 000 GW

1 kWh	= 1 kilowatt hour	= 1 000 Wh
1 MWh	= 1 megawatt hour	= 1 000 kWh
1 GWh	= 1 gigawatt hour	= 1 000 MWh
1 TWh	= 1 terawatt hour	= 1 000 GWh

1 kJ	= 1 kilojoule	= 1 000 J
1 MJ	= 1 megajoule	= 1 000 kJ
1 GJ	= 1 gigajoule	= 1 000 MJ
1 TJ	= 1 terajoule	= 1 000 GJ

Multilingual terms

Deutsch	English	Français
Laufkraftwerk	run-of-river power plant	centrale gravitaire
Speicherkraftwerk	storage power plant	station de pompage-turbinage
Wasserkraftwerk	hydropower plant	centrale hydroélectrique
Steinkohle	hard coal	houille
Braunkohle	lignite	lignite
Derivate	derivative	dérivés
Erdgas	natural gas	gaz naturel
Fossile Brennstoffe	fossil fuels	combustibles fossiles
Biogene Brennstoffe	biofuels	biocombustibles
Wärmekraftwerk	thermal power plant	centrale thermique
Windkraftwerk	wind power plant	centrale éolienne
Photovoltaikanlage	solar/photovoltaic power plant	centrale photovoltaïque
Geothermie	geothermal energy	géothermie
Speicherentnahme	storage withdrawal	prélèvement
Speichereinpressung	storage injection	stockage
Eigenverbrauch	own use/consumption	usage propre
Verlust / Netzverlust	(grid) losses	pertes en ligne
Pumpstromaufwand / Verbrauch f. Pumpspeicherung	consumption for pumped storage / pumping	consommation des pompes
Haushalte	households	secteur résidentiel
Sonstige Kleinkunden	other small consumers	autres clients profilés
Lastganggemessene Kunden	load-metered consumers	clients mesurés
Inlandsstromverbrauch	domestic electricity consumption	consommation intérieure
Abgabe an Endkunden	supply to consumers	livraison aux consommateurs
Energetischer Endverbrauch	final energy consumption	consommation finale d'énergie
Nutzenergie(verbrauch)	useful energy (consumption)	énergie utile (consommation)
Heizwert	net calorific value	pouvoir calorifique inférieur
Brennwert	gross calorific value	pouvoir calorifique supérieur

International conversion factors

Units of mass					
To:	kg	t	lt	st	lb
From:	Multiply by:				
kg Kilogramme	1	0.001	9.84×10^{-4}	1.102×10^{-3}	2.2046
t Ton	1 000	1	0.984	1.1023	2 204.6
lg Long ton	1 016	1.016	1	1.120	2 240
st Short ton	907.2	0.9072	0.893	1	2 000
lb Pound	0.454	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}	1

Source: IEA

Units of energy					
To:	TJ	Gcal	Mtoe	MBtu	GWh
From:	Multiply by:				
TJ Terajoule	1	238.8	2.388×10^{-5}	947.8	0.2778
Gcal Gigacalorie	4.1868×10^{-3}	1	10^{-7}	3.968	1.163×10^{-3}
Mtoe Million tons of oil equivalent	4.1868×10^4	10^{07}	1	3.967×10^7	11 630
MBtu Million British thermal units	1.0551×10^{-3}	0.252	2.52×10^{-8}	1	2.931×10^{-4}
GWh Gigawatt hour	3.60	860	8.6×10^{-5}	3412	1

Source: Eurostat, IEA

Units of volume						
To:	US gal	UK gal	bbl	ft3	l	m ³
From:	Multiply by:					
US gal US gallon	1	0.8327	0.02381	0.1337	3.785	0.0038
UK gal UK gallon	1.201	1	0.02859	0.1605	4.546	0.0045
bbl Barrel	42.0	34.97	1	5.615	159	0.159
ft3 Cubic foot	7.48	6.229	0.1781	1	28.3	0.0283
l Litre	0.2642	0.22	0.0063	0.0353	1	0.001
m³ Cubic metre	264.2	220	6.289	35.3147	1 000	1

Source: IEA

Calorific values in the Austrian energy balance

Statistics Austria, arithmetic means over the past five years			
Energy source	Gigajoule / ...	Gross domestic consumption	Final energy consumption
Hard coal	t	28.41	27.730
Lignite	t	19.73	19.730
Brown coal briquettes	t	19.60	19.600
Coke oven coke	t	28.64	28.640
Crude oil	t	42.54	—
Petrol	t	41.47	41.685
Diesel	t	42.46	42.464
Gas oil	t	42.87	42.870
Fuel oil	t	40.64	41.315
Natural gas	1 000 cu m	36.28	36.265
Solid and liquid waste	t	13.22	14.680
Fuelwood	t	14.31	14.311
Biofuels	t	11.55	12.758
Geothermal energy	MWh	3.60	3.600
District heat	MWh	—	3.600
Hydropower	MWh	3.60	—
Wind and photovoltaics	MWh	3.60	—
Electric energy	MWh	3.60	3.600

Source: Statistics Austria

Notes

Editorial

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