

Gas and electricity market statistics

Data 1990-2006



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Introduction

How have gas and electricity production and consumption evolved over the last 10 years in the EU ? Is the share of wind energy in electricity production still growing? To what degree are Member States dependent on their neighbours energy for? What were price trends for households and industry? What is the proportion of taxes paid on electricity in the individual Member States?

The second edition of *Gas and electricity market statistics* attempts to answer these and other questions by giving a basic statistical overview of the electricity and gas markets in the 25 Member States of the European Union. Where possible, data for the Candidate Countries, Norway and Iceland are also included.

Four sections make up the publication: production and installed capacity (Chapter 1), consumption (Chapter 2), import and export (Chapter 3) and, finally, prices and taxes (Chapter 4).

Readers should note that the consumption figures presented in Chapter 2 look at final electricity and natural gas consumption, and exclude the consumption of the energy sector with the exception of chapter 3 related to gas. In addition, caution should be exercised when interpreting the data on dependency and trade in Chapter 3 which covers trade in electricity and natural gas. Countries importing energy may give the impression of being dependent on foreign suppliers. However, importing electricity is often a deliberate, economically motivated choice rather than a necessity.

Against a background of liberalisation of the EU electricity and gas markets and consequently, an increasing number of retailers and type of supply-contract, it should be noted that price information shown is based on representative figures as reported by national authorities.

The CD-ROM accompanying this publication offers information concerning the collection, compilation and harmonisation of electricity and gas statistics, including notably energy balance sheets, methodological information concerning the electricity and gas price systems and price indications according to standard consumer categories. Also, as certain aspects of statistical reporting are governed by EU legislation, relevant EU Directives have been included.

Internationally agreed concepts and definitions apply throughout the publication. Methodological explanations can easily be retrieved from the special energy-related section of CODED, Eurostat's Concepts and Definitions Database.

(<http://forum.europa.eu.int/irc/dsis/coded/info/data/coded/en/Theme9.htm>).

The latest available data from the Eurostat reference database, NewCronos, have been used for this publication. The time frame covered is 1990-2004 for quantitative data (Chapter 1 to 3) and 1996-2006 for price data (Chapter 4). More detailed data and updates are available free of charge from the online database (www.europa.eu.int/comm/eurostat).

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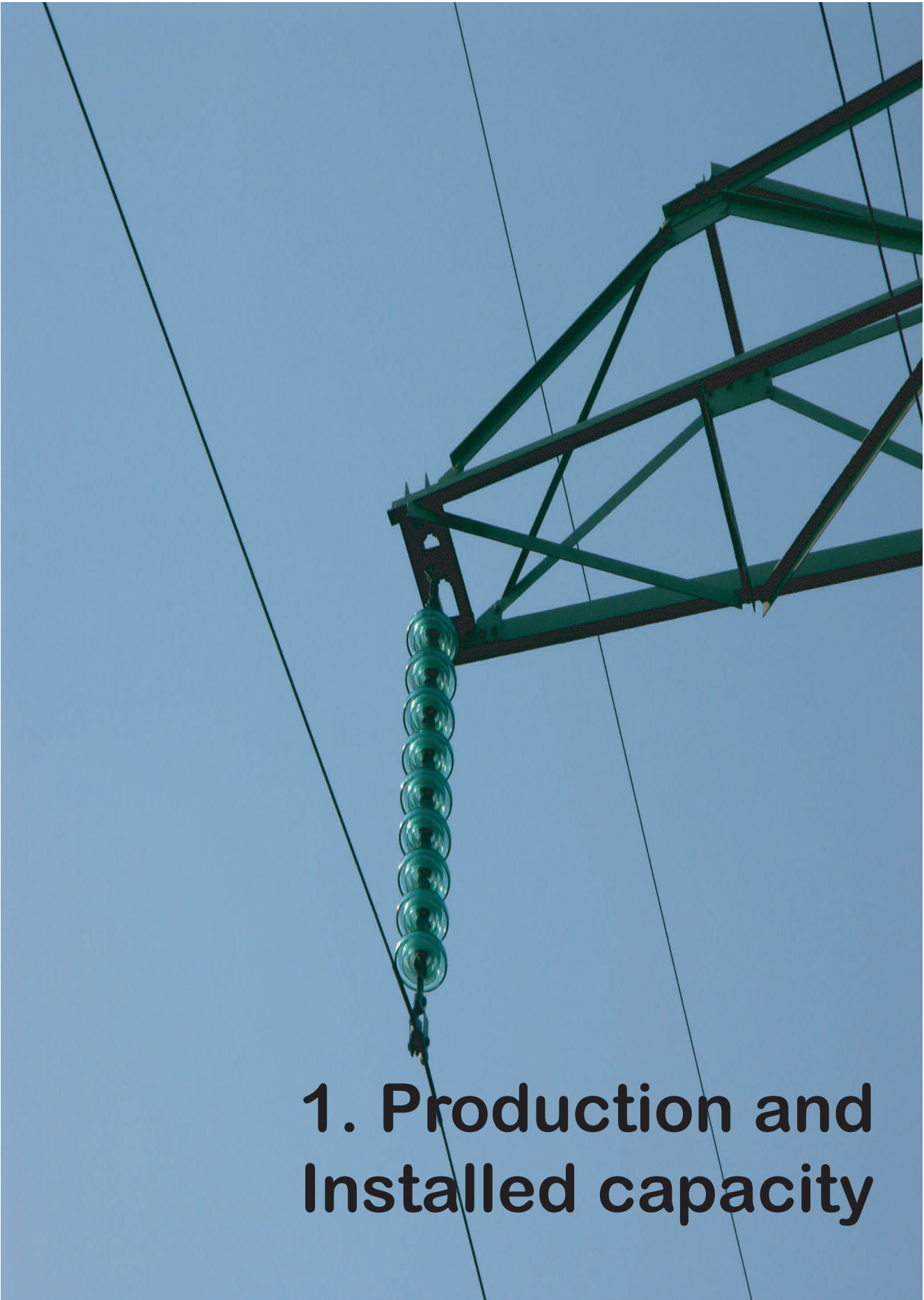
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1. Production and Installed capacity

1. PRODUCTION AND INSTALLED CAPACITY

1.1 Electricity production

1.1.1 Total electricity production

Looking at the breakdown of electricity production within the EU-25 in 2004, conventional thermal energy was clearly the main electricity source, accounting for 56.4% of gross electricity production (see Figure 1.1).

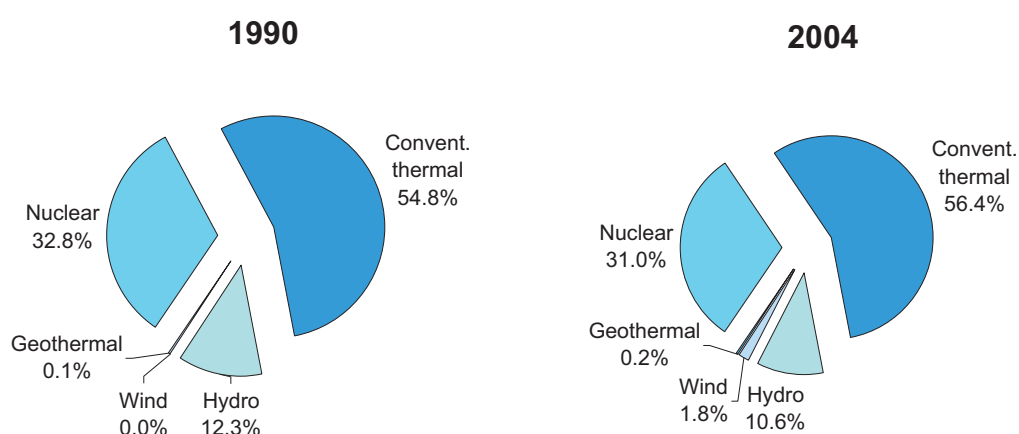
The second largest source was nuclear energy, which with 31.0% generated almost a third of gross electricity production. Together, these two sources provided approximately 87% of the total, with the remainder of about 13% coming from hydro power (10.6%) - the third largest source - wind (1.8%) and geothermal energy (0.2%).

Comparing this breakdown with the picture in 1990, there has not been much change in the shares of nuclear and conventional thermal energy, with the former slightly decreasing (-1.8 percentage points) and the latter slightly increasing (+1.6 percentage points).

However, what is perhaps more interesting are the relative changes recorded for the other energy sources. Wind energy, despite its very small share in electricity generation, went from being practically non-existent in 1990 to providing 1.8% of electricity production by 2004.

Geothermal energy also increased its share over this period. In contrast, the share of hydro power fell.

Figure 1.1: Gross electricity production, share by type of generation, EU-25



Source: Eurostat

Total gross electricity generation (measured in gigawatt hours) increased between 1990 and 2004 by 34% in the EU-25 and by slightly more (37%) in the EU-15. Compared to 2003, electricity production in the EU-25 in 2004 stood

2% higher (see Table 1.2). Moreover, looking at the annual data, not all of which are shown here, this growth was generally constant from one year to the next.

Table 1.2: Total gross electricity generation (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	2 380 776	2 631 273	2 928 506	3 010 773	3 019 626	3 117 178	3 179 132	2.0
EU-15	2 061 619	2 327 687	2 600 998	2 674 544	2 679 818	2 763 291	2 820 466	2.1
BE	70 845	74 429	83 894	79 697	82 060	84 618	85 441	1.0
CZ	62 559	60 847	73 466	74 647	76 346	83 223	84 323	1.3
DK	25 821	36 790	36 035	37 697	39 269	46 149	40 463	-12.3
DE	453 591	536 244	571 551	586 340	571 645	599 470	606 636	1.2
EE	17 181	8 692	8 512	8 483	8 526	10 153	10 296	1.4
EL	35 002	41 551	53 843	53 704	54 608	58 471	59 344	1.5
ES	151 838	167 327	225 148	237 991	246 079	262 860	279 953	6.5
FR	420 744	493 897	540 668	550 488	559 197	566 949	572 241	0.9
IE	14 510	17 859	23 978	24 956	25 195	25 219	25 569	1.4
IT	216 878	241 107	276 623	278 995	284 401	293 884	303 322	3.2
CY	1 974	2 473	3 370	3 551	3 785	4 044	4 176	3.3
LV	6 648	3 979	4 136	4 280	3 975	3 975	4 689	18.0
LT	28 405	13 898	11 424	14 737	17 721	19 488	19 273	-1.1
LU	1 381	1 241	1 175	1 242	3 675	3 611	4 136	14.5
HU	28 470	34 112	35 191	36 417	36 160	34 141	33 702	-1.3
MT	1 100	1 632	1 917	1 987	2 052	2 236	2 216	-0.9
NL	71 970	81 071	89 615	93 747	95 965	96 775	100 736	4.1
AT	50 294	56 589	61 821	62 430	62 479	60 097	64 123	6.7
PL	136 311	138 993	145 183	145 615	144 126	151 631	154 159	1.7
PT	28 501	33 265	43 764	46 509	46 107	46 852	45 105	-3.7
SI	12 442	12 654	13 624	14 466	14 690	13 820	15 271	10.5
SK	24 067	26 306	30 685	32 046	32 427	31 176	30 561	-2.0
FI	54 364	63 896	69 989	74 450	74 899	84 230	85 817	1.9
SE	146 917	148 379	145 585	161 616	146 733	135 435	151 727	12.0
UK	318 963	334 042	377 309	384 682	387 506	398 671	395 853	-0.7
BG	42 141	41 789	40 924	43 968	42 679	42 600	41 620	-2.3
HR	8 693	8 863	10 702	12 175	12 286	12 670	13 320	5.1
RO	64 309	59 266	51 934	53 866	54 935	56 645	56 482	-0.3
TR	57 543	86 247	124 922	122 725	129 400	140 581	150 698	7.2
IS	4 510	4 981	7 684	8 033	8 416	8 500	8 623	1.4
NO	121 848	123 011	143 028	121 890	130 705	107 321	110 481	2.9

Source: Eurostat

It should however be borne in mind that these average growth rates for the EU as a whole mask diverging trends at national level: from increases of +199% in Luxembourg, +112% in Cyprus, and +101% in Malta to declines in the Baltic States - Estonia (-40%), Lithuania (-32%) and Latvia (-29%) - over the period from 1990 to 2004.

Looking at the short-term development between 2003 and 2004, a number of Member States diverge from the EU trend: whereas Latvia, Luxembourg, Sweden and Slovenia increased production by over 10%, Denmark saw its total generation drop by 12% and Portugal by nearly 4%. Generation decreases in other Member States were limited to 2% or less.

Looking at the country values in 2004, the largest producer was Germany with 606 636 GWh. However, it was closely followed by France (572 241), some way ahead of the United Kingdom (395 853) and Italy (303 322).

As suggested by the EU averages (see Figure 1.3), a glance at the electricity sources in the individual Member States shows that conventional thermal energy was usually the largest energy source, followed by nuclear energy and/or hydro power, and often wind as the last source. Geothermal energy was produced only in Italy and Portugal.

1. Production and Installed capacity

On closer inspection, however, this broad pattern was not true for a number of Member States. For example, in Belgium, France, Lithuania, Slovakia and Sweden, nuclear energy was the leading source of electricity, whereas hydro power was the main source in Latvia and Austria.

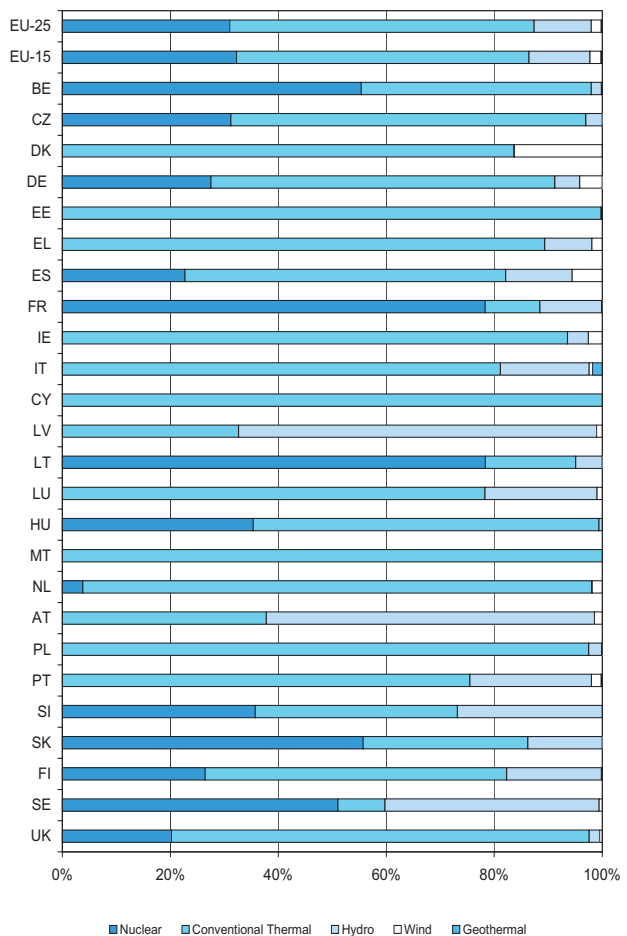
And while most countries used nuclear or hydro power as a second source, Denmark, Germany and Spain were the only countries using wind energy on a significant scale.

Turning now to the individual electricity sources (see Figure 1.4), positive trends were seen with each and every one, particularly wind, which because of its explosive growth is considered separately later in this section. Indeed, in terms of relative growth (1990 = 100), even if the volumes were small, the expansion of wind energy was by far the most impressive: the generation recorded in 2004 was 75 times the volume of 1990.

Similarly, geothermal energy, although it accounted for a minute share of total energy, still grew by 71%, the second largest growth. Conventional thermal energy expanded by 37%, ahead of nuclear (26%) and hydro power (16%).

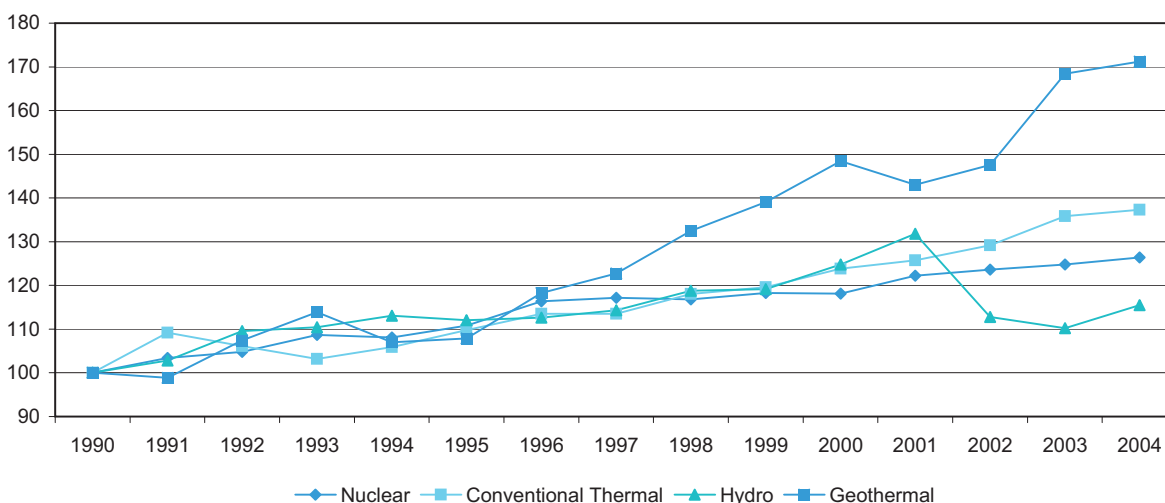
Interestingly, although hydro power grew the least, this would not have been the case had it continued on the upward path recorded before 2001. Between 2001 and 2002, it actually decreased by about 20 percentage points, mainly due to dry weather conditions (see also Section 1.1.4). In 2004, growth was observed once again (+6 percentage points between 2003 and 2004).

Figure 1.3: Total electricity production in the individual Member States, by category of generation, 2004 (Basis: production in GWh)



Source: Eurostat

Figure 1.4: Long-term development of electricity generation, by source of generation, based on production figures, EU-25 (1990=100)



Note: the development of electricity generation by wind turbines is shown separately in Figure 1.10.

Source: Eurostat

1.1.2 Electricity production from nuclear power plants

There are 13 Member States that have nuclear facilities for the generation of electricity. Total electricity generation from these power plants grew between 1990 and 2004 by 26% in the EU-25, but also in the EU-15. Most of this growth was during the 1990s and has remained stable in recent years. Between 2003 and 2004, nuclear electricity production went up by 1.3% (EU-25 and EU-15).

No new nuclear power plants have been built in the last few years. The increase in generation is mainly due to more effective operation and/or increases in power output.

Behind these averages, however, is a very wide continuum: at the upper extreme was the Czech Republic with growth of 109% between 1990 and 2004, and at the lower end Hungary with a decline of -13% and Lithuania with -11%.

Looking then at the EU's major producers, France - by far the largest producer - recorded a 43% growth between 1990 and 2004. As second largest producer, Germany recorded only 10%, whereas the United Kingdom, in third place, saw its generation go up by 22%, closely followed by Sweden with 14% growth.

Table 1.5.: Gross electricity generation from nuclear power plants (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	780 208	864 560	921 359	953 759	964 461	973 674	986 074	1.3
EU-15	720 201	810 266	863 915	891 162	894 147	898 234	910 247	1.3
BE	42 720	41 356	48 157	46 349	47 360	47 379	47 312	-0.1
CZ	12 585	12 230	13 590	14 749	18 738	25 872	26 325	1.8
DK	-	-	-	-	-	-	-	-
DE	152 470	154 091	169 606	171 305	164 842	165 060	167 065	1.2
EE	-	-	-	-	-	-	-	-
EL	-	-	-	-	-	-	-	-
ES	54 270	55 455	62 206	63 708	63 016	61 875	63 606	2.8
FR	314 081	377 231	415 162	421 072	436 760	441 070	448 241	1.6
IE	-	-	-	-	-	-	-	-
IT	0	0	0	0	0	0	0	-
CY	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	-	-	-
LT	17 033	11 822	8 419	11 362	14 142	15 484	15 102	-2.5
LU	-	-	-	-	-	-	-	-
HU	13 731	14 026	14 180	14 126	13 953	11 013	11 915	8.2
MT	-	-	-	-	-	-	-	-
NL	3 500	4 018	3 926	3 976	3 915	4 018	3 822	-4.9
AT	-	-	-	-	-	-	-	-
PL	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-
SI	4 622	4 779	4 761	5 257	5 528	5 207	5 459	4.8
SK	12 036	11 437	16 494	17 103	17 953	17 864	17 026	-4.7
FI	19 220	19 216	22 479	22 773	22 295	22 731	22 716	-0.1
SE	68 190	69 935	57 316	72 109	68 111	67 415	77 486	14.9
UK	65 750	88 964	85 063	89 870	87 848	88 686	79 999	-9.8
BG	14 665	17 261	18 178	19 553	20 222	17 280	16 815	-2.7
HR	-	-	-	-	-	-	-	-
RO	0	0	5 456	5 446	5 513	4 906	5 548	13.1
TR	-	-	-	-	-	-	-	-
IS	-	-	-	-	-	-	-	-
NO	-	-	-	-	-	-	-	-

Source: Eurostat

1. Production and Installed capacity

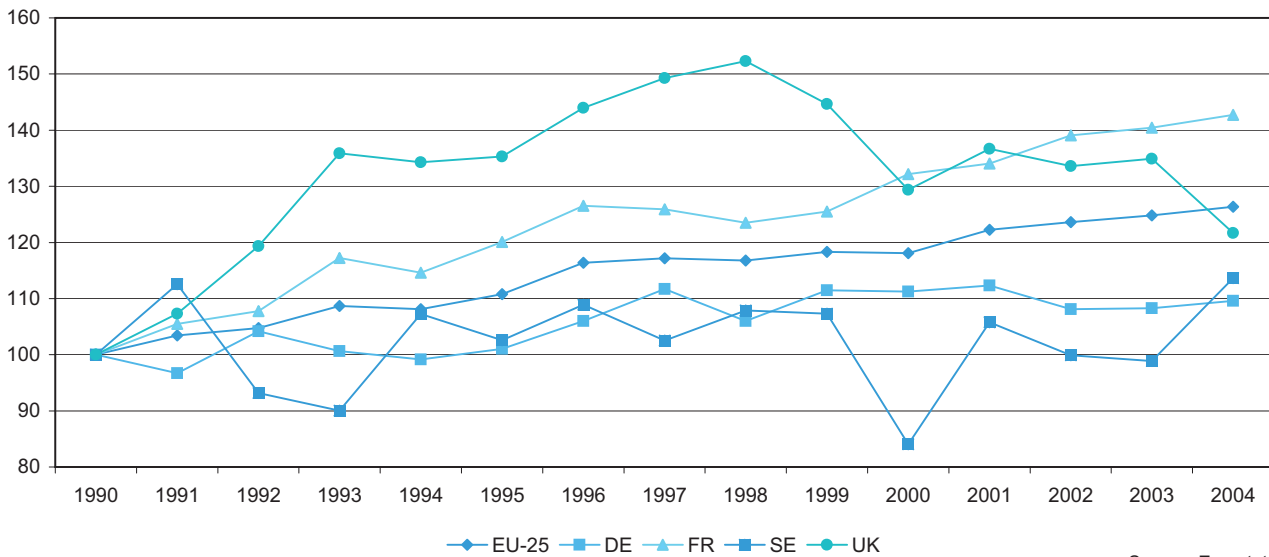
Figure 1.6 takes a closer look at the growth in these countries. Above and below the smoother growth line of the EU-25, a few deviations stand out.

Growth in the United Kingdom was especially dynamic, overtaking Sweden between 1991 and 1992. The UK maintained its dynamism until 1999 and 2000, when it fell by about 15 percentage points. It then kept pace with France over the next couple of years in terms of most dynamic relative growth until 2003, when it was finally overtaken by the latter.

Interesting also is the drop in Sweden between 1991 and 1993 (over 20 percentage points) due to the closedown of one nuclear power plant and between 1999 and 2000 due to maintenance outages at another two plants.

Focusing on the changes between 2003 and 2004, the most noticeable changes in the Member States were a 15% increase in Sweden and an 8% increase in Hungary, as against a 10% decrease in the United Kingdom. Changes in the other countries were limited to fluctuations of 5% or under, both positive and negative.

Figure 1.6: Long-term development of electricity production from nuclear power plants, EU-25 and selected countries (1990=100)



Source: Eurostat

1.1.3 Electricity production from conventional thermal power plants

While electricity generation from conventional thermal power plants grew by 37% between 1990 and 2004 in the EU-25 to reach 1.8 million GWh, the EU-15 saw a growth of 44% to 1.5 million GWh (see Table 1.7).

Looking behind these averages, however, the growth spectrum was extremely wide, being stretched at the extremes by two small Member States: Luxembourg (477%) and Lithuania (-71%).

As regards absolute volumes in 2004, the EU's largest country in terms of population, Germany, was by far the

largest producer of electricity from conventional thermal sources (with 386 427 GWh, 1.2% less than in 2003). The thermal power plants in the United Kingdom generated the second largest volume, followed by those in Italy, Spain and Poland.

Comparing the 2004 figures with those of a year earlier, 11 Member States registered a decrease, in particular Denmark (-17%). Conversely, Spain, Portugal, and especially Luxembourg saw large production increases.

Table 1.7: Gross electricity generation from conventional thermal power plants (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	1 304 674	1 432 206	1 615 899	1 640 592	1 685 430	1 771 964	1 791 824	1.1
EU-15	1 060 839	1 201 359	1 364 726	1 386 303	1 435 090	1 508 840	1 528 009	1.3
BE	27 218	31 834	34 023	31 666	33 155	35 833	36 393	1.6
CZ	48 525	46 343	57 563	57 431	54 763	55 557	55 436	-0.2
DK	25 181	35 583	31 764	33 363	34 360	40 567	33 853	-16.6
DE	281 330	356 224	366 631	377 326	363 083	391 111	386 427	-1.2
EE	17 181	8 691	8 507	8 476	8 520	10 140	10 274	1.3
EL	33 000	37 735	49 281	50 223	50 494	52 118	53 018	1.7
ES	71 374	87 033	126 411	123 459	147 971	145 013	166 307	14.7
FR	48 761	40 171	53 031	50 037	55 713	60 611	58 006	-4.3
IE	13 530	16 875	22 584	23 702	23 543	23 809	23 930	0.5
IT	178 576	195 754	220 455	219 383	231 073	242 808	246 130	1.4
CY	1 974	2 473	3 370	3 551	3 785	4 044	4 176	3.3
LV	2 152	1 042	1 313	1 444	1 501	1 661	1 531	-7.8
LT	10 958	1 325	2 362	2 674	2 798	3 019	3 228	6.9
LU	561	414	286	339	2 656	2 668	3 238	21.4
HU	14 561	19 923	20 833	22 105	22 013	22 957	21 582	-6.0
MT	1 100	1 632	1 917	1 987	2 052	2 236	2 216	-0.9
NL	68 294	76 646	84 718	88 829	91 032	91 355	94 952	3.9
AT	17 787	18 111	18 256	20 421	20 272	24 439	24 233	-0.8
PL	132 998	135 141	141 063	141 382	140 159	148 214	150 326	1.4
PT	19 193	24 753	31 801	31 773	37 392	30 212	34 058	12.7
SI	4 870	4 634	5 029	5 413	5 758	5 656	5 718	1.1
SK	9 516	9 643	9 216	9 826	8 991	9 640	9 328	-3.2
FI	24 284	31 744	32 772	38 403	41 764	51 815	47 911	-7.5
SE	5 691	10 185	9 193	9 943	11 619	13 743	13 213	-3.9
UK	246 059	238 297	283 520	287 436	290 963	302 738	306 340	1.2
BG	25 598	22 214	19 795	22 244	19 753	22 019	21 442	-2.6
HR	4 945	3 598	4 810	5 590	6 854	7 734	6 269	-18.9
RO	50 426	42 573	31 700	33 497	33 376	38 480	34 421	-10.5
TR	34 315	50 620	93 934	98 563	95 564	105 101	104 463	-0.6
IS	6	9	5	4	6	6	6	0.0
NO	466	702	731	837	793	887	934	5.3

Source: Eurostat

1. Production and Installed capacity

1.1.4 Electricity production from hydro-electric power plants

Turning to electricity generation from hydro-electric power plants, growth was about 15% for the EU-25 and EU-15 between 1990 and 2004. In absolute terms, this translates as 337 192 GWh for the EU-25 and 318 359 GWh for the EU-15. Inherent to precipitation quantities, the noticeable decline between 2001 and 2002 was mainly due to dry weather: the decrease in production was particularly strong in Spain and Portugal.

Between 2003 and 2004, large increases were reported by Estonia, Finland, the Czech Republic, Slovenia and Latvia.

The largest EU producer was France with 65 421 GWh, but if non-Member States are considered, France's volume was far exceeded by the 109 287 GWh recorded in Norway, corresponding to roughly one third of total EU-25 production.

The EU's second producer was Sweden, followed by Italy. Also of note are Austria's and Spain's relatively high volumes, and Germany's relatively small volume.

Table 1.8: Gross electricity generation from hydro-electric power plants (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	291 892	326 960	364 214	384 835	329 272	321 753	337 192	4.8
EU-15	276 577	308 516	345 332	365 509	310 190	306 602	318 359	3.8
BE	900	1 230	1 699	1 648	1 488	1 316	1 607	22.1
CZ	1 449	2 274	2 313	2 467	2 845	1 794	2 562	42.8
DK	30	30	29	28	32	21	27	28.6
DE	19 720	24 217	25 962	27 253	27 864	24 440	27 874	14.1
EE	0	1	5	7	6	13	22	69.2
EL	2 000	3 782	4 111	2 725	3 463	5 332	5 205	-2.4
ES	26 180	24 569	31 807	43 858	26 388	43 897	34 439	-21.5
FR	57 902	76 490	72 398	79 248	66 456	64 877	65 421	0.8
IE	980	968	1 150	920	1 264	956	984	2.9
IT	35 080	41 907	50 900	53 926	47 262	44 277	49 908	12.7
CY	-	-	-	-	-	-	-	-
LV	4 496	2 937	2 819	2 833	2 463	2 266	3 109	37.2
LT	414	751	643	701	781	985	943	-4.3
LU	820	827	862	877	994	917	859	-6.3
HU	178	163	178	186	194	171	205	19.9
MT	-	-	-	-	-	-	-	-
NL	120	90	142	117	108	72	95	31.9
AT	32 507	38 477	43 498	41 837	42 004	35 292	38 966	10.4
PL	3 313	3 851	4 115	4 219	3 906	3 293	3 691	12.1
PT	9 303	8 454	11 715	14 375	8 257	16 054	10 147	-36.8
SI	2 950	3 241	3 834	3 796	3 404	2 957	4 094	38.5
SK	2 515	5 226	4 975	5 117	5 483	3 672	4 207	14.6
FI	10 860	12 925	14 660	13 204	10 776	9 591	15 070	57.1
SE	73 030	68 160	78 619	79 082	66 395	53 598	60 178	12.3
UK	7 145	6 390	7 780	6 411	7 439	5 962	7 579	27.1
BG	1 878	2 314	2 951	2 171	2 704	3 301	3 363	1.9
HR	3 748	5 265	5 892	6 585	5 432	4 936	7 051	42.8
RO	13 883	16 693	14 778	14 923	16 046	13 259	16 513	24.5
TR	23 148	35 541	30 879	24 010	33 683	35 330	46 084	30.4
IS	4 204	4 682	6 356	6 578	6 977	7 088	7 134	0.6
NO	121 382	122 299	142 266	121 026	129 837	106 216	109 287	2.9

Source: Eurostat

1.1.5 Electricity production from wind turbines

The EU-25 generated 58 521 GWh from wind turbines in 2004. Among the 17 Member States with this source of electricity production, Germany and Spain were producing the most in 2004 (see Table 1.9). Together, these two countries accounted for close to 70% of EU production, with 25 270 and 15 601 GWh respectively.

Of the other producers, Denmark with 6 583 GWh was the largest, though with less than half of Spain's generation. Poland and Latvia were the only new Member States with electricity generation from wind turbines.

In Denmark, Germany and Spain, a continuous growth in absolute gross electricity generation from wind turbines can be observed.

In relative terms, all EU Member States registered production growth between 2003 and 2004, often of considerable proportions, especially for Austria (+152%).

In 2004, 16.3% of total Danish electricity production was generated by wind turbines. The equivalent share for Spain was 5.6% and for Germany 4.2%.

Table 1.9: Gross electricity generation from wind turbines (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	778	4 069	22 249	26 975	35 705	44 356	58 521	31.9
EU-15	778	4 068	22 240	26 958	35 633	44 184	58 330	32.0
BE	7	9	15	34	57	90	129	43.3
CZ	-	-	-	-	-	-	-	-
DK	610	1 177	4 242	4 306	4 877	5 561	6 583	18.4
DE	71	1 712	9 352	10 456	15 856	18 859	25 270	34.0
EE	-	-	-	-	-	-	-	-
EL	2	34	451	756	651	1 021	1 121	9.8
ES	14	270	4 724	6 966	8 704	12 075	15 601	29.2
FR	0	5	77	131	268	391	573	46.5
IE	0	16	244	334	388	454	655	44.3
IT	2	10	563	1 179	1 404	1 458	1 847	26.7
CY	0	0	0	0	0	0	0	-
LV	0	0	4	3	11	48	49	2.1
LT	-	-	-	-	-	-	-	-
LU	0	0	27	26	25	26	39	50.0
HU	-	-	-	-	-	-	-	-
MT	0	0	0	0	0	0	0	-
NL	56	317	829	825	910	1 330	1 867	40.4
AT	0	1	67	172	203	366	924	152.5
PL	0	1	5	14	61	124	142	14.5
PT	1	16	168	256	362	496	816	64.5
SI	-	-	-	-	-	-	-	-
SK	-	-	-	-	-	-	-	-
FI	0	11	78	70	64	93	120	29.0
SE	6	99	457	482	608	679	850	25.2
UK	9	391	946	965	1 256	1 285	1 935	50.6
BG	-	-	-	-	-	-	-	-
HR	-	-	-	-	-	-	-	-
RO	-	-	-	-	-	-	-	-
TR	0	0	33	62	48	61	58	-4.9
IS	-	-	-	-	-	-	-	-
NO	0	10	31	27	75	218	260	19.3

Source: Eurostat

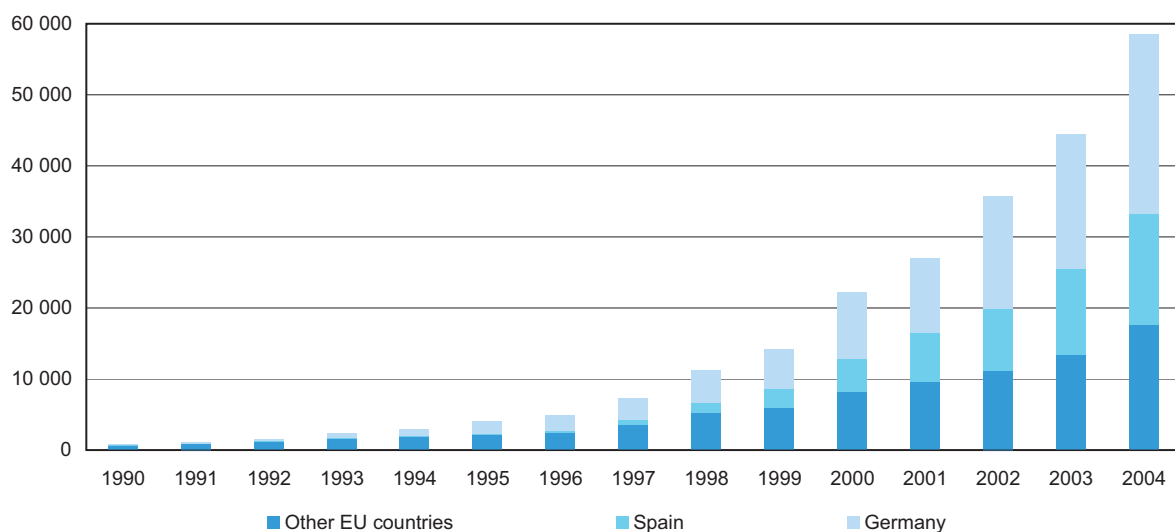
1. Production and Installed capacity

Figure 1.10 shows the annual growth of electricity generation by wind turbines for Spain and Germany and the other EU countries, and their relative shares in that growth. In terms of absolute growth, the major changes were seen between 1997 and 2004. Whereas the total volume was 7 330 GWh by 1997, it was almost eight times that amount seven years later (58 521 GWh in 2004).

Moreover, from 2001 onwards, volume expanded by close to 10 000 GWh per year and by over 14 000 GWh in 2004.

Total electricity generation by wind turbines at EU level in 2004 (58 521 GWh) was equivalent to the average production of eight conventional or nuclear power plants with a capacity of 1 000 MW each.

Figure 1.10: Development of electricity generation by wind turbines, EU-25 (GWh)



Source: Eurostat

1.1.6 Electricity production from geothermal power plants

Only two EU Member States recorded any production of energy from geothermal sources (Italy and Portugal). Although only accounting for 0.2% of total electricity production in 2004 (see Figure 1.1), gross electricity generation from geothermal power plants increased by

71% between 1990 and 2004 (but only by 1.7% between 2003 and 2004). Italy was by far the main producer with 5 437 GWh in 2004 (98% of the EU total). Looking beyond the EU, Iceland (second in volume to Italy) and Turkey also featured.

Table 1.11: Gross electricity generation from geothermal power plants (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	3 224	3 478	4 785	4 612	4 758	5 431	5 521	1.7
EU-15	3 224	3 478	4 785	4 612	4 758	5 431	5 521	1.7
IT	3 220	3 436	4 705	4 507	4 662	5 341	5 437	1.8
PT	4	42	80	105	96	90	84	-6.7
TR	80	86	76	90	105	89	93	4.5
IS	300	290	1 323	1 451	1 433	1 406	1 483	5.5

Source: Eurostat

1.2 Gas production

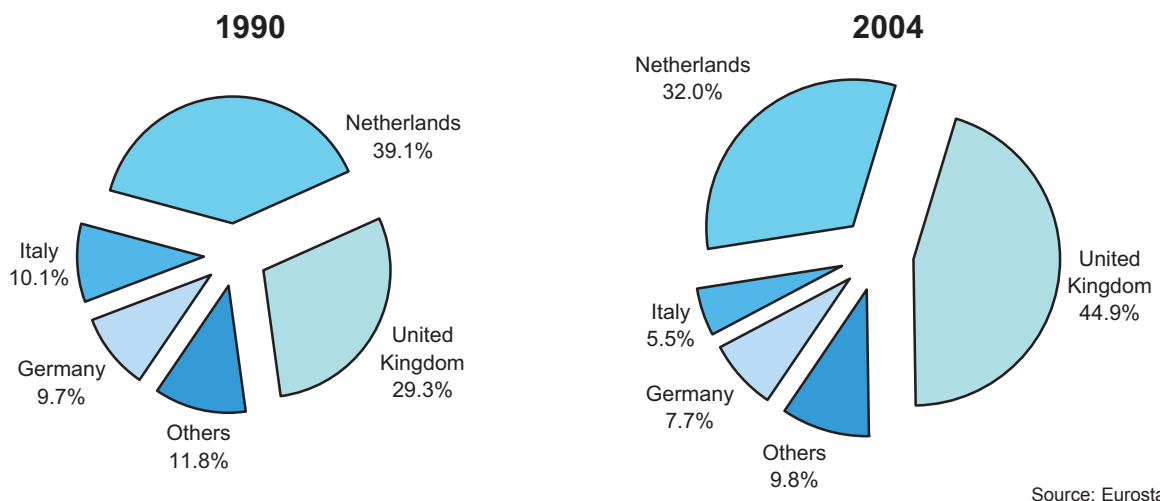
In 2004, the EU's main gas-producing countries were headed by the United Kingdom (with a share of almost a half of the EU's primary production at 44.9%), followed by the Netherlands (32.0%), and, to a far lesser extent, Germany (7.7%) and Italy (5.5%) (see Figure 1.12). Other countries accounted for the remainder of 9.8%.

Looking at the picture 14 years earlier (with a smaller total EU-25 production at the time), these same countries were also the main producers but with different rankings. Most noteworthy is the change of positions between the Netherlands and the United Kingdom: in 1990, the Netherlands was very much the number-one producer (39.1%) with the United Kingdom in second place (29.3%).

In other terms, whereas by 2004 the Netherlands lost 7 percentage points in its share of production, the United Kingdom gained about almost 16 points, with a 9 point fall in the combined shares of Italy, Germany and 'Others'.

In fact, the main reason for the UK's increased share was not so much decreased volumes in other countries - in fact, production in the Netherlands only slightly declined - but rather because the production gain recorded in the EU-25 overall between 1990 and 2004 was almost entirely due to the UK (see Table 1.13).

Figure 1.12: Primary production of natural gas: main producer countries (as percentage of EU-25 production)



In fact, primary production of natural gas increased by 38% in the EU-25, from almost 6.5 million TJ in 1990 to over 8.9 million by 2004. At the same time, production in the United Kingdom more than doubled, rising from 1.9 million to 4.0 million TJ.

Looking at the changes in other countries between 1990 and 2004, what stand out most are perhaps the sizeable percentage declines in gas production in 10 EU Member States. Seven of these registered declines of between -40% and -100%.

The decrease in Italy (-24%) was comparatively less conspicuous in relative terms, but nonetheless the most pronounced in absolute volumes: this country registered a decline of almost 160 000 TJ.

Of the few cases of positive growth recorded between 1990 and 2004, the highest was in Denmark (+207%), followed by the UK (+111%).

National variation in the primary production of natural gas is also evident when the development between 2003 and 2004 is considered. The 1.5% increase at EU-25 level is not representative for the individual Member States: production increases as high as 57% (Spain) or around 25% (Ireland, Czech Republic) stood against marked decreases in Slovakia (-15%) and France (-14%).

Looking beyond the EU, Norway actually came second to the UK in terms of absolute volume: 3.3 million TJ in 2004. Interesting also is Romania's relatively high value, and perhaps more so its value in 1990, when the country was one of Europe's leading production centres. Bulgaria's production in 2004 increased more than 20-fold compared to a year earlier, due to the exploitation of a new gas field.

1. Production and Installed capacity

Table 1.13: Primary production of natural gas (in TJ-GCV)

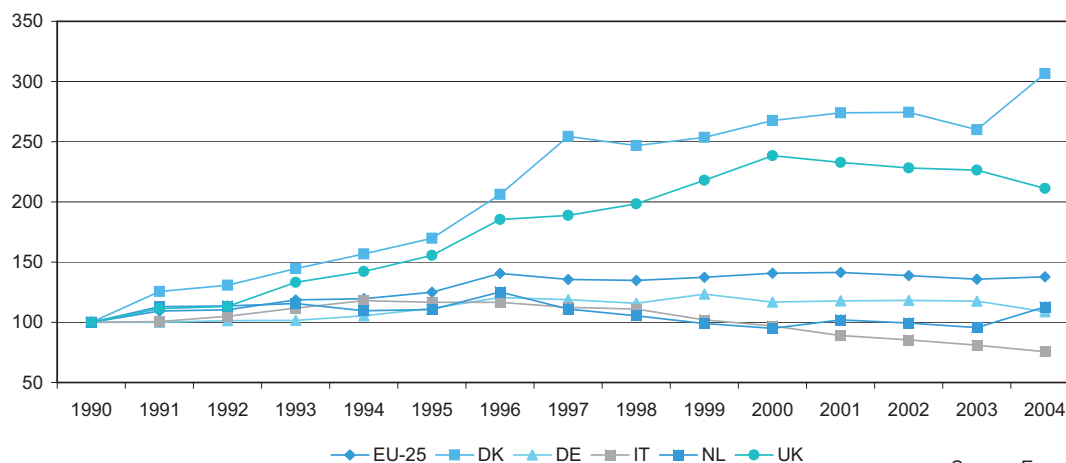
	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	6 490 710	8 116 793	9 144 799	9 181 695	9 009 654	8 809 387	8 942 623	1.5
EU-15	6 176 764	7 770 936	8 861 179	8 891 102	8 721 703	8 521 019	8 635 546	1.3
BE	450	10	96	0	0	0	0	-
CZ	9 337	9 210	7 876	5 671	5 338	6 098	7 555	23.9
DK	128 852	218 724	344 772	353 062	353 693	335 062	395 033	17.9
DE	629 513	702 426	735 038	741 143	743 728	740 615	685 342	-7.5
EE	-	-	-	-	-	-	-	-
EL	6 426	2 041	1 968	1 870	1 973	1 442	1 337	-7.3
ES	59 228	17 650	6 883	21 904	21 718	9 149	14 398	57.4
FR	117 032	129 928	69 999	70 222	67 438	59 621	51 530	-13.6
IE	87 127	104 630	44 581	30 639	31 519	25 293	32 025	26.6
IT	652 664	760 448	633 716	580 723	557 137	529 017	493 813	-6.7
LV	-	-	-	-	-	-	-	-
LT	-	-	-	-	-	-	-	-
LU	-	-	-	-	-	-	-	-
HU	177 314	176 203	115 143	115 224	109 582	106 329	110 100	3.5
NL	2 540 607	2 812 399	2 414 593	2 591 786	2 524 867	2 428 905	2 864 924	18.0
AT	51 014	58 670	71 308	68 414	74 295	82 603	77 550	-6.1
PL	110 621	147 432	154 138	162 449	166 037	167 997	182 618	8.7
PT	-	-	-	-	-	-	-	-
SI	940	724	281	240	240	199	201	1.0
SK	15 734	12 288	6 182	7 009	6 754	7 745	6 603	-14.7
FI	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	-	-
UK	1 903 851	2 964 010	4 538 225	4 431 339	4 345 335	4 309 312	4 019 594	-6.7
BG	503	1 841	573	853	752	597	12 432	1 982.4
HR	75 328	74 723	63 023	76 395	80 572	83 205	83 528	0.4
RO	1 065 811	672 012	510 237	501 496	493 064	485 135	482 759	-0.5
TR	8 120	6 971	24 474	11 950	14 477	21 448	26 350	22.9
NO	1 123 348	1 314 568	2 131 427	2 274 458	2 752 407	3 082 859	3 275 892	6.3

Source: Eurostat

Figure 1.14 provides a graphical representation of the relative growths recorded for the EU-25 and the main gas-producing countries (1990 = 100). Over the 1990-2004 period, Denmark and, to a lesser extent, the United Kingdom clearly stand out as the fastest growing gas

producers, high above the flatter EU-25 average and the other main contributors. Growth was particularly dynamic in Denmark in 1996, 1997 and 2004. Conversely, production in the UK stagnated from 2000 and even fell between 2003 and 2004, whereas Dutch production saw a clear upswing.

Figure 1.14: Long-term development of natural gas production, EU-25 and selected countries (1990=100)



Source: Eurostat

Alongside the growth in electricity generation from wind turbines, relative growth in the primary production of biogas between 1990 and 2004 was almost as eye-catching: in 2004 the production of 156 103 TJ was five and a half times that recorded in 1990 (see Table 1.15). In recent years, biogas production has continued to grow, illustrated by the near 11% growth between 2003 and 2004.

The most striking growth was seen in Italy, where the production of 13 353 TJ in 2004 was almost 320 times the 1990 value, placing it, in absolute terms, as the third largest producer well in front of Spain (which held this position only a year earlier). Greece came second in relative growth terms with an almost 80-fold growth, followed by Spain

(25 times). Portugal, after having registered low production levels for years, reported a substantial increase (from 35 TJ in 2003 to 187 TJ in 2004).

In terms of total production in 2004, the largest producer was the United Kingdom (56 672 TJ), which accounted for over a third of the EU-25 total, followed by Germany (41 663).

A different picture was seen 14 years previously in 1990, when Germany had the largest share, followed by the United Kingdom and then France.

Table 1.15: Primary production of Bio gas (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	28 889	53 006	95 572	117 555	141 870	141 037	156 103	10.7
EU-15	28 496	50 953	92 624	113 950	138 373	136 723	150 809	10.3
BE	269	461	1 207	1 862	1 896	2 157	3 025	40.2
CZ	0	1 417	1 509	1 557	1 505	1 729	2 103	21.6
DK	752	1 758	2 912	3 047	3 362	3 578	3 738	4.5
DE	12 231	13 946	23 341	35 278	53 180	38 324	41 663	8.7
EE	0	85	76	82	87	113	84	-25.7
EL	19	30	59	1 371	2 029	1 507	1 522	1.0
ES	425	3 155	5 492	5 624	7 116	10 743	10 601	-1.3
FR	3 049	5 494	7 158	6 961	7 507	8 692	8 819	1.5
IE	95	119	1 168	1 185	983	1 062	1 250	17.7
IT	42	557	5 396	6 420	8 758	10 689	13 353	24.9
CY	-	-	-	-	-	-	-	-
LV	0	0	0	0	55	163	289	77.3
LT	0	0	0	0	62	78	68	-12.8
LU	28	35	23	84	96	173	209	20.8
HU	0	0	0	86	89	206	272	32.0
NL	2 539	4 938	5 536	5 761	5 588	5 392	5 285	-2.0
AT	313	849	1 479	2 491	1 583	1 594	1 899	19.1
PL	393	551	1 211	1 477	1 353	1 628	1 953	20.0
PT	92	122	48	37	39	35	187	434.3
SI	0	0	152	182	210	240	278	15.8
SK	0	0	0	221	136	157	247	57.3
FI	420	544	751	745	729	834	1 108	32.9
SE	0	4 140	4 141	5 242	4 967	4 690	1 478	-68.5
UK	8 222	14 805	33 913	37 842	40 540	47 253	56 672	19.9
BG	-	-	-	-	-	-	-	-
HR	-	-	-	-	-	-	-	-
RO	-	-	-	-	-	-	-	-
TR	0	0	216	257	277	341	311	-8.8
IS	0	0	0	0	0	0	28	-
NO	40	651	1 078	329	1 033	1 079	1 023	-5.2

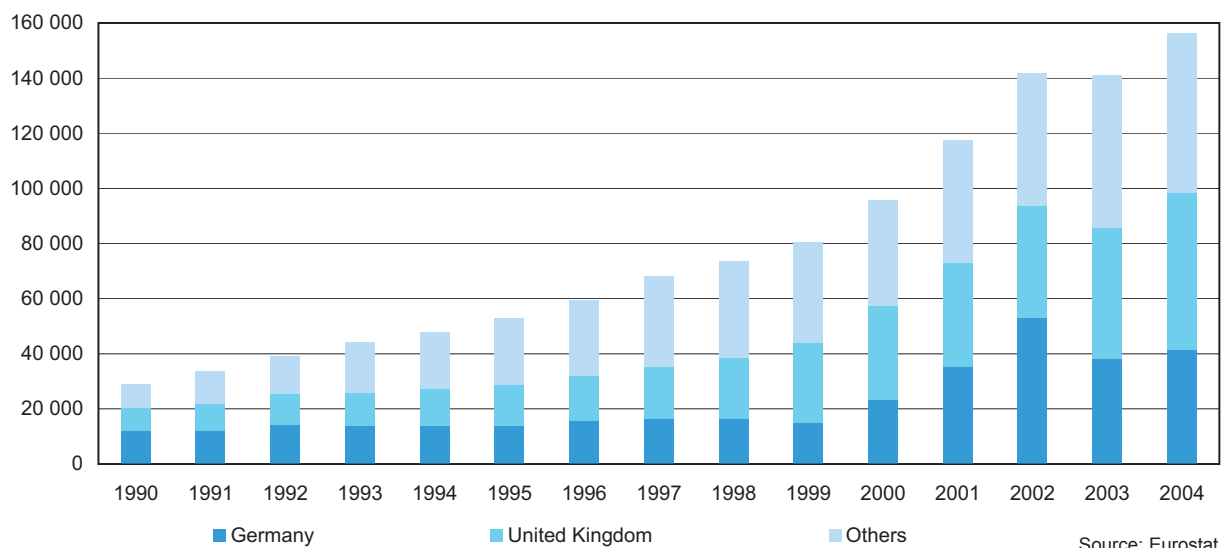
Source: Eurostat

1. Production and Installed capacity

Figure 1.16 illustrates more clearly the constant growth in biogas production between 1990 and 2004 in the EU-25 as a whole and in the two main biogas-producing countries: the United Kingdom and Germany.

Also shown is the change in relative shares between Germany and the United Kingdom in 1995, giving the latter the larger share of the two from then onwards.

Figure 1.16: Long-term development of bio-gas production in the EU-25 and main producing countries (in TJ-GCV)



1.3 Installed capacity of electricity-generating power plants

1.3.1 Total installed capacity

As shown in Figure 1.17, in terms of net installed capacity in 2004, the breakdown of power plants by category was, as to be expected, not too dissimilar from that for electricity production (see Figure 1.18): conventional thermal power plants made up the largest share (57.7%), with wind and geothermal plants accounting for the smallest shares (4.8% and 0.1%, respectively).

What was different, however, and more interesting, were the relative shares of nuclear and hydro energy plants, as highlighted in Figure 1.18. Nuclear power plants accounted for 18.8% and hydro-electric plants 18.6% in 2004: shares substantially different from those for electricity production.

Compared with the situation in 1990, the breakdown of net installed capacity did not change much except for wind energy. Whereas conventional thermal energy lost 0.2 percentage points, nuclear energy lost 2.9 points and hydro energy 1.6 points.

The most spectacular development was noted for wind energy. The share increased from 0.1% to 4.7% of total capacity. This was an impressive increase even given its small relative share, and can be explained by the general growth of wind energy over the same period.

Figure 1.18: EU-25: Installed capacity versus production, 2004

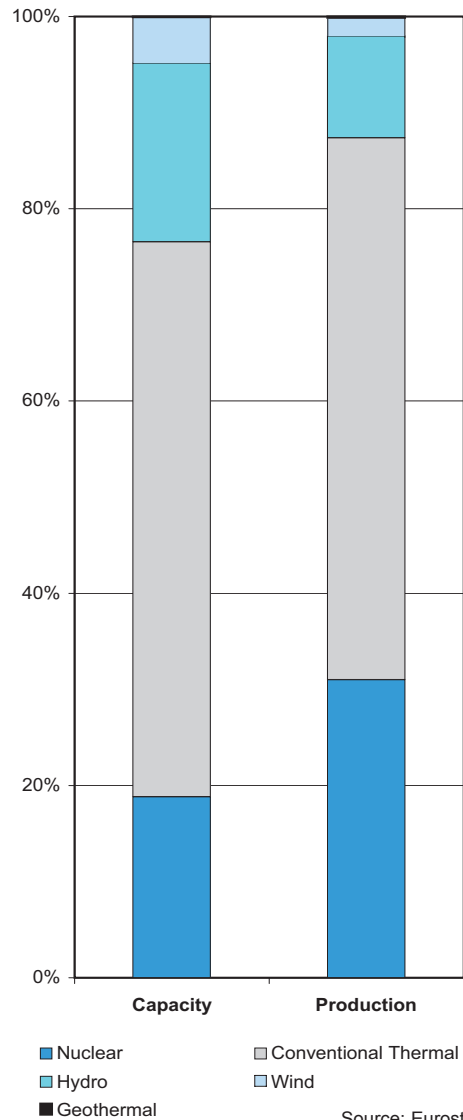
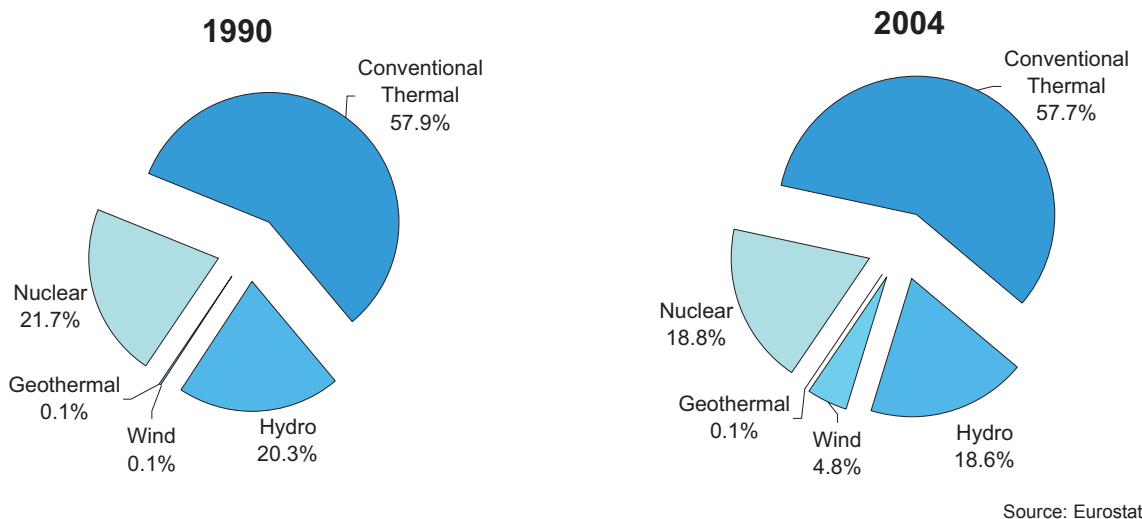


Figure 1.17: EU-25: net installed capacity - shares by category of power plants (based on plant capacity in MW)



1. Production and Installed capacity

Table 1.19: Total net installed capacity of electricity-generating power plants (MW)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	561 834	611 256	663 235	669 860	684 831	697 841	706 352	1.2
EU-15	499 666	538 606	586 420	591 784	605 772	617 857	625 757	1.3
BE	14 146	14 917	15 682	15 538	15 546	15 609	15 634	0.2
CZ	15 279	13 803	15 159	15 390	16 304	17 332	17 418	0.5
DK	9 133	10 688	13 057	12 759	13 327	13 615	13 363	-1.9
DE	97 598	115 342	118 267	119 923	125 995	124 669	123 845	-0.7
EE	3 000	2 692	2 545	2 223	2 180	2 165	2 375	9.7
EL	8 514	8 942	10 903	10 969	11 553	12 078	12 435	3.0
ES	43 417	45 849	53 980	55 695	60 195	69 168	69 392	0.3
FR	103 170	107 375	115 087	115 747	116 234	116 207	116 342	0.1
IE	3 813	4 393	4 705	4 717	5 480	5 680	5 839	2.8
IT	56 559	65 907	75 334	76 233	79 744	78 102	81 306	4.1
CY	471	699	1 004	1 004	1 004	988	988	0.0
LV	0	2 074	2 109	2 093	2 137	2 155	2 132	-1.1
LT	5 735	6 335	6 557	6 568	6 564	5 703	5 710	0.1
LU	1 242	1 257	1 226	1 208	1 596	1 596	1632 p	2.3
HU	7 184	7 404	8 282	8 392	8 513	8 708	8 628	-0.9
MT	0	422	515	515	515	354	387	9.3
NL	17 564	18 994	20 998	20 311	20 800	20 791	21 712	4.4
AT	16 686	17 439	17 735	17 657	18 009	20 271	20 972	3.5
PL	27 968	29 465	30 559	30 672	30 815	31 407	31 724	1.0
PT	7 396	9 318	10 898	10 990	11 239	11 619	12 711	9.4
SI	2 531	2 518	2 631	2 899	2 953	2 970	2 965	-0.2
SK	0	7 238	7 454	8 320	8 074	8 202	8 268	0.8
FI	13 221	14 433	16 258	16 473	16 566	16 553	16 563	0.1
SE	34 187	33 623	33 721	33 835	32 503	33 361	33 649	0.9
UK	73 020	70 129	78 569	79 729	76 985	78 538	80 362	2.3
BG	0	0	12 017	13 854	10 972	11 997	11 978	-0.2
HR	3 547	3 633	3 754	3 754	3 931	3 919	3 937	0.5
RO	22 477	22 276	21 904	20 864	19 588	19 369	19 624	1.3
TR	16 318	20 955	27 264	28 332	31 846	35 587	36 824	3.5
IS	944	1 081	1 383	1 460	1 505	1 507	1 503	-0.3
NO	26 884	28 055	28 409	27 960	28 247	28 411	28 420	0.0

Note: NO data for 1990 and 1995 as well as EU-25, EU-15 and LU data for 2003 are provisional.

Source: Eurostat

In absolute terms, the total net installed capacity of electricity-generating power plants in the EU-25 grew by 26% between 1990 and 2004, from 561 834 to 706 352 MW. Growth in the smaller EU-15 was about identical (25%).

Among the EU Member States, growths ranged from 110% in Cyprus down to -21% in Estonia. Cyprus' growth is noteworthy (although small in absolute terms) given that the next highest growths were somewhat behind: Portugal (72%) and Spain (60%).

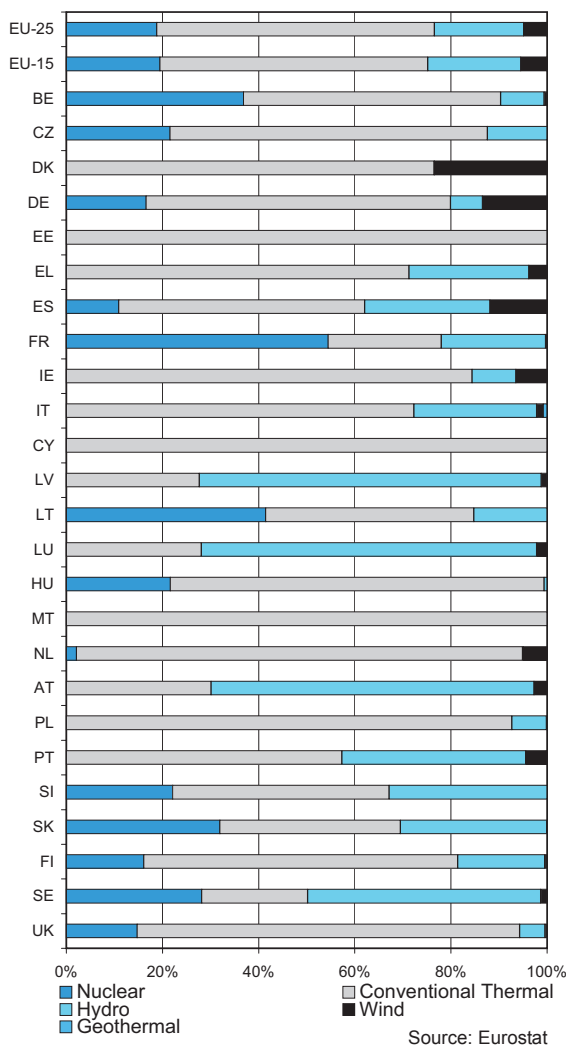
In Sweden and Lithuania, net installed capacity remained quite stable between 1990 and 2004.

Between 2003 and 2004, total installed capacity increased most in Estonia, Portugal and Malta, at a rate approaching 10%.

Looking beyond the EU's frontiers, of note is Turkey's growth of 126%, which exceeded that of the EU leader, Cyprus.

Of course, the global EU pie chart of net installed capacity, broken down by category of power plant (see Figure 1.17), conceals a wide national variation.

Figure 1.20: Share of net installed capacity for electricity production by category of power plants, 2004



For example, the capacities of Cyprus, Estonia and Malta were made up entirely of conventional thermal power plants. In three countries (Latvia, Luxembourg and Austria), most capacity was provided by hydro-electric power plants.

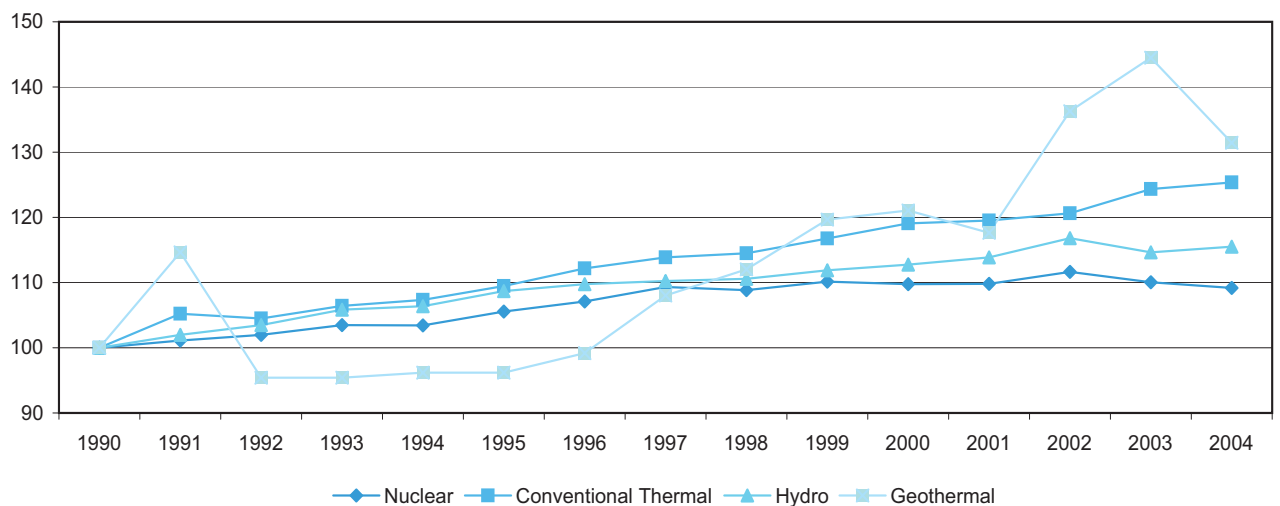
Other observations include the fact that Lithuania came second to France in having nuclear power plants account for the largest share of capacity (41% and 54%, respectively). Slovakia came closest to achieving similar shares between nuclear power (32%), conventional energy (38%) and hydro power (30%).

Turning back to growth between 1990 and 2004, but temporarily disregarding wind, which cannot be represented simultaneously because of its explosive growth, Figure 1.21 depicts the evolution in the net installed capacity of the four other main types of power plants.

Second to wind came geothermal power plants (31%), followed by conventional thermal power plants (25%), hydro power (15%) and nuclear power plants (9%).

As shown, this growth ranking would have been maintained throughout the 1990-2004 period had it not been for the instability characterising the smallest energy-producing category: geothermal power plants.

Figure 1.21: Evolution of the net installed capacity of power plants, EU-25 (1990=100)



Note: 2003 data for conventional thermal, hydro and wind are provisional.

Source: Eurostat

1. Production and Installed capacity

1.3.2 Installed capacity of nuclear power plants

Looking now at each type of power plant, the EU-25 growth of 9% in nuclear electricity generation capacity over the 1990-2004 period, compared with the lower growth of 6% for the smaller EU-15, is perhaps no great surprise, given the scope for extra capacity in certain of the new Member States. By 2004, the EU-25 had a capacity of 132 985 MW.

Based on 1990 and 2004 data the largest growth within the EU was recorded in the Czech Republic (114%) followed to a far lesser extent by France (14%) and Finland (13%). France was the EU's main contributor to capacity: with 63 363 MW, it accounted for 48% of the EU total. In volume terms, France was followed by Germany (20 552 MW) and the United Kingdom (11 852 MW).

This general picture of positive growth for the 1990-2004 period was offset by declines in capacity in four Member States: Germany (-8%) - the second largest contributor - Lithuania (-21%), the Netherlands (-12%) and Sweden (-5%) - the fourth largest contributor.

When looking at the changes between 2003 and 2004, 11 out of 13 Member States did not report any or only very little change in nuclear capacity. In Germany, capacity fell by 4%, in the UK by 2%.

Table 1.22: Net installed capacity of nuclear power plants (MW)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	121 822	128 584	133 738	133 769	135 994	134 092	132 985	-0.8
EU-15	114 670	119 560	123 831	123 847	125 072	122 803	121 696	-0.9
BE	5 500	5 632	5 713	5 738	5 761	5 761	5 761	0.0
CZ	1 760	1 760	1 760	1 760	2 760	3 760	3 760	0.0
DK	-	-	-	-	-	-	-	-
DE	22 260	22 713	22 396	22 396	23 403	21 439	20 552	-4.1
EE	-	-	-	-	-	-	-	-
EL	-	-	-	-	-	-	-	-
ES	6 970	7 068	7 503	7 519	7 577	7 581	7 577	-0.1
FR	55 750	58 515	63 183	63 183	63 273	63 363	63 363	0.0
IE	-	-	-	-	-	-	-	-
IT	0	0	0	0	0	0	0	-
CY	-	-	-	-	-	-	-	-
LV	-	-	-	-	-	-	-	-
LT	3 000	3 000	3 000	3 000	3 000	2 367	2 367	0.0
LU	-	-	-	-	-	-	-	-
HU	1 760	1 840	1 851	1 866	1 866	1 866	1 866	0.0
MT	-	-	-	-	-	-	-	-
NL	510	505	449	449	449	449	449	0.0
AT	-	-	-	-	-	-	-	-
PL	-	-	-	-	-	-	-	-
PT	-	-	-	-	-	-	-	-
SI	632	664	656	656	656	656	656	0.0
SK	0	1 760	2 640	2 640	2 640	2 640	2 640	0.0
FI	2 360	2 310	2 640	2 640	2 671	2 671	2 671	0.0
SE	9 970	10 055	9 461	9 436	9 452	9 441	9 471	0.3
UK	11 350	12 762	12 486	12 486	12 486	12 098	11 852	-2.0
BG	0	0	3 480	3 532	2 146	2 723	2 722	0.0
HR	-	-	-	-	-	-	-	-
RO	0	0	707	707	707	707	707	0.0
TR	-	-	-	-	-	-	-	-
IS	-	-	-	-	-	-	-	-
NO	-	-	-	-	-	-	-	-

Source: Eurostat

1.3.3 Installed capacity of conventional thermal power plants

Between 1990 and 2004, the net installed capacity of conventional thermal plants - the largest contributor to total capacity - grew by 25% in the EU-25 to reach 407 709 MW, compared with 27% in the EU-15 (348 843 MW). Within the EU, Germany accounted for about 19% of capacity with 78 413 MW, followed by the UK (63 921 MW) and Italy (58 792 MW).

The highest national growths were in Luxembourg (317%), Cyprus (110%), Portugal (80%) and Spain (76%). Looking

beyond the EU, Norway went from 0 MW in 1990 to 260 MW in 2004. Turkey's growth was also remarkable with 153%. Based on available data, only three EU Member States registered declines: Estonia (-21%), Lithuania (-6%) and Sweden (-6%).

Between 2003 and 2004, capacity grew only by 0.8% at EU level. Noticeable increases were reported by Estonia, Malta and Portugal (between 8% and 10%), whereas a decrease of 5% was seen for Spain.

Table 1.23: Net installed capacity of conventional thermal power plants (MW)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	325 221	356 002	387 343	388 744	392 309	404 474	407 709	0.8
EU-15	274 502	301 114	330 493	330 876	334 538	346 209	348 843	0.8
BE	7 240	7 877	8 545	8 353	8 341	8 366	8 365	0.0
CZ	12 109	10 644	11 302	11 485	11 399	11 423	11 498	0.7
DK	8 780	10 064	10 233	10 192	10 430	10 488	10 228	-2.5
DE	68 440	82 616	80 794	79 380	81 092	80 365	78 413	-2.4
EE	3 000	2 692	2 545	2 223	2 180	2 165	2 375	9.7
EL	6 100	6 390	7 605	7 623	8 188	8 628	8 866	2.8
ES	20 210	21 882	26 243	26 915	29 941	37 310	35 477	-4.9
FR	22 673	23 869	26 799	27 210	27 278	27 387	27 387	0.0
IE	3 300	3 870	4 064	4 064	4 760	4 899	4 929	0.6
IT	37 290	45 571	54 035	54 477	54 521	55 861	58 792	5.2
CY	471	699	1 004	1 004	1 004	988	988	0.0
LV	0	554	577	576	583	589	590	0.2
LT	2 628	2 628	2 643	2 652	2 648	2 467	2 473	0.2
LU	110	117	74	65	443	443	459	3.6
HU	5 376	5 516	6 383	6 478	6 599	6 788	6 711	-1.1
MT	0	422	515	515	515	354	387	9.3
NL	16 960	18 195	20 070	19 344	19 635	19 421	20 153	3.8
AT	5 739	6 134	6 134	6 038	6 178	6 178	6 326	2.4
PL	25 991	27 418	28 372	28 420	28 576	29 099	29 402	1.0
PT	4 050	4 893	6 275	6 291	6 448	6 749	7 292	8.0
SI	1 144	1 097	1 115	1 337	1 338	1 340	1 335	-0.4
SK	0	3 218	2 394	3 178	2 929	3 052	3 107	1.8
FI	8 240	9 340	10 698	10 868	10 888	10 864	10 811	-0.5
SE	7 880	7 349	7 526	7 536	6 462	7 378	7 424	0.6
UK	57 490	52 947	61 398	62 520	59 933	61 872	63 921	3.3
BG	0	0	5 673	7 458	6 878	6 759	6 689	-1.0
HR	1 486	1 561	1 675	1 675	1 865	1 843	1 854	0.6
RO	16 820	16 278	15 077	14 035	12 639	12 414	12 638	1.8
TR	9 536	11 074	16 052	16 622	19 568	22 974	24 145	5.1
IS	142	146	147	149	149	150	142	-5.3
NO	0	0	270	268	237	238	260	9.2

Note: NO data for 1990 and 1995 and EU-25, EU-15 and LU data for 2003 are provisional.

Source: Eurostat

1. Production and Installed capacity

1.3.4. Installed capacity of hydro-electric power plants

With regard to the net installed capacity of hydro electric power stations, growth was again higher in the EU-25 (15%) than in the EU-15 (11%), resulting in 131 440 MW by 2004. Compared to 2003, capacity increased by only 0.7%. The minor changes registered in recent years do not come as a surprise, as most of the possibilities for hydro-electric power generation have already been exploited in Europe.

The main contributor to capacity was France, which accounted for about a fifth of the EU total with 25 235 MW. Italy came second (20 745 MW), followed by Spain (18 118 MW). These three countries combined accounted for close to half of total EU capacity.

Table 1.24: Net installed capacity of hydro electric power stations (MW)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	113 809	123 719	128 335	129 568	132 962	130 475	131 440	0.7
EU-15	109 512	114 981	118 283	119 303	122 650	120 109	121 068	0.8
BE	1 401	1 403	1 410	1 421	1 413	1 415	1 415	0.0
CZ	1 410	1 399	2 097	2 145	2 145	2 149	2 160	0.5
DK	10	8	10	11	11	11	11	0.0
DE	6 850	8 876	8 982	9 393	9 499	8 256	8 251	-0.1
EE	-	-	-	-	-	-	-	-
EL	2 410	2 523	3 072	3 076	3 078	3 079	3 099	0.6
ES	16 230	16 784	17 960	18 017	17 879	18 043	18 118	0.4
FR	24 747	24 987	25 050	25 272	25 551	25 235	25 235	0.0
IE	513	517	525	528	531	532	532	0.0
IT	18 770	19 844	20 346	20 519	23 777	20 660	20 745	0.4
CY	-	-	-	-	-	-	-	-
LV	0	1 520	1 530	1 515	1 532	1 540	1 517	-1.5
LT	107	707	914	916	916	869	870	0.1
LU	1 132	1 140	1 138	1 128	1 138	1 138	1 138	0.0
HU	48	48	48	48	48	54	51	-5.6
MT	-	-	-	-	-	-	-	-
NL	37	37	37	38	38	37	37	0.0
AT	10 947	11 304	11 547	11 550	11 698	13 750	14 086	2.4
PL	1 977	2 047	2 183	2 233	2 207	2 273	2 282	0.4
PT	3 344	4 409	4 526	4 560	4 587	4 588	4 852	5.8
SI	755	757	860	906	959	974	974	0.0
SK	0	2 260	2 420	2 502	2 505	2 507	2 518	0.4
FI	2 621	2 777	2 882	2 926	2 964	2 966	2 999	1.1
SE	16 330	16 152	16 525	16 568	16 232	16 143	16 302	1.0
UK	4 170	4 220	4 273	4 296	4 254	4 256	4 248	-0.2
BG	0	0	2 864	2 864	1 948	2 515	2 567	2.1
HR	2 061	2 072	2 079	2 079	2 066	2 076	2 083	0.3
RO	5 657	5 998	6 120	6 122	6 242	6 248	6 279	0.5
TR	6 764	9 863	11 175	11 673	12 241	12 579	12 645	0.5
IS	756	884	1 064	1 109	1 154	1 155	1 159	0.3
NO	26 884	28 052	28 126	27 679	27 913	28 076	28 000	-0.3

Source: Eurostat

1.3.5 Installed capacity of electricity-generating wind turbines

As mentioned earlier, the most eye-catching growth was seen in the net installed capacity of wind turbines, the second smallest energy-producing source: capacity at EU level in 2004 was some 70 times what it was in 1990. Growth between 2003 and 2004 was still nearly 20%.

However, a small number of Member States returned even more astounding results, especially the EU's two main contributors: Germany (growing by a factor of around 350,

reaching 16 629 MW) and Spain (by a factor of about 1 175, up to 8 220 MW). In terms of share, the 16 543 wind turbines installed in Germany (by the end of 2004) contributed about half of EU total capacity, with Spain accounting for a quarter. Growth in Denmark - the third largest contributor - was somewhat less spectacular but by no means negligible: the capacity of 3 124 MW in 2004 was about nine times the volume in 1990.

Table 1.25: Net installed capacity of electricity-generating wind-turbines (MW)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	483	2 471	13 215	17 192	22 886	28 079	33 562	19.5
EU-15	483	2 471	13 209	17 171	22 832	28 015	33 494	19.6
BE	5	5	14	26	31	67	93	38.8
CZ	-	-	-	-	-	-	-	-
DK	343	616	2 814	2 556	2 886	3 116	3 124	0.3
DE	48	1 137	6 095	8 754	12 001	14 609	16 629	13.8
EE	-	-	-	-	-	-	-	-
EL	2	27	226	270	287	371	470	26.7
ES	7	115	2 274	3 244	4 798	6 234	8 220	31.9
FR	0	4	55	82	132	222	357	60.8
IE	0	6	116	125	189	249	378	51.8
IT	3	22	363	664	780	874	1 127	28.9
CY	-	-	-	-	-	-	-	-
LV	0	0	2	2	22	26	25	-3.8
LT	-	-	-	-	-	-	-	-
LU	0	0	14	15	15	15	35	133.3
HU	-	-	-	-	-	-	-	-
MT	-	-	-	-	-	-	-	-
NL	57	257	442	480	678	884	1 073	21.4
AT	0	1	54	69	133	343	560	63.3
PL	0	0	4	19	32	35	40	14.3
PT	1	8	83	125	190	268	553	106.3
SI	-	-	-	-	-	-	-	-
SK	0	0	0	0	0	3	3	0.0
FI	0	6	38	39	43	52	82	57.7
SE	7	67	209	295	357	399	452	13.3
UK	10	200	412	427	312	312	341	9.3
BG	-	-	-	-	-	-	-	-
HR	-	-	-	-	-	-	-	-
RO	-	-	-	-	-	-	-	-
TR	0	0	19	19	19	19	19	0.0
IS	-	-	-	-	-	-	-	-
NO	0	3	13	13	97	97	160	64.9

Source: Eurostat

1. Production and Installed capacity

1.3.6 Installed capacity of geothermal power plants

Finally, the least significant and least widespread contributor to total capacity, geothermal power plants, grew from 499 MW to 656 MW in the EU between 1990 and 2004, i.e. a growth of 31%.

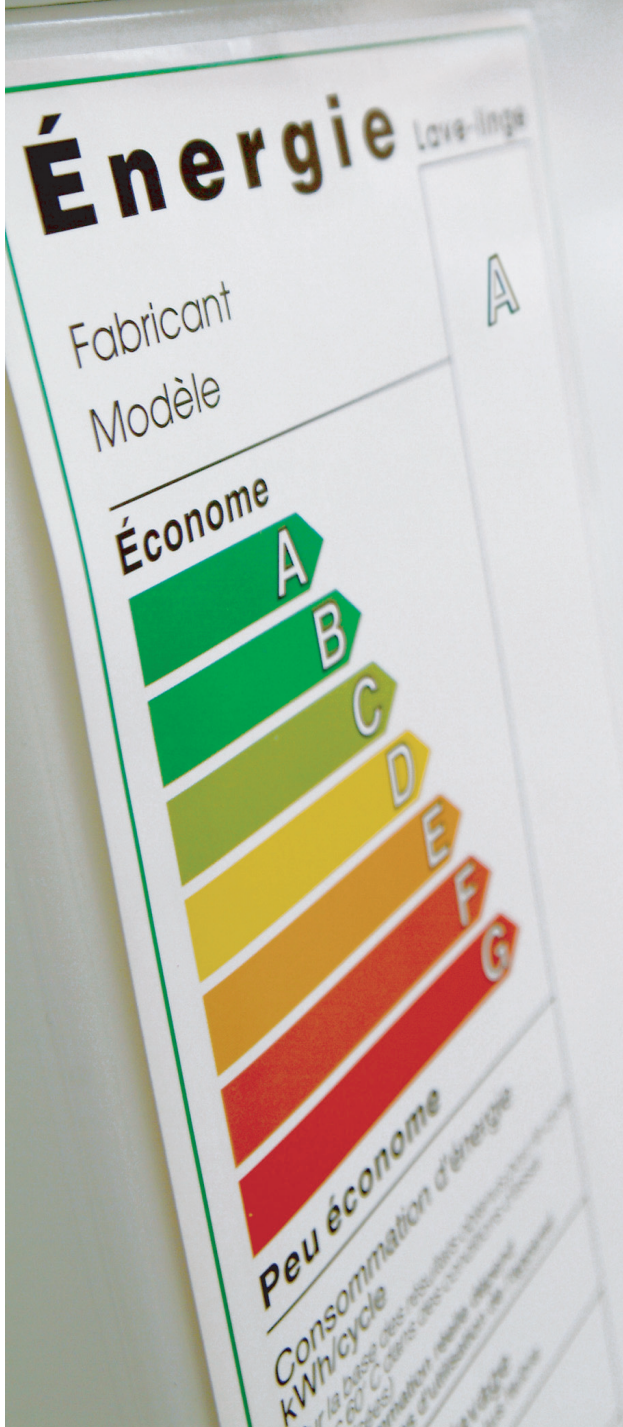
In 2004, Italy was by far the largest contributor with 642 MW, despite a 9% decrease compared to 2003.

Table 1.26: Net installed capacity of electricity generating geothermal power plants (MW)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	499	480	604	587	680	721	656	-9.0
EU-15	499	480	604	587	680	721	656	-9.0
EL	2	2	2	0	0	0	0	-
IT	496	470	590	573	666	707	642	-9.2
PT	1	8	14	14	14	14	14	0.0
TR	18	18	18	18	18	15	15	0.0
IS	46	51	172	202	202	202	202	0.0

Source: Eurostat

2. Consumption



2. CONSUMPTION

2.1 Electricity consumption

2.1.1 Overview

The following section gives an overview of the final consumption of electricity. The figures presented are based on the reporting of consumption according to Eurostat's Energy Balances methodology. Further methodological information can be obtained from 'Coded', Eurostat's Concepts and Definitions database - see <http://forum.europa.eu.int/irc/dsis/coded/info/data/coded/en/Theme9.htm>.

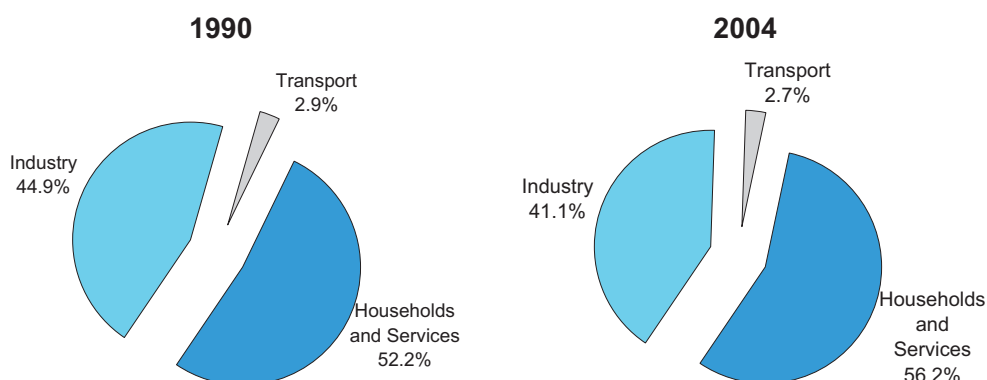
Total final electricity consumption in the EU-25 amounted to 2.65 million GWh in 2004. This corresponds to an increase of 29% compared to 1990 and 1.8% compared with the previous year (2003).

As shown in Figure 2.1, the proportions of the three main consumption categories have changed somewhat between

1990 and 2004. There has been a shift towards the consumption of households and services to the detriment of industry: whereas industrial consumption fell by 3.8 percentage points, households and services gained four points. This does not mean that electricity consumption in the industrial sector has decreased: the consumption of households and services has just increased at a much faster pace.

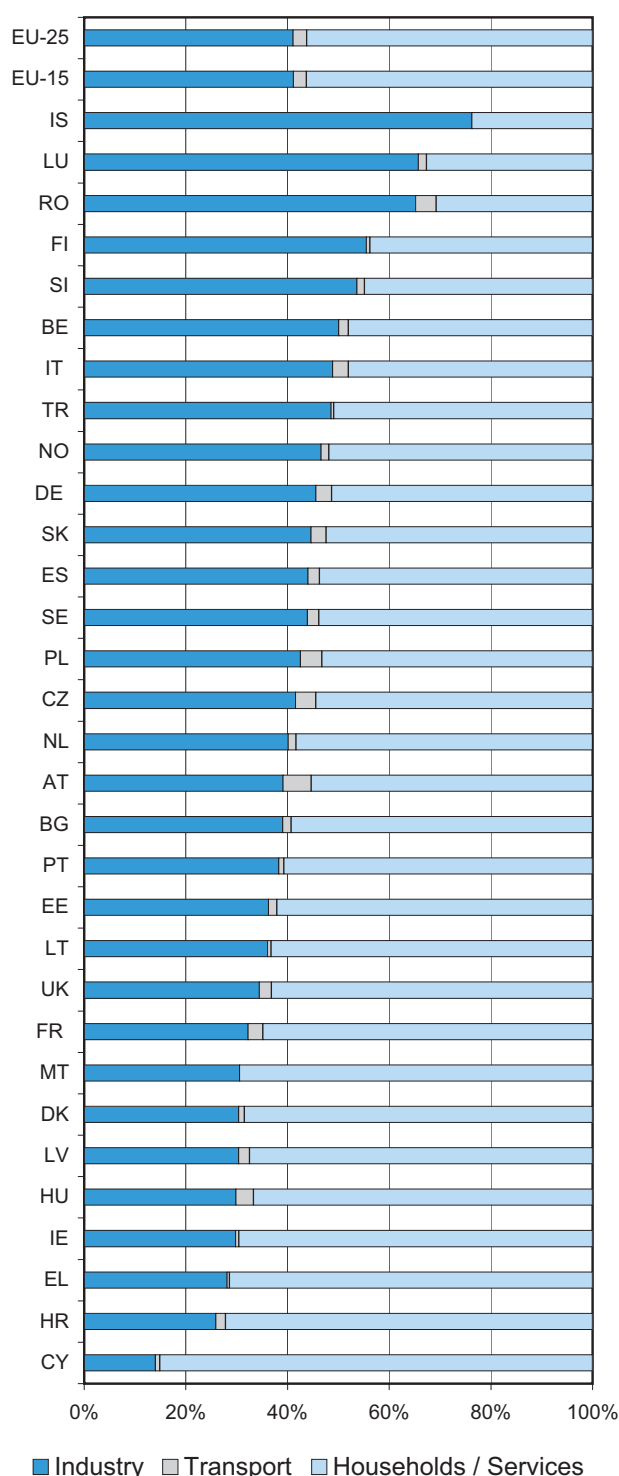
Electricity consumption by the transport sector remains very limited and is mainly to provide tractive power for railways. Its share actually fell by 0.2 percentage points, but here again the picture is distorted by the strong increase registered by households and services.

Figure 2.1: Electricity consumption by sector of activity, EU-25



Source: Eurostat

Figure 2.2: Electricity consumption by country, share by sector of activity, 2004 (%)



Source: Eurostat

While the pie charts in the previous figure show the distribution of the main sectors of activity at EU-25 level, Figure 2.2 gives the sectorial breakdown for individual countries.

The proportions of the various sectors vary considerably and depend on a multitude of factors, such as the industrial structure of a country, climatic conditions, settlement patterns and transport infrastructures. A comparison between countries is therefore only of limited value. This is also valid for the consumption per inhabitant ratio, especially in industry and transport (see Chapters 2.1.2 and 2.1.3).

Bearing this in mind, industrial electricity consumption among the EU Member States is highest in Luxembourg and Finland with 66% and 56% of total final electricity consumption, respectively. Half of Luxembourg's industrial consumption (47% of the total) goes on the steel industry, whereas in Finland the paper and printing sector accounts for the largest share (58% of the total). Finland is closely followed by Slovenia with 54%.

If the non-EU Member States are included, Iceland has the highest proportion with 76%.

On the other hand, only 14% of total electricity consumption in Cyprus went on industry, far lower than in Croatia (26%), Greece (28%) and Denmark (30%).

In several countries, electricity consumption in transport is quite limited. Malta and Iceland (which, together with Cyprus, do not have railways) did not report any consumption in this sector. The highest share was reported by Austria with 5.5% of the total. As mentioned earlier, this consumption is mainly to provide tractive power for railways, tramways and metros. The degree of electrification of the rail network as well as the characteristics of the rolling stock (proportion of electric locomotives) is of influence here.

In 24 out of 31 countries, the households and services sector accounted for over 50% of total final electricity consumption. The highest share was recorded by Cyprus with 85%, followed by Croatia, Greece, Ireland and Denmark, all with a proportion of around 70%.

As industrial consumption takes the lion's share in Luxembourg and Iceland, the share of households and services is limited to 33% and 24%, respectively.

2. Consumption

Table 2.3: Total final electricity consumption (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	2 051 876	2 184 260	2 457 791	2 530 457	2 540 490	2 604 571	2 651 682	1.8
EU-15	1 813 456	1 969 052	2 229 599	2 297 066	2 306 364	2 364 229	2 405 313	1.7
BE	57 984	68 439	77 539	78 138	78 443	79 677	80 603	1.2
CZ	48 177	48 026	49 351	50 856	50 789	52 376	53 801	2.7
DK	29 268	31 238	32 461	32 555	32 502	32 357	32 973	1.9
DE	446 489	452 551	482 603	505 280	498 840	509 265	513 327	0.8
EE	6 805	4 484	4 969	5 134	5 272	5 573	5 892	5.7
EL	28 470	34 087	43 151	44 535	46 564	48 598	49 719	2.3
ES	125 799	140 911	188 459	200 953	206 535	219 988	230 669	4.9
FR	301 912	342 577	385 111	395 489	393 230	408 248	415 880	1.9
IE	11 868	14 841	20 201	20 929	21 832	22 531	23 029	2.2
IT	214 084	237 736	272 547	277 328	282 305	290 964	295 042	1.4
CY	1 754	2 223	2 996	3 110	3 385	3 637	3 658	0.6
LV	8 266	4 430	4 439	4 523	4 849	5 180	5 381	3.9
LT	12 011	6 345	6 171	6 406	6 693	7 142	7 612	6.6
LU	4 127	4 996	5 716	5 633	5 673	6 015	6 377	6.0
HU	31 593	27 743	29 441	30 543	31 484	31 396	31 806	1.3
MT	910	1 259	1 567	1 569	1 657	1 817	1 798	-1.0
NL	73 523	83 077	97 938	99 428	99 736	100 520	103 118	2.6
AT	42 665	45 976	51 796	53 897	54 934	55 188	56 368	2.1
PL	95 750	89 584	96 727	96 856	95 504	98 189	99 805	1.6
PT	23 544	28 804	38 373	39 937	41 473	43 164	44 668	3.5
SI	9 740	9 384	10 521	10 942	11 781	12 047	12 589	4.5
SK	23 414	21 730	22 010	23 452	22 712	22 985	24 027	4.5
FI	58 943	65 304	75 446	77 296	79 681	80 855	83 137	2.8
SE	120 347	124 573	128 725	132 673	131 279	129 443	130 361	0.7
UK	274 433	293 942	329 533	332 995	333 337	337 416	340 042	0.8
BG	35 272	28 689	24 132	24 530	24 041	25 110	24 882	-0.9
HR	13 218	9 894	11 796	11 958	12 654	12 922	13 646	5.6
RO	50 175	36 354	33 912	36 265	35 575	37 465	38 736	3.4
TR	44 952	65 133	95 873	95 315	101 532	110 364	119 483	8.3
IS	3 910	4 259	6 911	7 212	7 519	7 541	7 760	2.9
NO	96 808	103 766	109 533	112 188	109 113	103 154	109 853	6.5

Source: Eurostat

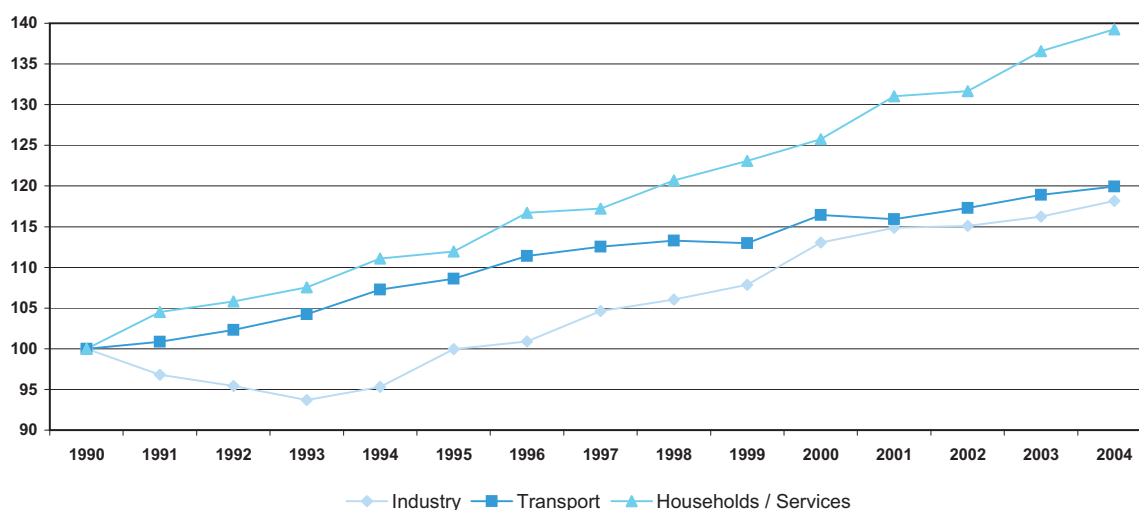
Although total final electricity consumption increased by 29% in 2004 compared with 1990, the picture is very mixed when looking at individual countries: in fact, three Member States registered consumption below the level they had in 1990. The decreases ranged between 13% in Estonia, 35% in Latvia and 37% in Lithuania (see Table 2.3).

However, the origin of the decreases in the Eastern European Member States goes back to the early 1990s, when consumption fell drastically. The second half of the 1990s saw either stabilisation or a slight increase in consumption, but still well short of the levels in 1990.

Conversely, other countries doubled or more than doubled their electricity consumption between 1990 and 2004, e.g. Cyprus (+109%), Malta (+98%) and Ireland (+94%). Greece, Spain and Portugal also reported strong increases.

From 2003 to 2004, an increase of 1.8% was registered at EU-25 level. However, Lithuania, Luxembourg, Estonia and Spain reported notably higher rates (between 5% and 7%). Malta was the only Member State that showed a slight decrease (-1%).

Figure 2.4: Development of final electricity consumption, by sector of activity, EU-25 (1990=100)



Source: Eurostat

Figure 2.4 shows the long-term development of electricity consumption at EU-25 level individually by sector. Whereas the consumption of households/services and transport shows a fairly constant increase throughout the period observed, that of industry decreased noticeably at the beginning of the 1990s, and regained its 1990 level only by 1995. At EU-15 level, however, this decrease could not be observed.

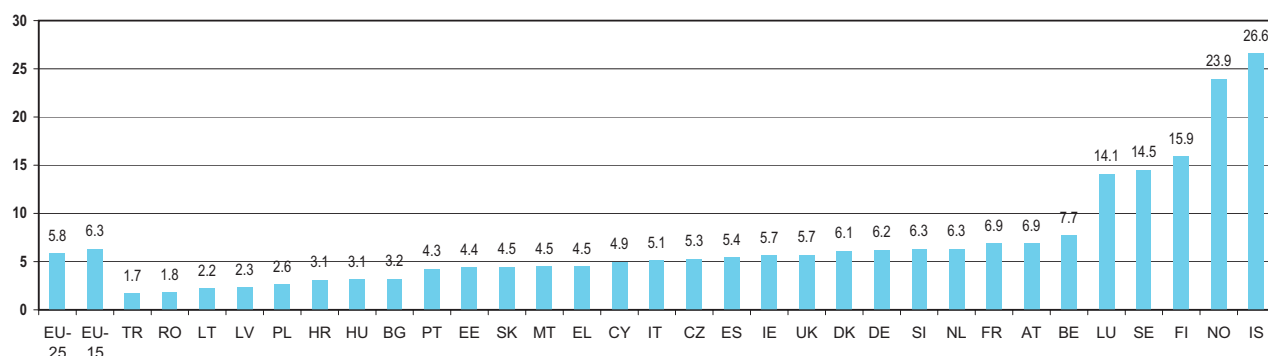
The fall in electricity consumption can partly be attributed to the economic situation in a number of the central and eastern European countries that joined the EU in May 2004 (see also the next section). During the early 1990s, production facilities in these countries were frequently

closed down or production output massively reduced. Furthermore, it should be borne in mind that the statistical data for this period have often different origins and/or methodologies to those reported for more recent years.

Those countries that initially experienced a serious decline saw industrial electricity consumption rise again during the second half of the 1990s.

When total electricity consumption is related to the population (see Figure 2.5), consumption at EU-25 level amounted to 5.8 GWh per 1000 inhabitants (or 5 800 kWh per inhabitant). Unsurprisingly, this average increased to 6.3 GWh for the old EU before enlargement (EU-15).

Figure 2.5: Total final electricity consumption (in GWh) per 1000 inhab., 2004



Note: EU-25, EU-15, EL, IT, UK: 2003 population.

Source: Eurostat

2. Consumption

Table 2.6: Member States' shares in final electricity consumption, 2004 (%)

	Total final consumption	Industry	Transport	Households/ Services
EU-25	100	100	100	100
EU-15	90.7	90.9	87.7	90.7
BE	3.0	3.7	2.1	2.6
CZ	2.0	2.1	3.1	2.0
DK	1.2	0.9	0.5	1.5
DE	19.4	21.5	22.9	17.7
EE	0.2	0.2	0.1	0.2
EL	1.9	1.3	0.3	2.4
ES	8.7	9.3	7.4	8.3
FR	15.7	12.3	17.4	18.1
IE	0.9	0.6	0.2	1.1
IT	11.1	13.2	12.9	9.5
CY	0.1	0.0	0.0	0.2
LV	0.2	0.2	0.2	0.2
LT	0.3	0.3	0.1	0.3
LU	0.2	0.4	0.1	0.1
HU	1.2	0.9	1.5	1.4
MT	0.1	0.1	-	0.1
NL	3.9	3.8	2.3	4.0
AT	2.1	2.0	4.4	2.1
PL	3.8	3.9	6.0	3.6
PT	1.7	1.6	0.7	1.8
SI	0.5	0.6	0.3	0.4
SK	0.9	1.0	1.0	0.8
FI	3.1	4.2	0.9	2.4
SE	4.9	5.3	4.2	4.7
UK	12.8	10.8	11.3	14.4

Source: Eurostat

Disparities among the EU Member States are considerable: whereas 2.2 GWh/1000 inhabitants was registered for Lithuania, the figure was 15.9 for Finland. Other Nordic countries registered high average consumptions as well.

As a highly industrialised country, Germany registered an industrial electricity consumption of nearly 234 thousand GWh in 2004 (see also the next section). This corresponds to 21.5% of total industrial consumption at EU-25 level (see Table 2.6). Italy and France followed with shares of 13.2% and 12.3%, respectively. Taken together, these three countries were responsible for nearly half of the EU's industrial electricity consumption.

In transport too, Germany took the highest share with close to 23% of the EU-25 total. Having a highly developed (high-speed) rail network, France came second at 17%.

With regard to consumption by households and services, the highest share was held by France with 18.0% of the EU total, closely followed by Germany with 17.7%. In third place came the United Kingdom with a share of 14.4%.

2.1.2 Electricity consumption of industry

Industrial electricity consumption in the EU-25 amounted to close to 1.1 million GWh in 2004, an increase of 18% compared with 1990, far less than that of overall electricity consumption (+29%).

The highly industrialised countries (Germany, France, United Kingdom) were obviously the major consumers and their consumption increases compared with 1990 were just below the EU average (with 13%, 17% and 16% respectively).

Ireland, Spain and Luxembourg registered considerable increases (between 50% and 53%) in industrial consumption.

As mentioned earlier, the marked decline in consumption in a number of central and eastern European Member States can partly be attributed to the prevailing economic situation in the early 1990s. If the 2004 figures are compared with those of 1999, the developments are largely positive.

Between 2003 and 2004, the electricity consumption of industry increased at about the same rate as that of households. Consumption in the Czech Republic increased most (+9%), ahead of Poland and Luxembourg (both at around +5%). Five countries reported a decrease, of which that of Ireland (-3%) was the most marked.

Noticeable is Turkey's massive increase: due to a generally strong economic growth, industrial electricity consumption nearly doubled between 1990 and 2004. The time series shows a lower consumption in 2001 compared with the previous year, due to a serious financial and currency crisis

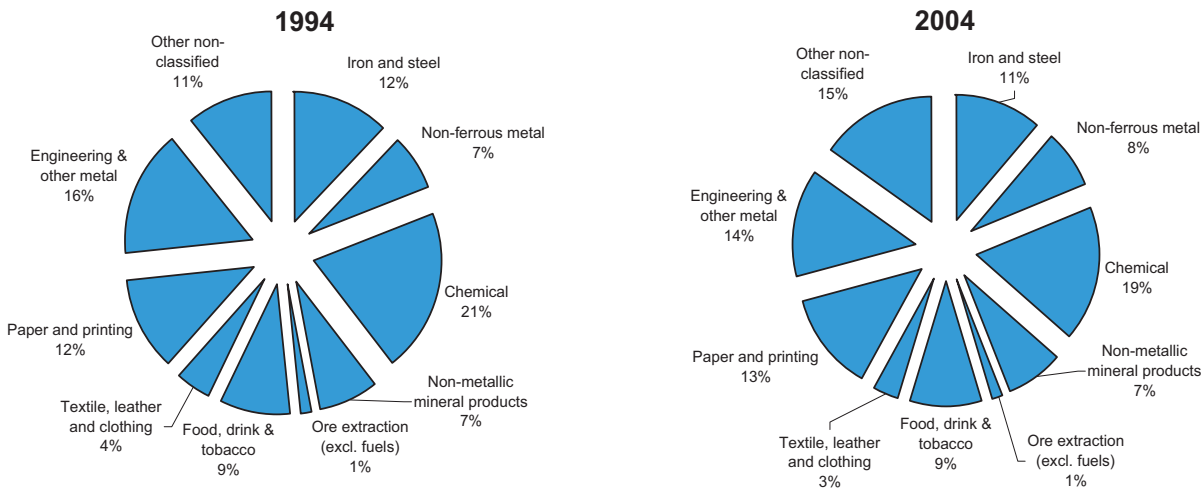
leading to a slowdown in industrial activities. The following years registered strong increases again (+8.6% between 2001 and 2002, +9.9% between 2002 and 2003 and +8.1% between 2003 and 2004).

Table 2.7: Final electricity consumption - INDUSTRY (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	921 684	921 184	1 042 091	1 058 609	1 060 814	1 071 351	1 089 272	1.7
EU-15	805 352	831 132	952 117	968 219	970 035	976 860	989 938	1.3
BE	30 523	34 605	39 868	39 224	38 933	39 975	40 367	1.0
CZ	26 922	18 406	18 944	19 939	20 558	20 550	22 358	8.8
DK	8 730	9 651	10 001	10 032	9 924	9 727	10 020	3.0
DE	207 821	204 724	221 926	236 597	233 582	231 785	233 842	0.9
EE	2 956	1 751	1 831	1 814	1 883	2 031	2 135	5.1
EL	12 109	12 066	13 547	13 762	14 130	14 156	13 987	-1.2
ES	63 279	60 609	85 640	90 267	92 890	98 345	101 525	3.2
FR	114 666	123 607	135 145	134 665	133 350	133 840	133 977	0.1
IE	4 485	5 767	7 727	7 760	8 110	7 095	6 857	-3.4
IT	110 839	119 517	141 847	143 205	143 107	144 368	144 197	-0.1
CY	332	397	446	451	474	507	513	1.2
LV	3 190	1 425	1 433	1 545	1 526	1 605	1 634	1.8
LT	5 460	2 705	2 294	2 346	2 546	2 630	2 744	4.3
LU	2 617	3 166	3 852	3 693	3 694	3 978	4 191	5.4
HU	13 751	8 380	8 799	9 434	10 255	9 585	9 497	-0.9
MT	0	489	504	483	510	556	550	-1.1
NL	33 237	36 835	40 600	40 637	41 066	40 701	41 362	1.6
AT	17 711	19 074	22 657	21 004	21 290	21 361	22 064	3.3
PL	42 744	42 410	40 453	39 013	38 181	40 189	42 424	5.6
PT	12 219	13 227	15 954	16 161	16 470	16 820	17 086	1.6
SI	5 969	4 943	5 529	5 685	5 827	6 588	6 755	2.5
SK	15 008	9 146	9 741	9 680	9 019	10 250	10 724	4.6
FI	32 518	36 362	42 674	42 384	43 668	44 306	46 120	4.1
SE	53 955	52 013	56 938	57 119	57 273	56 107	57 194	1.9
UK	100 643	99 909	113 741	111 709	112 548	114 296	117 149	2.5
BG	18 552	12 167	8 584	9 035	8 479	9 197	9 713	5.6
HR	6 004	2 747	3 038	3 098	3 121	3 414	3 530	3.4
RO	38 281	23 343	19 909	20 754	22 706	22 337	25 258	13.1
TR	27 343	35 747	46 089	44 998	48 876	53 697	58 042	8.1
IS	2 559	2 847	5 240	5 519	5 822	5 867	5 917	0.9
NO	45 810	47 671	51 566	49 324	47 397	47 763	51 180	7.2

Source: Eurostat

Figure 2.8: Breakdown of industrial electricity consumption: main categories, EU-25



Note: Chemical, Ore extraction (excl. fuels), Food, drink & tobacco, Textile, leather and clothing, Engineering & other metal, Other non-classified: provisional data.

Source: Eurostat

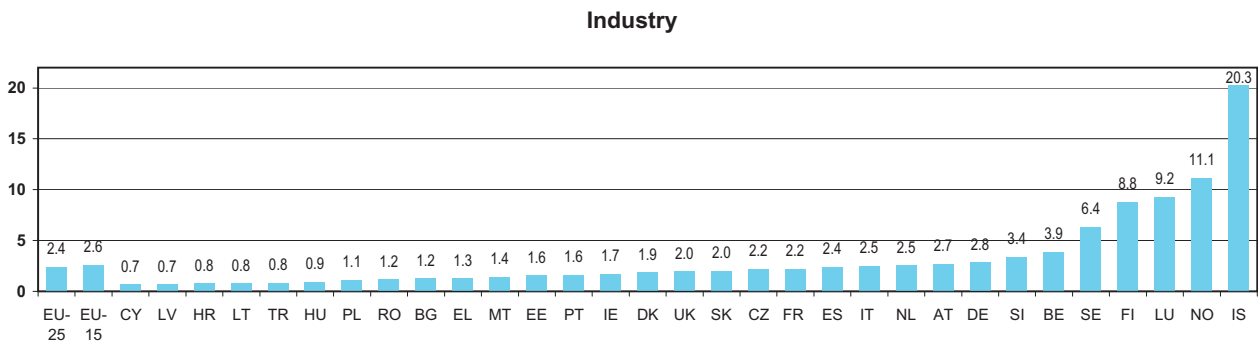
Looking at the various industrial sectors, the chemical industry was responsible for the lion's share of industrial electricity consumption: in 2004, it accounted for 19% (see Figure 2.8). The metal industries (combination of iron and steel and non-ferrous metal industries) recorded a near identical share (19%).

industries') grew from 11% to 15%, reflecting the increased difficulties in attributing activities to a defined branch.

The data for 1994 reveal that no major shift occurred during the last decade. The chemical industry's share fell slightly in 2004 but the 'residual' category ('Other non-classified

Industrial electricity consumption per 1000 inhabitants is outlined in Figure 2.9. The EU-25 average was 2.4 GWh (or 2 400 kWh per inhabitant). Sixteen out of 25 Member States were below this average. Values were particularly high in the Nordic countries, but also in Luxembourg, mainly due to the presence of energy-intensive industries.

Figure 2.9: Final electricity consumption of industry: consumption (GWh) per 1000 inhabitants, 2004



Note: EU-15, EU-25, EL, IT and UK: 2003 population.

Source: Eurostat

2.1.3 Electricity consumption of the transport sector

A very large proportion of energy consumed in the transport sector consists of hydrocarbons. Electricity in transport is essentially used for railways, tramways and subways. Within the global rail vehicle stock, the share of electric locomotives is rising.

The very small amount of electricity used to power road vehicles is in most cases statistically not accounted for in the category 'transport'.

Between 1990 and 2004, electricity used in transport increased by 20%, from 59 085 GWh to 70 861 GWh. If

only the EU-15 Member States are considered, the increase amounted to a larger 31%. In recent years though, only a very modest increase could be observed (at EU-25 level for instance, the increase between 2000 and 2004 was 3%).

Transport statistics show that the ever increasing performance of goods transport has largely been absorbed by road transport. Passenger rail transport remains important but the density of the railway network varies considerably between countries.

Table 2.10: Final electricity consumption - TRANSPORT (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	59 085	64 166	68 799	68 485	69 302	70 264	70 861	0.8
EU-15	47 401	54 302	59 643	60 519	60 677	61 439	62 156	1.2
BE	1 249	1 455	1 440	1 463	1 452	1 490	1 502	0.8
CZ	3 167	2 327	2 305	2 092	2 119	2 182	2 168	-0.6
DK	211	239	348	348	364	353	370	4.8
DE	13 668	16 191	15 910	16 399	16 190	16 144	16 200	0.3
EE	174	116	91	84	97	97	99	2.1
EL	124	149	227	214	222	237	238	0.4
ES	3 669	3 937	4 163	4 558	4 794	5 124	5 235	2.2
FR	8 880	9 697	11 681	11 686	11 982	12 055	12 355	2.5
IE	16	18	26	26	23	23	151	556.5
IT	6 276	7 272	8 086	8 171	8 521	8 992	9 113	1.3
CY	21	33	22	24	26	30	31	3.3
LV	201	153	114	113	111	115	116	0.9
LT	210	86	50	50	52	53	54	1.9
LU	53	77	97	101	104	104	105	1.0
HU	1 186	1 025	1 015	1 031	1 015	1 045	1 093	4.6
MT	-	-	-	-	-	-	-	-
NL	1 273	1 478	1 630	1 577	1 556	1 585	1 648	4.0
AT	3 490	2 871	3 259	3 357	3 118	3 152	3 122	-1.0
PL	5 337	4 575	4 329	4 287	4 313	4 398	4 246	-3.5
PT	310	299	360	358	411	435	464	6.7
SI	224	170	265	255	172	179	190	6.1
SK	1 164	1 379	965	30	720	726	708	-2.5
FI	425	500	538	565	594	627	630	0.5
SE	2 474	2 718	3 194	2 862	2 867	2 838	2 989	5.3
UK	5 283	7 401	8 684	8 834	8 479	8 280	8 034	-3.0
BG	1 305	803	453	437	449	436	421	-3.4
HR	368	230	270	250	261	267	263	-1.5
RO	3 184	2 173	1 832	1 756	1 936	1 793	1 578	-12.0
TR	345	356	765	660	762	713	596	-16.4
IS	-	-	-	-	-	-	-	-
NO	830	1 681	1 542	1 890	1 804	1 660	1 718	3.5

Source: Eurostat

2. Consumption

Despite the relatively strong position of rail transport in central and eastern Europe in general, more or less marked decreases can be seen in many of the central and eastern European Member States when comparing 2004 with 1990, but here again, statistics were obtained from various sources in early years and data reliability might be slightly compromised.

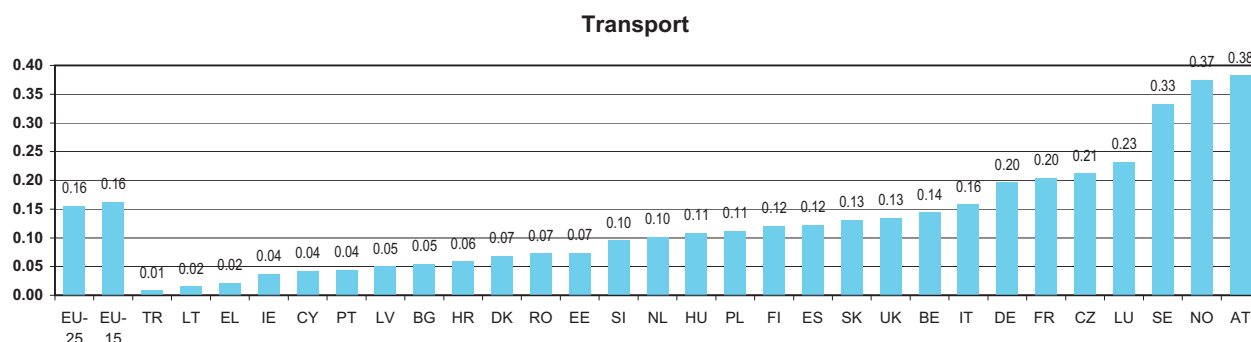
Among the EU-15 Member States, only Austria recorded a noticeable decrease during the same period (-11%). With 3 122 GWh, the consumption of the Austrian transport sector in 2004 corresponded roughly to the level it had in 1999.

Conversely, marked increases were registered in Luxembourg and Greece, where transport consumption doubled (a similar increase was recorded in Norway), and also in Denmark and the United Kingdom (with 75% and 52% respectively).

Comparing 2004 figures with those a year earlier, there was a 0.8% increase at EU-25 level. Ireland's consumption grew from 23 GWh to 151 GWh due to the launching of a new light rail transit system in Dublin. Portugal and Slovenia reported increases between 6% and 7%, whereas the most marked decreases were seen in Poland and the United Kingdom.

When electricity consumption in the transport sector in 2004 is related to the population (see Figure 2.11), Austria, despite its absolute decrease, still registered by far the highest consumption among the various countries: 0.38 GWh per 1000 inhabitants (or 380 kWh per inhabitant). Sweden and Norway were the only other countries with values of over 300 kWh per inhabitant. Per capita consumption in Italy corresponded to the EU average.

Figure 2.11: Final electricity consumption of the transport sector: consumption (GWh) per 1000 inhabitants, 2004



Note: EU-15, EU-25, EL, IT and UK : 2003 population.

Source: Eurostat

2.1.4 Electricity consumption of households and services

As shown in Graph 2.1 at the beginning of this section, the electricity consumption of households and services constitutes the largest single category with over 56% of total final electricity consumption at EU level. It should be noted that the consumption of the agricultural sector is included in this category, though its weight is generally low.

At EU-25 level, this category showed an increase of 39% compared with 1990. In recent years too, consumption has continued to grow at a relatively fast pace: between 2000 and 2004 alone, the increase amounted to nearly 11%.

'Households/services' is quite a heterogeneous category and consumption depends on a large number of factors such as the importance of the service sector in a country's economy, the penetration of electrical appliances in households, the proportion of houses heated (general heating and/or hot water) by electricity and the production structure of the agricultural sector (artificial lighting in greenhouses), to name but a few.

The most impressive growth at country level was registered in Turkey, where a fast growing population, rapid urbanisation as well as generally strong economic growth caused electricity consumption to more than triple between 1990 and 2004. Nevertheless, per capita consumption remained one of the lowest among the countries observed (see Figure 2.13).

Among the EU Member States, a range of southern European countries recorded high increases for this period too, notably Portugal (146%), Cyprus (122%), Greece (119%) and Spain (111%). One factor of influence might be the increased use of air conditioning systems.

A similarly strong increase in more northern European countries was seen only in Ireland (117%). Only moderate increases compared with 1990 were observed in Denmark (11%), Poland (11%) and Sweden (10%).

Looking at just the changes between 2003 and 2004, an increase of 2% was registered at EU-25 level. Significantly above this average were Lithuania and Luxembourg (both +8%) along with Slovenia, Spain and Estonia (between 6% and 7%). Four Member States reported a decrease, but that in the Czech Republic was the only one to exceed one percent (-1.2%).

Beyond the EU borders, the changes were more marked: Iceland registered a 10% increase between 2003 and 2004 whereas Romania reported an 11% decrease.

Table 2.12: Final electricity consumption - HOUSEHOLDS / SERVICES (GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	1 071 107	1 198 910	1 346 901	1 403 363	1 410 374	1 462 956	1 491 549	2.0
EU-15	960 703	1 083 618	1 217 839	1 268 328	1 275 652	1 325 930	1 353 219	2.1
BE	26 212	32 379	36 231	37 451	38 058	38 212	38 734	1.4
CZ	18 088	27 293	28 102	28 825	28 112	29 644	29 275	-1.2
DK	20 327	21 348	22 112	22 175	22 214	22 277	22 583	1.4
DE	225 000	231 636	244 767	252 284	249 068	261 336	263 285	0.7
EE	3 675	2 617	3 047	3 236	3 292	3 445	3 658	6.2
EL	16 237	21 872	29 377	30 559	32 212	34 205	35 494	3.8
ES	58 851	76 365	98 656	106 128	108 851	116 519	123 909	6.3
FR	178 366	209 273	238 285	249 138	247 898	262 353	269 548	2.7
IE	7 367	9 056	12 448	13 143	13 699	15 413	16 021	3.9
IT	96 969	110 947	122 614	125 952	130 677	137 604	141 732	3.0
CY	1 401	1 793	2 528	2 635	2 885	3 100	3 114	0.5
LV	4 875	2 852	2 892	2 865	3 212	3 460	3 631	4.9
LT	6 341	3 554	3 827	4 010	4 095	4 459	4 814	8.0
LU	1 457	1 753	1 767	1 839	1 875	1 933	2 081	7.7
HU	16 656	18 338	19 627	20 078	20 214	20 766	21 216	2.2
MT	910	770	1 063	1 086	1 147	1 261	1 248	-1.0
NL	39 013	44 764	55 708	57 214	57 114	58 234	60 108	3.2
AT	21 464	24 031	25 880	29 536	30 526	30 675	31 182	1.7
PL	47 669	42 599	51 945	53 556	53 010	53 602	53 135	-0.9
PT	11 015	15 278	22 059	23 418	24 592	25 909	27 118	4.7
SI	3 547	4 271	4 727	5 002	5 782	5 280	5 644	6.9
SK	7 242	11 205	11 304	13 742	12 973	12 009	12 595	4.9
FI	26 000	28 442	32 234	34 347	35 419	35 922	36 387	1.3
SE	63 918	69 842	68 593	72 692	71 139	70 498	70 178	-0.5
UK	168 507	186 632	207 108	212 452	212 310	214 840	214 859	0.0
BG	15 415	15 719	15 095	15 058	15 113	15 477	14 748	-4.7
HR	6 846	6 917	8 488	8 610	9 272	9 241	9 853	6.6
RO	8 710	10 838	12 171	13 755	10 933	13 335	11 900	-10.8
TR	17 264	29 030	49 019	49 657	51 894	55 954	60 845	8.7
IS	1 351	1 412	1 671	1 693	1 697	1 674	1 843	10.1
NO	50 168	54 414	56 425	60 974	59 912	53 731	56 955	6.0

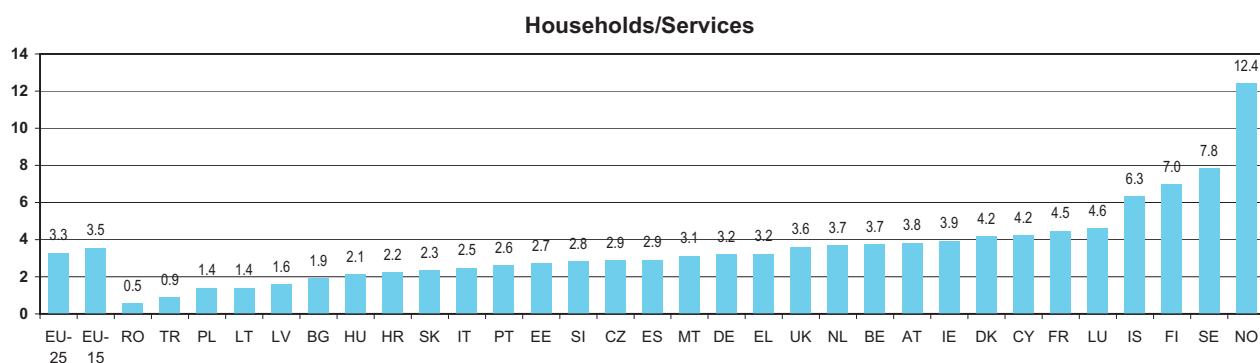
Source: Eurostat

2. Consumption

In 2004, per capita consumption was highest in Norway by a large margin (12 400 kWh per inhabitant - see Figure 2.13). The main reasons for the high degree of electricity use are the historically low electricity prices combined with abundant hydropower. In Scandinavian countries, electricity is widely used to heat buildings and water. Combined with a cold climate, this drives up household electricity use to high levels.

Finland and Sweden registered a per capita consumption of more than twice the EU-25 average (3 300 kWh per inhabitant), whereas Lithuania and Poland were at the other end of the scale with 1 400 kWh per inhabitant.

Figure 2.13: Final electricity consumption of households / services: consumption (GWh) per 1000 inhabitants, 2004



Note: EU-15, EU-25, EL, IT and UK : 2003 population.

Source: Eurostat

2.2 Natural gas consumption

2.2.1 Total consumption of natural gas

Natural gas is becoming an increasingly important source of energy in the EU. It is predicted that it will become the fastest growing source of energy, primarily on account of its environmental attractiveness when compared with coal and nuclear energy.

Natural gas is composed mainly of methane. Pure methane is highly flammable, is sulphur-free, and burns easily and almost completely, apart from emitting very few pollutants. It has lower nitrogen-oxide and carbon-dioxide emissions than other fossil fuels.

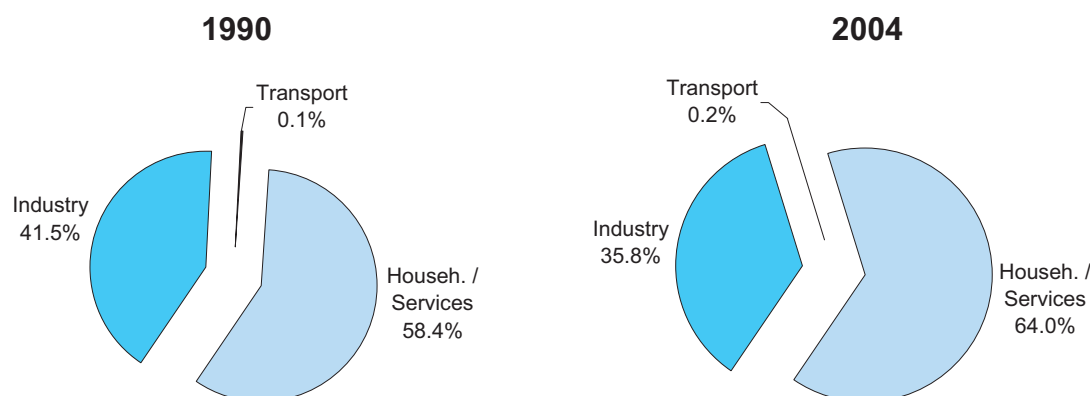
Natural gas only started to make inroads in European energy consumption following the discovery of major domestic resources (essentially in the Netherlands in 1959 and the United Kingdom in the 1960s). Apart from having a deep impact on their national energy systems, it has also engendered major spin-offs for other Western European countries.

Pipeline networks were built to enable trading and production increased quickly. Today however, consumption exceeds domestic production and the European Union is increasingly dependent on gas imports from outside the EU (see also next section).

The present section looks at the final consumption of natural gas in industry, transport and households/services. It excludes the consumption of derived gases, such as manufactured gases, comprising coke-oven gas. Blast furnace gas and gasworks gas are also excluded.

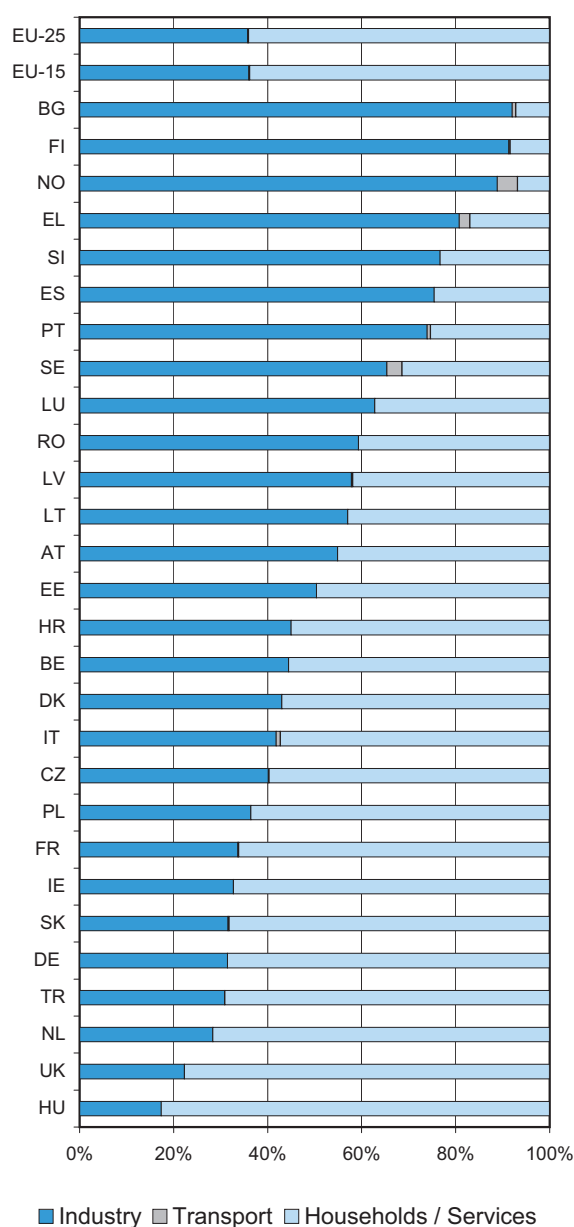
Consumption of gas by the energy sector is considered at the end of this chapter.

Figure 2.14: Final consumption of natural gas by sector of activity, EU-25 (%)



Source: Eurostat

Figure 2.15: Final consumption of natural gas in individual countries, share by sector of activity, 2004 (5%)



Source: Eurostat

Between 1990 and 2004, a 43% increase in natural gas consumption was observed at EU-25 level, from 8.7 million TJ to 12.5 million TJ (see Table 2.16). As shown in Figure 2.14, households and services were the largest consumer category, both in 1990 and in 2004. Their share increased to 64% of the total to the detriment of the industry. The share of the transport sector remained marginal (0.2% in 2004). However, this low share masks the fact that consumption in the transport sector more than doubled between 1990 and 2004.

Looking at the situation at country level, only Greece, Sweden and Norway have noticeable shares for transport (between 2.3% and 4.3%), while half of the EU Member States did not register natural gas consumption in transport at all. Natural gas in the transport sector is used in a compressed or liquefied form in vehicles (see also below).

Industry has a particularly high share of natural gas consumption in Finland (91%) and Greece (81%), but also in Bulgaria (92%) and Norway (89%).

Although both major natural gas producers, the Netherlands and the United Kingdom registered low shares for industrial consumption with 28% and 22%, respectively. Hungary was the only other country to have an even lower share with 17%. The considerable volumes consumed in these latter countries hence go on households and services, primarily for heating and/or cooking purposes.

2. Consumption

Looking at the evolution of natural gas consumption in the EU-15 Member States, there was a global increase of 47% between 1990 and 2004 (see Table 2.16).

Among the EU-15, Spain registered the largest increase with 318%. This was largely in the second half of the 1990s. Ireland came second with +133%, a long way ahead of the Czech Republic and Austria (both countries +71%). The Netherlands only registered a slight increase. This is not surprising since it has been a major gas producer for over 40 years. Since the discovery of natural gas in the north of the country in 1959, the economy has

largely adapted its energy needs to this source. With a total consumption of close to 984 thousand TJ in 2004, this relatively small Member State used three times more natural gas than a much larger country such as Poland.

Finland showed a tendency towards decline, although the overall decrease of 30% between 1990 and 2004 can mainly be attributed to the lower values registered in 2003 and 2004. In Finland, natural gas is primarily used for industrial purposes and consumption by households remains marginal (see also Figure 2.15).

Table 2.16: Total final consumption of natural gas (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	8 705 843	10 280 621	11 624 092	11 935 986	11 751 281	12 395 163	12 470 498	0.6
EU-15	7 679 920	9 246 619	10 508 731	10 773 995	10 584 709	11 199 808	11 277 636	0.7
BE	297 760	368 900	439 428	442 351	451 792	449 061	463 253	3.2
CZ	168 128	238 713	274 014	298 856	286 788	292 792	287 782	-1.7
DK	52 191	77 263	77 222	81 989	76 759	80 528	78 985	-1.9
DE	1 712 320	2 303 495	2 555 257	2 507 799	2 506 590	2 737 608	2 805 000	2.5
EE	20 425	5 655	6 256	7 843	8 395	11 669	9 673	-17.1
EL	0	0	11 967	14 766	16 068	17 933	21 465	19.7
ES	182 378	298 908	549 827	605 191	637 164	712 777	761 617	6.9
FR	1 024 319	1 203 141	1 413 932	1 502 886	1 472 094	1 535 661	1 506 150	-1.9
IE	26 445	37 010	55 848	57 416	55 684	59 419	61 631	3.7
IT	1 336 299	1 565 733	1 749 680	1 802 624	1 760 305	1 905 620	1 890 577	-0.8
CY	-	-	-	-	-	-	-	-
LV	31 253	15 177	15 294	18 129	20 798	21 228	22 885	7.8
LT	69 010	23 719	17 074	18 149	19 657	20 399	22 407	9.8
LU	19 533	23 929	28 975	29 649	29 445	29 460	31 617	7.3
HU	259 761	283 454	291 618	320 505	318 948	344 971	348 363	1.0
MT	-	-	-	-	-	-	-	-
NL	964 169	1 023 163	958 318	982 297	956 096	987 437	983 869	-0.4
AT	120 369	155 665	176 893	196 936	188 581	191 413	205 456	7.3
PL	267 174	280 882	290 778	309 903	314 339	329 727	344 862	4.6
PT	0	0	36 772	48 367	55 040	56 104	59 533	6.1
SI	28 068	21 776	26 464	27 904	27 449	29 438	30 978	5.2
SK	182 104	164 626	193 863	160 702	170 198	145 131	125 912	-13.2
FI	56 999	55 807	44 292	46 838	45 276	41 198	39 849	-3.3
SE	15 558	17 159	20 623	22 902	21 359	23 117	22 341	-3.4
UK	1 871 580	2 116 446	2 389 697	2 431 984	2 312 456	2 372 472	2 346 293	-1.1
BG	90 422	72 289	43 603	36 250	34 491	37 884	36 822	-2.8
HR	40 295	41 770	46 546	51 338	48 906	52 577	54 412	3.5
RO	923 608	441 346	300 095	317 537	322 196	353 888	372 061	5.1
TR	24 877	100 667	203 034	201 361	221 868	289 258	328 642	13.6
IS	-	-	-	-	-	-	-	-
NO	0	0	8 085	7 890	6 409	8 475	9 922	17.1

Source: Eurostat

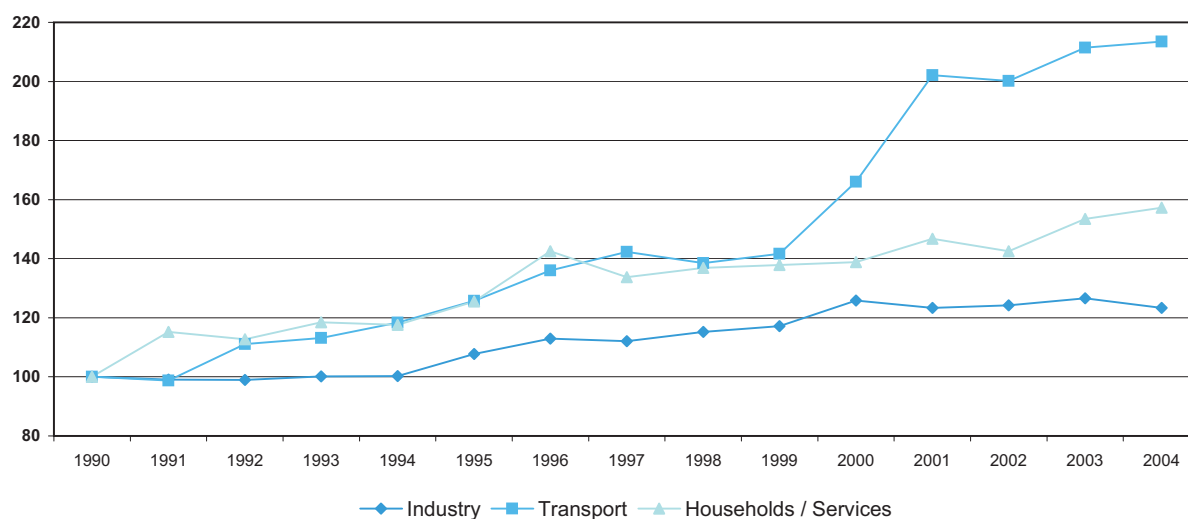
Looking at the short-term development between 2003 and 2004, a very moderate increase of 0.6% in total natural gas consumption was seen for the EU-25 as a whole, compared to an increase of nearly 2% for electricity. However, this masks a highly differentiated picture at Member State level, characterised by fairly considerable increases and decreases. Indeed, whereas total final natural gas consumption in Estonia and Slovakia decreased by 17% and 13%, respectively, an increase of nearly 20% was reported by Greece. Noticeable increases were also registered for Lithuania, Latvia and Austria (between 7% and 10%).

The most striking growth was observed beyond the EU borders: consumption in Turkey grew from roughly 25 thousand TJ in 1990 to 329 thousand TJ in 2004. An increase of 14% was registered in 2004 compared to 2003.

Taking 1990 as a starting point, the three main consumption categories showed a globally positive development at EU-25 level (see Figure 2.17). Industrial consumption of natural gas remained stable until 1994 before an unspectacular and linear increase. A roughly similar tendency can be observed for the consumption of households/services, despite the fact that the period between 1990 and 1991 was marked by a noticeable increase.

Consumption by the transport sector, though at a low level in absolute terms, followed the overall trend for the other sectors until 1999, before registering spectacular increases in 2000 and 2001. The influence of a single country, Italy, is considerable.

F Figure 2.17: Development of final consumption of natural gas, by sector of activity, EU-25 (1990=100)



Source: Eurostat

2. Consumption

Table 2.18: Member States' share in final consumption of natural gas, 2004 (%)

	Total final consumption	Industry	Transport	Households / Services
EU-25	100	100	100	100
EU-15	90.4	91.1	95.7	90.0
BE	3.7	4.6	-	3.2
CZ	2.3	2.6	2.3	2.1
DK	0.6	0.8	-	0.6
DE	22.5	19.8	-	24.1
EE	0.1	0.1	-	0.1
EL	0.2	0.4	2.3	0.0
ES	6.1	12.9	0.0	2.3
FR	12.1	11.4	9.2	12.5
IE	0.5	0.5	-	0.5
IT	15.2	17.7	78.3	13.6
CY	0.0	-	-	-
LV	0.2	0.3	0.3	0.1
LT	0.2	0.3	-	0.1
LU	0.3	0.4	-	0.1
HU	2.8	1.4	0.4	3.6
MT	0.0	-	-	-
NL	7.9	6.3	-	8.8
AT	1.6	2.5	0.0	1.2
PL	2.8	2.8	-	2.7
PT	0.5	1.0	1.9	0.2
SI	0.2	0.5	-	0.1
SK	1.0	0.9	1.3	1.1
FI	0.3	0.8	0.6	0.0
SE	0.2	0.3	3.3	0.1
UK	18.8	11.7	-	22.8

Source: Eurostat

One-fifth of EU-25 industrial natural gas consumption was in Germany. Italy had the second most important share with 18%, followed by Spain, the UK and France with 13%, 12% and 11.5%, respectively (see Table 2.18).

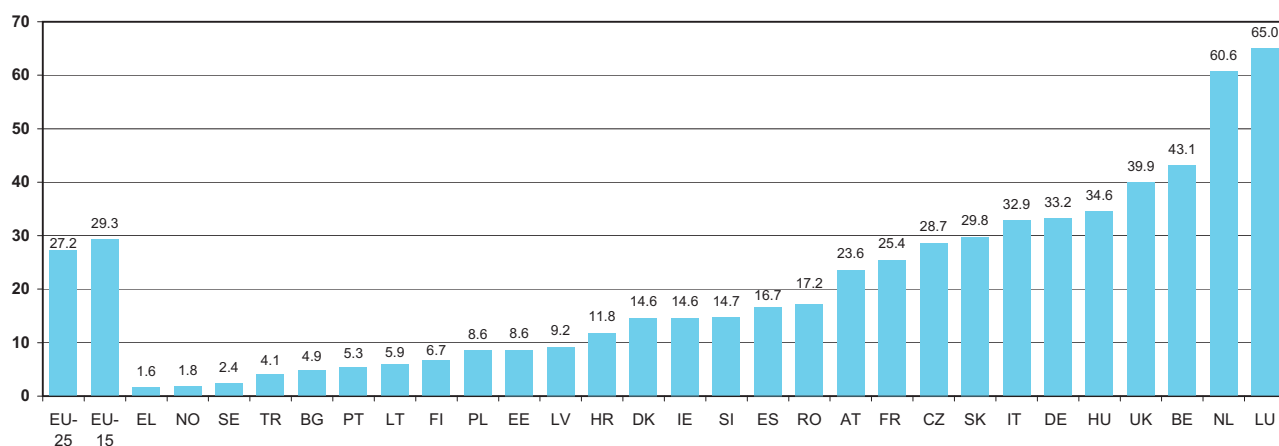
Many countries do not use natural gas for transport purposes: 13 Member States do not report quantities in this category and 2 others (Spain and Austria) recorded negligible amounts.

Italy stands out in this sector with close to 78% of the EU-25 total. France and Sweden come next, with 9.2% and 3.3% of the 2004 total respectively.

With the further need for sustainable development, and substantial technological progress in the automotive industry on NGVs (Natural Gas Vehicles), more countries can be expected to report natural gas consumption in the transport sector in future.

Natural gas consumption per 1000 inhabitants in 2004 (Figure 2.19) showed a particularly wide range: the lowest value was registered for Greece (1.6 TJ per 1000 inhabitants) whereas Luxembourg ranged at the other end of the scale with 65.0 TJ, a consumption more than 40 times higher, and more than double the EU-15 average (29.3 TJ).

Figure 2.19: Total consumption of natural gas, 2004 - in TJ-GCV per 1 000 inhabitants



Note: EU-25, EU-15, EL, IT and UK: 2003 population data.

Source: Eurostat

2.2.2 Natural gas consumption by the industry

At EU-25 level, 36% of total final natural gas consumption goes on industry. However, this EU average hides widely varying results at country level (see Figure 2.15), ranging from 91% in Finland to 17% in Hungary.

Industrial natural gas consumption has experienced a marked increase since 1990: in 2004, it stood at close to 4.5 million TJ, 27% higher than in 1990. In recent years (from 2000 onwards), a certain stabilisation can be observed. In 2004, consumption even decreased by 2.5% compared to 2003.

At Member State level, it was Spain that posted the most impressive growth (267% between 1990 and 2004). Between 2002 and 2004 alone, industrial natural gas consumption increased by nearly 20%. No other country came close to these growth figures except Turkey, which registered +341% between 1990 and 2004. In absolute terms, however, Turkey's industrial consumption in 2004 still ranged under that of e.g. the Czech Republic or Austria.

Table 2.20: Final consumption of natural gas - INDUSTRY (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	3 614 213	3 892 392	4 549 785	4 457 214	4 489 919	4 574 752	4 458 402	-2.5
EU-15	3 099 003	3 506 742	4 161 749	4 060 335	4 083 820	4 174 661	4 062 381	-2.7
BE	134 092	160 319	214 368	197 205	215 922	204 034	205 857	0.9
CZ	83 146	121 517	121 028	121 493	120 085	117 342	115 521	-1.6
DK	24 894	36 320	36 752	37 984	35 277	34 980	33 993	-2.8
DE	793 012	895 153	987 257	866 799	865 590	892 399	883 000	-1.1
EE	17 329	3 297	3 691	4 695	4 212	6 690	4 873	-27.2
EL	0	0	11 341	13 672	14 376	15 281	17 336	13.4
ES	156 670	241 279	425 685	464 895	481 431	540 839	574 421	6.2
FR	427 522	479 458	563 021	560 528	615 828	590 764	507 510	-14.1
IE	16 638	17 108	21 867	20 490	20 075	20 310	20 163	-0.7
IT	603 391	688 244	773 402	774 687	771 718	789 137	790 859	0.2
CY								
LV	20 433	7 696	9 647	11 799	13 106	12 782	13 231	3.5
LT	41 217	10 150	9 553	10 234	11 346	11 690	12 784	9.4
LU	12 989	15 412	19 191	18 889	18 843	18 496	19 849	7.3
HU	149 075	84 471	63 741	72 574	73 117	68 291	60 530	-11.4
MT								
NL	303 053	284 510	267 167	249 231	249 828	274 699	278 800	1.5
AT	75 924	80 832	95 226	99 414	101 157	99 377	112 760	13.5
PL	115 575	88 591	105 541	104 920	104 330	112 079	125 557	12.0
PT	0	0	30 648	38 653	42 652	42 709	44 020	3.1
SI	26 408	19 235	22 867	21 288	20 032	23 214	23 759	2.3
SK	62 027	50 693	51 968	49 876	59 871	48 003	39 766	-17.2
FI	55 046	53 094	41 366	43 646	41 822	37 806	36 377	-3.8
SE	11 762	11 675	14 075	15 831	14 703	15 448	14 605	-5.5
UK	484 010	543 338	660 383	658 411	594 598	598 382	522 831	-12.6
BG	89 572	71 354	42 424	34 729	32 860	35 663	33 894	-5.0
HR	28 971	21 653	23 393	24 050	22 416	22 827	24 495	7.3
RO	779 979	336 959	184 973	196 822	205 979	212 185	220 750	4.0
TR	22 987	48 427	77 540	64 606	74 769	86 201	101 372	17.6
IS				77 540	64 606	74 769	86 201	15.3
NO	:	:	:	8 006	7 481	5 951	7 901	32.8

Source: Eurostat

2. Consumption

Compared with 1990, Belgium and Luxembourg also reported noticeable increases (+54% and +53%, respectively), though the largest year-on-year growth occurred during the 1990s. In more recent years, consumption figures have remained stable.

Apart from quite marked decreases in certain central and eastern European Member States (for the reasons mentioned in earlier sections), the negative development in

Finland stands out. Industrial gas consumption in Finland (mainly by the forest industry) saw significant drops between 1999 and 2000 and between 2002 and 2004.

Looking just at 2003 and 2004, 11 out of 23 Member States reported decreases, the largest being in Estonia and Slovakia (-27% and -17%, respectively). Conversely, increases of between 12% and 14% were reported by Greece, Austria and Poland.

2.2.3 Natural gas consumption by the transport sector

In the transport sector, natural gas is used in compressed form (CNG) or liquefied form (LNG). CNG is used in special CNG vehicles, where it is stored in high-pressure fuel cylinders. Such vehicles are attracting increasing interest, as they have clean burning properties and produce fewer exhaust and greenhouse gas emissions than vehicles equipped with gasoline or diesel engines. CNG vehicles are often light passenger vehicles, light and medium-duty delivery trucks as well as city buses. More recently, many vehicle manufacturers have started offering CNG vehicles in their model range.

LNG vehicles are less common as they require additional equipment to keep the LNG cold. These extra installations make its application more limited for transport purposes, but it can for instance be found in buses and train locomotives.

It is estimated that, worldwide, there are currently approximately 5 million vehicles running on natural gas. Such vehicles are particularly popular in Argentina, Brazil,

Pakistan and India. In Europe, Italy leads the way with an estimated 400 000 natural gas vehicles on the road and a network of about 350 refuelling stations.

Looking at Table 2.21, it then comes as no surprise that Italy has the largest proportion of natural gas dedicated to transport in the EU. In 1990, 97% of the natural gas used in the EU-25 for transport purposes was consumed in Italy. This proportion was 91% in 2000 and still 78% in 2004.

Italy's gradually decreasing share can be explained by increased consumption in other countries, notably in France and Sweden. In Sweden, certain larger municipalities have been introducing city buses running on natural gas, offering lower exhaust emissions and lower noise levels compared to diesel buses. A similar development can be noted in France. With the experimental stage long over, and with further development of the network of refuelling stations, it is expected that consumption by the transport sector will continue to increase in the coming years.

Table 2.21: Final energy consumption of natural gas - TRANSPORT (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	10 049	12 634	16 689	20 308	20 114	21 249	21 453	1.0
EU-15	9 704	12 532	16 347	19 737	19 584	20 558	20 521	-0.2
IT	9 697	11 299	15 202	17 107	16 843	16 953	16 801	-0.9
FR	7	18	86	1 080	1 260	1 764	1 980	12.2
SE	0	112	472	479	560	813	717	-11.8
Others*	345	1 333	1 161	5 005	2 753	2 169	2 537	17.0

* Others include candidate countries, Iceland and Norway.

Source: Eurostat

2.2.4 Natural gas consumption by households and services

As seen in Figure 2.14, 64% of total final natural gas consumption at EU level went on the category 'households/services'. The use of natural gas in this sector is primarily for heating (including hot water) and cooking. However, the proportion of natural gas used by 'households/services' is quite low in a number of countries (such as in Finland, but also in Bulgaria and especially in Norway - see Figure 2.15). As mentioned earlier, the natural gas consumption of the agricultural sector is included in this category. But whereas this sub-sector normally accounts for a rather small share, exceptions exist: the 10 500 hectares of greenhouses in the Netherlands for instance account for nearly 10% of the total gas consumption of that country.

A global 57% increase in consumption was registered both at EU-25 and EU-15 level between 1990 and 2004. Particularly high increases were reported in Spain (+628%), Slovenia (+335%) and Ireland (+323%).

The development was largely positive in most other Member States as well, although the Netherlands, a 'mature' market since the large-scale introduction of natural gas in the 1960s, saw its consumption increase by only 7% between 1990 and 2004. In fact, during this time span, Dutch natural gas consumption peaked in 1996 at 837 thousand TJ due to a relatively cold winter that year. It has remained relatively stable ever since.

Table 2.22: Final energy consumption of natural gas - HOUSEHOLDS / SERVICES (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	5 081 581	6 375 595	7 057 618	7 458 464	7 241 248	7 799 162	7 990 643	2.5
EU-15	4 571 213	5 727 345	6 330 635	6 693 923	6 481 305	7 004 589	7 194 734	2.7
BE	163 668	208 581	225 060	245 146	235 870	245 027	257 396	5.0
CZ	84 982	117 196	152 797	177 135	166 399	175 110	171 769	-1.9
DK	27 297	40 943	40 470	44 005	41 482	45 548	44 992	-1.2
DE	919 308	1 408 342	1 568 000	1 641 000	1 641 000	1 845 209	1 922 000	4.2
EE	3 096	2 358	2 565	3 148	4 183	4 979	4 800	-3.6
EL	0	0	626	810	1 243	2 157	3 636	68.6
ES	25 708	57 629	123 659	139 796	155 701	171 938	187 196	8.9
FR	596 790	723 665	850 825	941 278	855 006	943 133	996 660	5.7
IE	9 807	19 902	33 981	36 926	35 609	39 109	41 468	6.0
IT	723 211	866 190	961 076	1 010 830	971 744	1 099 530	1 082 917	-1.5
CY	-	-	-	-	-	-	-	-
LV	10 481	7 417	5 572	6 218	7 617	8 371	9 579	14.4
LT	27 793	13 569	7 521	7 915	8 311	8 709	9 623	10.5
LU	6 544	8 517	9 784	10 760	10 602	10 964	11 768	7.3
HU	110 680	198 945	227 799	247 845	245 742	276 587	287 742	4.0
MT	-	-	-	-	-	-	-	-
NL	661 116	738 653	691 151	733 066	706 268	712 738	705 069	-1.1
AT	44 445	73 730	81 667	97 522	87 424	92 036	92 696	0.7
PL	151 599	192 291	185 237	204 983	210 009	217 648	219 305	0.8
PT	0	0	6 073	9 507	12 068	12 982	15 103	16.3
SI	1 660	2 541	3 597	6 616	7 417	6 224	7 219	16.0
SK	120 077	113 933	141 895	110 681	110 265	96 945	85 872	-11.4
FI	1 953	2 713	2 873	3 112	3 334	3 272	3 352	2.4
SE	3 796	5 372	6 076	6 592	6 096	6 856	7 019	2.4
UK	1 387 570	1 573 108	1 729 314	1 773 573	1 717 858	1 774 090	1 823 462	2.8
BG	850	935	1 179	1 521	1 631	2 221	2 658	19.7
HR	11 324	20 117	23 153	27 288	26 490	29 750	29 917	0.6
RO	143 629	104 259	115 034	117 595	115 197	141 703	151 311	6.8
TR	1 890	52 240	125 374	136 625	146 953	202 892	227 115	11.9
IS	-	-	-	-	-	-	-	-
NO	0	0	55	296	322	289	676	133.9

Source: Eurostat

As in other consumption categories, the negative development registered for a number of central and eastern European might be influenced by the different sources of the early data for these countries.

Starting from a low level in absolute terms, Turkey reported the most spectacular increase. The rapid growth in population together with increased urbanisation has certainly had an influence here. Aided by government programmes, many households have switched from inefficient coal burners to natural gas units for space heating.

Turning back to the EU and looking at the changes from 2003 to 2004, households and services consumed 2.5% more at EU-25 level. Keeping in mind the wide variation in absolute quantities, a significant relative increase was reported by Greece (+69%). Portugal, Slovenia and Latvia show increases of between 14% and 16%. In contrast, Slovakia was the only Member State to experience a two-digit relative decrease (-11%).

2.3 Natural gas input to conventional thermal power stations

The previous sections have described natural gas consumption separately for industry, transport and households / services. However, a considerable quantity of natural gas is used in conventional thermal electricity-generating power stations (see Table 2.23). In Denmark, Greece, Ireland, Lithuania, Portugal, Finland and Turkey, the input to these power stations in 2004 exceeded by some way the quantity consumed in industry, transport and households/services combined (see Table 2.16).

At EU-25 level in 2004, a total quantity of close to 5.4 million TJ of natural gas was used to fuel power stations, 29% more than in 1990. In recent years, Luxembourg, Poland France and Spain have seen the largest increases in gas inputs to power stations. Two EU Member States, Estonia and Slovakia (-20% and -9%, respectively) have reported a decrease in inputs over the last 5 years.

Looking back to the 1995-1999 period, a considerably higher increase at EU-25 level could be observed. In fact, the +63% at EU-25 level was strongly influenced by the 110% and 74% increases registered between 1995 and 1999 by the United Kingdom and Italy, respectively. The second last column of Table 2.23 might show higher percentages for other countries, but the corresponding absolute quantities do not have a substantial weight at EU level.

In absolute terms, the United Kingdom reported the highest volume of natural gas used by conventional thermal power plants in 2004: the 1.2 million TJ represents 23% of the EU-25 total, ahead of the 1.1 million TJ registered in Italy (corresponding to a share of 20.5%).

Only recently, Germany considerably increased its natural gas input to power stations (+28% between 2002 and 2003). The total quantity amounted to 759 715 TJ in 2004. The United Kingdom, Italy and Germany were together responsible for close to 57% of the EU total.

Curves for Germany and Italy are also presented alongside the EU aggregates in Figure 2.24. At EU level, it can be seen that the input to power stations increased 3-fold since 1990. But whereas Italy roughly reflected the global EU trend, Germany recorded only a moderate increase until 2002. As mentioned earlier, 2003 saw a sharp increase, followed by a stabilisation in 2004.

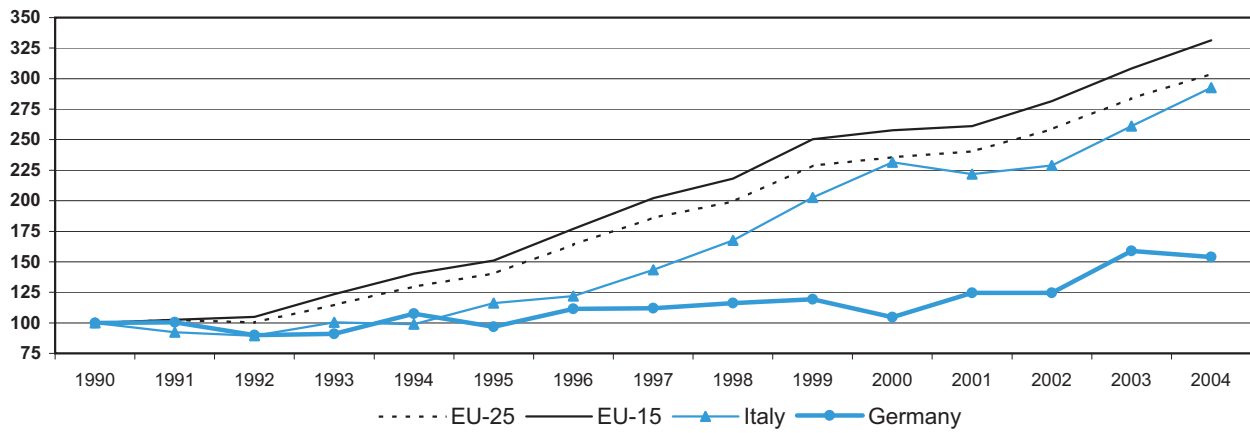
However, the most noticeable growth was in the United Kingdom. Natural gas input to power plants increased more than 23-fold between 1990 (51 810 TJ) and 2004 (1 217 490 TJ) (Figure 2.25).

Table 2.23: Natural gas: input to Conventional Thermal Power Stations (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 1995-1999 (%)	Change 2000-2004 (%)
EU-25	1 763 302	2 479 806	4 153 877	4 241 384	4 562 819	5 006 649	5 357 245	63	29
EU-15	1 516 976	2 292 884	3 907 968	3 962 744	4 271 196	4 679 051	5 025 675	66	29
BE	61 349	94 042	146 236	134 167	147 188	183 960	181 792	75	24
CZ	7 714	16 025	32 274	32 283	32 333	32 736	34 813	91	8
DK	8 088	45 366	98 263	101 799	105 499	103 506	103 524	114	5
DE	493 753	477 890	516 151	614 838	614 838	784 606	759 715	23	47
EE	12 734	2 991	8 061	7 991	7 091	6 770	6 472	2	-20
EL	840	649	59 553	58 848	62 699	69 017	74 390	6 111	25
ES	12 546	35 018	124 891	130 702	209 401	247 807	358 255	294	187
FR	20 319	25 644	114 723	115 597	162 000	170 910	222 232	94	94
IE	39 130	49 333	84 880	86 131	96 043	109 383	104 511	42	23
IT	375 640	436 142	869 419	833 212	860 186	980 954	1 099 256	74	26
CY	-	-	-	-	-	-	-	-	-
LV	32 120	13 443	18 061	23 110	23 748	25 488	24 898	26	38
LT	71 791	20 152	33 780	36 202	34 665	41 086	45 809	29	36
LU	448	1 916	2 195	2 662	19 541	20 039	24 177	2	1 001
HU	74 677	73 897	93 517	108 115	120 217	142 000	132 233	37	41
MT	-	-	-	-	-	-	-	-	-
NL	330 704	411 424	485 721	519 356	532 244	532 865	562 601	19	16
AT	73 874	92 734	81 579	82 216	89 682	109 168	102 161	12	25
PL	3 295	2 933	13 914	18 859	29 327	36 626	45 111	209	224
PT	0	0	54 482	55 325	70 586	65 545	92 439	-	70
SI	4 278	4 176	2 895	2 984	2 743	3 476	2 917	-30	1
SK	39 717	53 305	43 407	49 096	41 499	39 416	39 317	-7	-9
FI	42 409	68 852	89 867	102 863	101 279	121 097	112 351	12	25
SE	6 066	12 648	9 990	9 482	12 204	11 415	10 781	-14	8
UK	51 810	541 226	1 170 018	1 115 546	1 187 806	1 168 779	1 217 490	110	4
BG	101 081	78 059	38 327	35 916	33 401	34 497	31 644	-45	-17
HR	22 585	11 567	23 081	25 882	32 590	26 760	30 290	60	31
RO	417 957	278 822	157 838	131 989	142 582	176 832	164 623	-40	4
TR	98 996	137 881	363 948	411 000	438 324	509 954	511 473	114	41
IS	-	-	-	-	-	-	-	-	-
NO	0	1 130	1 684	1 269	1 622	1 186	1 793	49	77

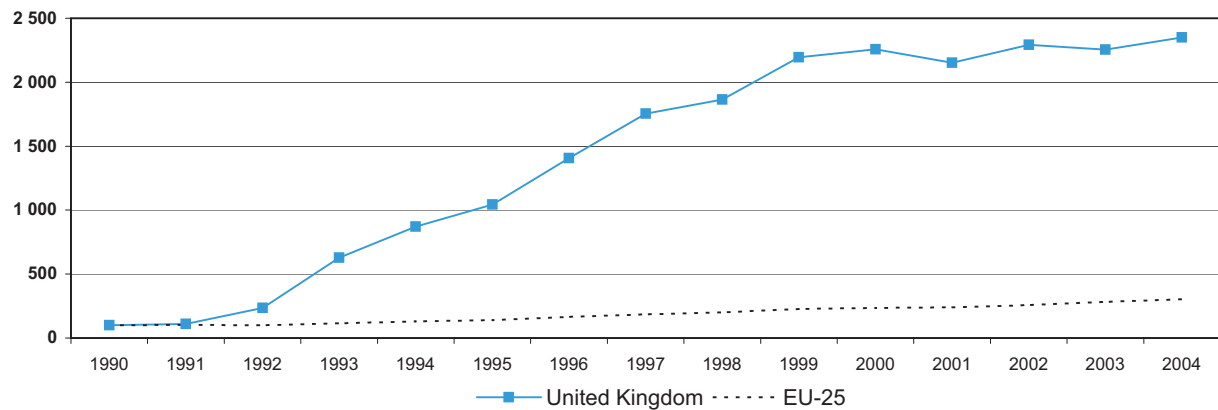
Source: Eurostat

Figure 2.24: Long-term development of natural gas input to Conventional Thermal Power Stations (1990=100)

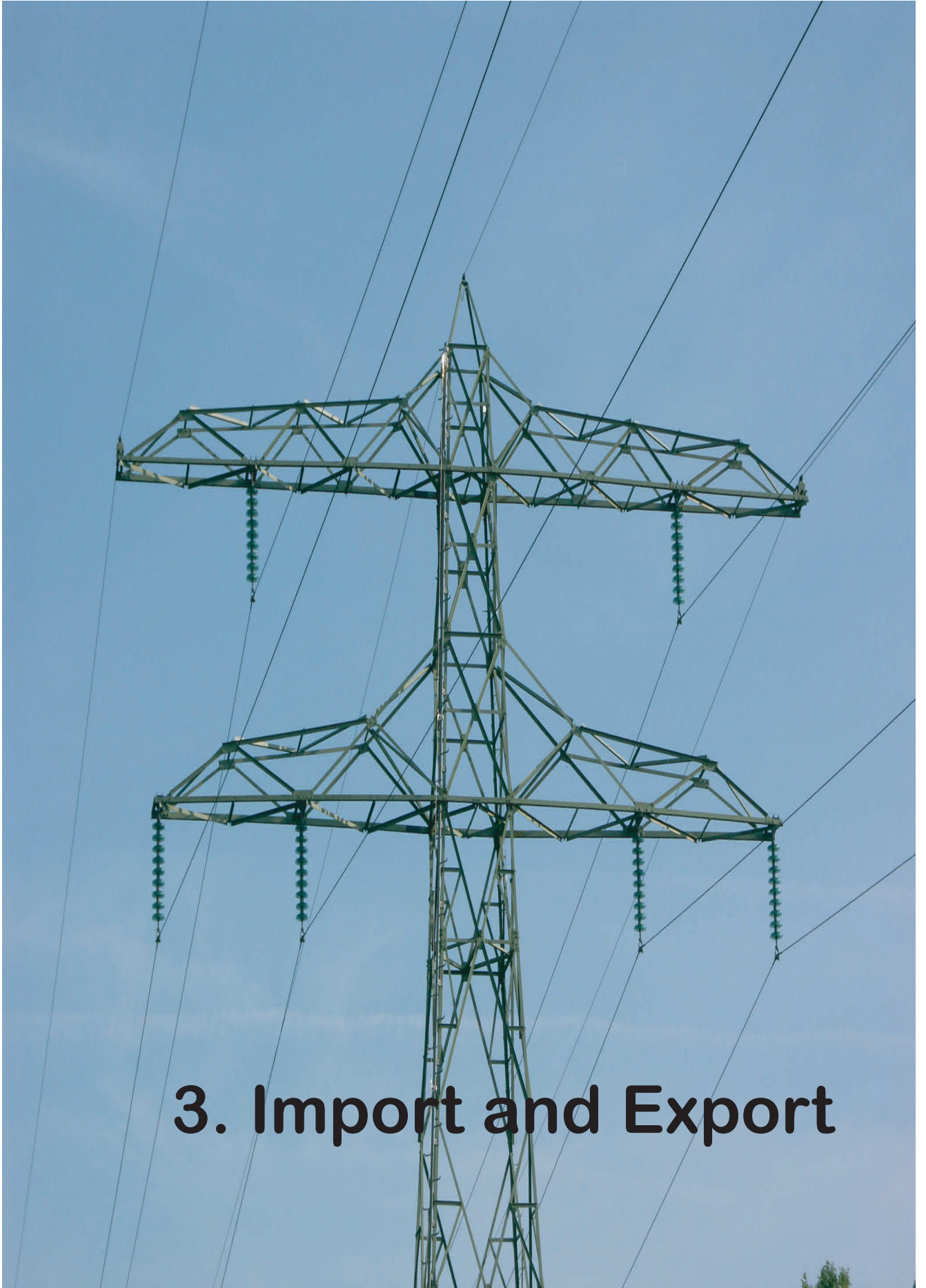


Source: Eurostat

Figure 2.25: Long-term development of natural gas input to Conventional Thermal Power Stations (1990=100)



Source: Eurostat



3. Import and Export

3. IMPORT AND EXPORT

3.1 Introduction

The adoption in 1996 of EU Directive 96/92 on the creation of an 'internal market for electricity' marked a turning point in energy sector liberalisation policies in Europe. Before that, competitive reform of electricity had only begun in a handful of countries: UK, Norway, Finland and Sweden. With the application of this Directive from 1999, and parallel developments in Norway and Switzerland, many countries are currently opening up their electricity sectors to competition.

Prior to this fairly recent process, electricity networks were already closely inter-connected, with more or less significant exchanges. Intermediate marketplaces such as the Iberian, Nordic and Western European electricity markets exist today, anticipating the creation of a single pan-European electricity market.

Unlike other commodities, electricity cannot be stored on a scale large enough to cover national needs (although pumping water to higher reservoirs and subsequently having turbines generate electricity when needed - as done in Luxembourg for instance - is one possibility for storing electricity). Once produced, it travels along the transmission grid, and the further it is transmitted, the greater the loss in efficiency. These characteristics, together with the requirement to guarantee universal

access to the electricity grid, pushed most European governments to nationalise their electricity utilities after the Second World War. But unless supply and demand were perfectly matched, wastage or blackouts could occur.

By the late 1980s, however, computerised systems were capable of calculating minute-to-minute demand measurements. Such technological developments, combined with better forecasting techniques for demand and supply, opened the door to liberalisation of the electricity sector with increased efficiency and cost gains, usually achieved through a more open market.

In the following section, it is only possible to give a picture of the EU as a whole in terms of the net balance of foreign trading (imports minus exports), which corrects for any double-counting problems inherent in compiling EU totals of imports or exports separately.

Accordingly, the following section, which looks first at electricity then at gas, provides EU totals for the net balance only.

When looking at the tables, readers should note that Malta and Cyprus neither trade electricity nor use natural gas.

3.2 Electricity trade

Imports of electricity are often the result of economic choice rather than a shortage of generation possibilities. Keeping this in mind, Germany and Italy were in 2004 the countries that relied most on imports in the EU, with 48 187 GWh and 46 426 GWh, respectively (see Table 3.1). This was also the situation throughout the 1990-2004 period. They were followed, to a lesser extent, by the Netherlands (21 405 GWh), Austria (16 629 GWh), Sweden (15 646 GWh) and Belgium (14 567 GWh).

Looking at the changes between 2003 and 2004, five Member States saw their imports go up by more than 10%, the highest increases being registered in Estonia and the United Kingdom with 273% and 91%, respectively. For these countries, however, 2003 might have been an exceptional year, as the figures differ substantially from the pre-2003 series.

Conversely, four Member States recorded decreases of over 10%, especially Hungary (-25%) and Sweden (-36%).

Table 3.1: Total imports of electricity (in GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
BE	4 785	9 398	11 645	15 818	16 658	14 664	14 567	-0.7
CZ	8 179	6 722	8 725	9 380	9 502	10 086	9 776	-3.1
DK	11 973	4 012	8 417	8 199	8 939	7 023	8 673	23.5
DE	31 904	39 735	45 134	45 779	48 370	49 107	48 187	-1.9
EE	1 475	245	258	269	412	93	347	273.1
EL	1 330	1 390	1 729	3 562	4 602	4 169	4 854	16.4
ES	3 208	7 633	12 268	10 177	12 504	9 520	8 111	-14.8
FR	6 674	2 860	3 695	4 471	3 705	6 959	6 548	-5.9
IE	0	20	169	38	565	1 176	1 574	33.8
IT	35 577	38 662	44 831	48 927	51 519	51 486	46 426	-9.8
CY	-	-	-	-	-	-	-	-
LV	7 139	2 647	2 108	2 340	2 838	2 671	2 733	2.3
LT	4 538	5 270	5 150	4 442	4 532	4 144	4 293	3.6
LU	4 665	5 746	6 457	6 390	6 377	6 481	6 506	0.4
HU	13 299	3 210	9 523	10 403	12 605	14 077	10 524	-25.2
MT	-	-	-	-	-	-	-	-
NL	9 679	11 979	22 946	21 492	20 870	20 801	21 405	2.9
AT	6 838	7 287	13 824	14 467	15 375	19 002	16 629	-12.5
PL	10 437	4 356	3 290	4 306	4 469	4 985	5 312	6.6
PT	1 733	2 655	4 698	3 741	5 329	5 898	8 612	46.0
SI	1 716	740	4 232	3 154	3 794	5 975	6 314	5.7
SK	7 255	3 448	5 951	6 065	6 710	8 623	8 731	1.3
FI	11 007	7 253	12 206	11 769	13 464	11 882	11 667	-1.8
SE	12 909	7 720	18 308	11 164	20 110	24 287	15 646	-35.6
UK	11 990	16 336	14 308	10 663	9 182	5 119	9 784	91.1
BG	5 387	1 961	964	1 092	2 040	1 194	741	-37.9
HR	7 522	4 382	4 386	3 744	3 927	4 479	5 298	18.3
RO	9 476	755	774	767	436	962	2 584	168.6
TR	176	0	3 791	4 579	3 588	1 158	463	-60.0
IS	-	-	-	-	-	-	-	-
NO	334	2 300	1 474	10 745	5 335	13 422	15 254	13.6

Source: Eurostat

When the analysis is extended beyond the EU, however, the most impressive long-term growth by far was the 40-fold growth in Norway, where imports went from 334 GWh in 1990 to 15 254 GWh in 2004. Looking at the

last two reference years, imports decreased in Bulgaria (-38%) and Turkey (-60%) but grew substantially in Romania (+168%).

3. Import and Export

Table 3.2: Total exports of electricity (in GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
BE	8 509	5 326	7 319	6 712	9 070	8 254	6 790	-17.7
CZ	8 871	6 304	18 742	18 919	20 889	26 299	25 493	-3.1
DK	4 925	4 806	7 752	8 774	11 010	15 568	11 545	-25.8
DE	31 115	34 911	42 077	42 122	38 372	52 379	50 808	-3.0
EE	8 477	1 005	1 187	891	1 102	1 989	2 141	7.6
EL	619	593	1 740	1 062	1 706	2 076	2 034	-2.0
ES	3 628	3 147	7 827	6 727	7 175	8 257	11 139	34.9
FR	52 112	72 701	73 174	72 861	80 739	73 373	68 588	-6.5
IE	0	35	71	288	62	10	0	-100.0
IT	922	1 235	484	549	922	518	791	52.7
CY	-	-	-	-	-	-	-	-
LV	3 555	391	322	457	490	38	636	1 573.7
LT	16 513	7 948	6 486	8 406	11 018	11 674	11 488	-1.6
LU	755	743	735	744	2 939	2 777	3 132	12.8
HU	2 152	805	6 083	7 232	8 349	7 138	3 056	-57.2
MT	-	-	-	-	-	-	-	-
NL	471	586	4 031	4 209	4 488	3 809	5 188	36.2
AT	7 298	9 757	15 192	14 252	14 676	13 389	13 548	1.2
PL	11 478	7 157	9 663	11 035	11 537	15 146	14 605	-3.6
PT	1 696	1 741	3 767	3 502	3 430	3 104	2 131	-31.3
SI	2 704	2 392	5 553	4 926	4 928	5 811	7 094	22.1
SK	2 059	2 065	8 647	9 743	10 867	10 878	10 593	-2.6
FI	364	279	326	1 810	1 539	7 030	6 797	-3.3
SE	14 677	9 401	13 630	18 454	14 754	11 457	17 750	54.9
UK	47	23	134	264	768	2 959	2 294	-22.5
BG	1 597	2 121	5 584	8 017	8 335	5 125	6 620	29.2
HR	460	886	386	588	406	586	1 633	178.7
RO	0	456	1 470	2 077	3 290	3 046	3 766	23.6
TR	907	696	437	433	435	588	1 144	94.6
IS	-	-	-	-	-	-	-	-
NO	16 241	8 966	20 529	7 174	15 046	5 548	3 828	-31.0

Source: Eurostat

Shifting the focus now to exports (Table 3.2), France was the biggest exporter of electricity with 68 588 GWh in 2004, followed by Germany (50 808 GWh) and the Czech Republic (25 493 GWh). In terms of net exports, however, France was even further ahead, posting a net exporting balance (imports minus exports) of almost 62 040 GWh compared with only 2 621 GWh for Germany (see Table 3.3).

Looking next at the short-term changes (2003-2004), what stands out most is the growth recorded by Latvia (+1 574%), but this is due to a particularly low export

volume in 2003. A similar situation, albeit less dramatic, can be seen with Sweden. In contrast, Ireland reduced its few exports (10 GWh in 2003) to zero.

Apart from these cases, Spain, Italy and the Netherlands saw noticeable increases whereas Belgium, Denmark, Portugal and the UK, but especially Hungary, reduced their exports substantially.

Turning to the candidate countries, the 2003-2004 evolution for Croatia (+179%) and Turkey (+95%) clearly differs from previous years.

Table 3.3: Net imports (imports minus exports) of electricity (in GWh)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	25 363	15 973	24 930	13 077	21 601	4 295	-422	-109.8
EU-15	27 134	17 402	42 376	34 327	45 919	32 614	26 654	-18.3
BE	-3 724	4 072	4 326	9 106	7 588	6 410	7 777	21.3
CZ	-692	418	-10 017	-9 539	-11 387	-16 213	-15 717	-3.1
DK	7 048	-794	665	-575	-2 071	-8 545	-2 872	-66.4
DE	789	4 824	3 057	3 657	9 998	-3 272	-2 621	-19.9
EE	-7 002	-760	-929	-622	-690	-1 896	-1 794	-5.4
EL	711	797	-11	2 500	2 896	2 093	2 820	34.7
ES	-420	4 486	4 441	3 450	5 329	1 263	-3 028	-339.7
FR	-45 438	-69 841	-69 479	-68 390	-77 034	-66 414	-62 040	-6.6
IE	0	-15	98	-250	503	1 166	1 574	35.0
IT	34 655	37 427	44 347	48 378	50 597	50 968	45 635	-10.5
CY	-	-	-	-	-	-	-	-
LV	3 584	2 256	1 786	1 883	2 348	2 633	2 097	-20.4
LT	-11 975	-2 678	-1 336	-3 964	-6 486	-7 530	-7 195	-4.4
LU	3 910	5 003	5 722	5 646	3 438	3 704	3 374	-8.9
HU	11 147	2 405	3 440	3 171	4 256	6 939	7 468	7.6
MT	-	-	-	-	-	-	-	-
NL	9 208	11 393	18 915	17 283	16 382	16 992	16 217	-4.6
AT	-460	-2 470	-1 368	215	699	5 613	3 081	-45.1
PL	-1 041	-2 801	-6 373	-6 729	-7 068	-10 161	-9 293	-8.5
PT	37	914	931	239	1 899	2 794	6 481	132.0
SI	-988	-1 652	-1 321	-1 772	-1 134	164	-780	-575.6
SK	5 196	1 383	-2 696	-3 678	-4 157	-2 255	-1 862	-17.4
FI	10 643	6 974	11 880	9 959	11 925	4 852	4 870	0.4
SE	-1 768	-1 681	4 678	-7 290	5 356	12 830	-2 104	-116.4
UK	11 943	16 313	14 174	10 399	8 414	2 160	7 490	246.8
BG	3 790	-160	-4 620	-6 925	-6 295	-3 931	-5 879	49.6
HR	7 062	3 496	4 000	3 156	3 521	3 893	3 665	-5.9
RO	9 476	299	-696	-1 310	-2 854	-2 084	-1 182	-43.3
TR	-731	-696	3 354	4 146	3 153	570	-681	-219.5
IS	-	-	-	-	-	-	-	-
NO	-15 907	-6 666	-19 055	3 571	-9 711	7 874	11 426	45.1

Source: Eurostat

Combining the import and export data for 2004 to determine net imports of electricity (imports minus exports), the EU-15 was clearly a net importer whereas the EU-25 had decreased its net imports throughout the period observed (essentially due to the Czech Republic, Poland and Lithuania) to become a net exporter in 2004 (Table 3.3). In 2004, net imports stood at 26 654 GWh for the EU-15.

In fact, the last enlargement wave has decreased the EU's dependency on outside suppliers, since the new Member

States - hitherto extra-EU exporters - are now intra-EU exporters.

Looking at countries' individual net imports, about a third of the Member States were net exporters. France was the EU's largest net exporter with net imports of 62 040 GWh, almost four times as much as the Czech Republic in second place (15 717 GWh). Poland came third. The other net exporters were Lithuania, Spain, Denmark, Germany, Sweden, Slovakia, Estonia and Slovenia.

3. Import and Export

Italy was the largest net importer in 2004, with net imports of 45 635 GWh. The next largest, importing only a third of the amount with 16 217 GWh, was the Netherlands. In third place came Belgium.

Looking back over the period from 1990 up to 2004, the largest change was for Portugal, a net importer, which saw its net importing balance grow 175 times from just 37 GWh in 1990 to 6 481 by 2004. The next biggest growth was for the Czech Republic, a net exporter, which saw its net exports grow 23 times by 2004.

Looking closely at the data for individual years and over time, net balances show greater volatility in electricity, unlike for other fuels such as natural gas (shown in the next section), with some countries becoming net exporters, or vice versa, or fluctuating over time. This was the case, for example, for Germany and Spain, becoming net exporter after being net importer over a longer period (Germany became a net exporter in 2003, Spain a year later). However, this must be seen in the context of electricity trading rather than the availability of local resources.

Finally, Table 3.4 provides a quick overview of the degree of net imports in relation to national final electricity consumption. For electricity, the term "dependency" does not really apply, as imports of electricity are often not determined by shortages of electricity but by economic reasons.

However, it should be borne in mind that countries in the 'self-sufficient' category could indirectly be dependent, as their national electricity generation might rely on fuel (oil, coal, gas) that has to be imported. This is for instance the case for Malta and Cyprus, countries that do not trade electricity and rely substantially on conventional thermal electricity-generating plants that are primarily fuelled with imported oil.

Table 3.4: Electricity supply: type and level of dependency * 2004

NET EXPORTERS	Lithuania
	Estonia
	Czech Republic
	Bulgaria
	France
	Poland
	Denmark
	Slovakia
	Slovenia
	Romania
	Sweden
	Spain
	Turkey
	Germany
Self sufficient	
	Cyprus
	Malta
	Iceland
LOW	
NET IMPORTERS	United Kingdom
	Austria
	Greece
	Finland
	Ireland
	Belgium
	Norway
	Portugal
	Italy
	Netherlands
	Hungary
	Croatia
	Latvia
HIGH	Luxembourg

* based on electricity trading in relation to final electricity consumption.

Source: Eurostat

3.3 Natural gas trade and dependency

Turning now to gas, the biggest importers in the EU in 2004 were, perhaps unsurprisingly, some of the EU's largest countries (Table 3.5): Germany (3 389 857 TJ), Italy (2 587 295 TJ) and France (1 813 547 TJ). Data are not available at EU level because of double-counting problems.

By comparison, the United Kingdom was much more independent, with just 478 926 TJ, in other words about one eighth of the volume flowing to similarly sized Italy (in

population terms).

Looking now at the evolution between 2003 and 2004, 14 Member States recorded positive growth. The largest relative increases were registered by the United Kingdom (54%), Portugal (25%) and Latvia (24%).

Table 3.5: Total imports of natural gas (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
BE	382 255	484 665	617 685	610 993	635 134	662 591	677 290	2.2
CZ	222 627	298 871	348 100	359 894	368 354	360 045	333 350	-7.4
DK	-	-	-	-	-	-	-	-
DE	1 985 817	2 573 617	2 841 697	2 951 423	3 063 709	3 187 328	3 389 857	6.4
EE	56 861	24 388	30 797	33 050	27 714	31 635	36 032	13.9
EL	-	-	78 551	77 680	81 622	93 138	101 125	8.6
ES	171 653	349 881	719 516	736 262	880 596	984 756	1 145 112	16.3
FR	1 147 554	1 307 646	1 696 095	1 663 132	1 744 261	1 788 025	1 813 547	1.4
IE	:	3 946	115 259	136 078	139 612	145 769	137 683	-5.5
IT	1 178 158	1 328 676	2 188 731	2 086 927	2 259 025	2 392 454	2 587 295	8.1
LV	124 787	46 491	51 790	50 565	53 210	65 403	80 880	23.7
LT	217 617	94 366	97 244	101 015	102 123	110 900	110 335	-0.5
LU	19 981	25 916	31 191	32 311	48 986	49 499	55 794	12.7
HU	241 444	257 342	341 792	362 207	404 952	462 396	431 618	-6.7
NL	94 532	128 446	580 346	712 810	892 010	849 263	628 124	-26.0
AT	206 709	252 025	245 062	248 152	258 276	317 283	331 352	4.4
PL	315 104	271 470	308 917	335 498	312 390	350 607	379 467	8.2
PT	-	-	94 864	104 769	126 847	122 968	153 733	25.0
SI	33 639	34 902	38 125	39 299	37 898	41 982	41 608	-0.9
SK	249 025	210 880	265 484	263 569	273 122	256 076	264 166	3.2
FI	105 162	132 093	159 201	172 446	171 371	190 004	183 779	-3.3
SE	26 840	35 102	36 092	40 720	41 439	41 322	41 142	-0.4
UK	287 407	70 045	93 701	109 673	217 769	310 675	478 926	54.2
BG	252 614	212 258	127 563	127 044	116 222	109 593	111 129	1.4
HR	26 763	10 408	42 104	41 162	41 207	43 274	40 037	-7.5
RO	275 754	223 038	126 151	107 387	145 601	197 100	191 269	-3.0
TR	124 750	263 542	560 616	614 878	667 112	803 993	843 063	4.9
NO	-	-	-	-	-	-	-	-

Source: Eurostat

3. Import and Export

In absolute terms, Italy and Germany imported roughly 200 thousand TJ more natural gas in 2004 than they did one year earlier. The United Kingdom imported close to 170 thousand more and Spain around 160 thousand TJ more.

Eight Member States, however, saw their imports go down between 2003 and 2004, with the largest decrease reported by the Netherlands, both in relative (-26%) and in

absolute terms (-221 thousand TJ). The Czech Republic and Hungary saw decreases of around 7%, whereas the volumes of the remaining five countries fell by 5% or less.

Looking briefly beyond the EU, the very high long-term growth in imports shown by Turkey (576% since 1990) is worth noting. In 2004, imports stood 5% higher compared to 2003, but recent year-on-year growth rates were lower than in previous years.

Table 3.6: Total exports of natural gas (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
CZ	0	37	38	0	38	1 928	3 329	72.7
DK	43 172	69 610	134 087	142 090	138 837	120 692	171 722	42.3
DE	43 532	112 509	196 326	244 115	269 209	282 769	324 436	14.7
FR	13 817	28 674	31 680	37 181	35 068	38 937	57 079	46.6
IT	690	1 447	1 907	2 365	14 516	14 516	15 050	3.7
LV	5 655	0	0	0	0	0	0	-
HU	929	0	3 004	134	0	0	0	-
NL	1 201 667	1 355 195	1 380 051	1 651 219	1 750 281	1 603 074	1 784 604	11.3
AT	0	634	696	16 184	30 334	40 567	51 847	27.8
PL	35	1 184	1 562	1 573	1 605	1 767	1 753	-0.8
SK	0	228	0	0	0	151	39	-74.2
UK	0	40 435	526 844	497 640	542 634	637 337	410 803	-35.5
HR	0	0	0	9 329	13 764	12 996	13 209	1.6
NO	1 031 422	1 153 541	1 962 454	2 022 071	2 561 226	2 835 323	3 068 945	8.2

Source: Eurostat

As Table 3.6 illustrates, there were considerably fewer exporting countries than importing ones. In fact, well under half of the importing EU Member States actually exported as well, so over half were solely importers.

Among the EU Member States in 2004, the Netherlands exported the most natural gas: 1.8 million TJ, an increase of over 11% compared to 2003. The second largest exporter among the EU Member States, albeit a long way behind, was the United Kingdom with 410 803 TJ. In third place came Germany, with exports totalling 324 436 TJ.

However, if we include non-EU countries, Norway was in fact the leading exporter, with a volume of over two-thirds more (3.1 million TJ). Indeed, Norway exported more than all the EU exporters together (over 2.8 million TJ).

Focusing on the 2003-2004 changes, the increase in Danish exports stands out, both in relative (+42%) and absolute terms (plus 51 000 TJ). The relative increase for the Czech Republic was even higher (+73%), but the volume concerned was far lower. France and Austria registered notable increases, too.

Conversely, the United Kingdom reduced its exports by some 227 000 TJ, corresponding to a decrease of more than 35%.

Of particular note is that Hungary, still an exporter at the beginning of the century, stopped exporting altogether in 2002.

Table 3.7: Net imports (imports minus exports) of natural gas (in TJ-GCV)

	1990	1995	2000	2001	2002	2003	2004	Change 2003-2004 (%)
EU-25	5 757 675	6 320 815	8 704 045	8 635 972	9 357 898	10 072 381	10 581 553	5.1
EU-15	4 303 190	5 083 554	7 226 400	7 092 582	7 779 778	8 397 183	8 909 218	6.1
BE	382 255	484 665	617 685	610 993	635 134	662 591	677 290	2.2
CZ	222 627	298 834	348 062	359 894	368 316	358 117	330 021	-7.8
DK	-43 172	-69 610	-134 087	-142 090	-138 837	-120 692	-171 722	42.3
DE	1 942 285	2 461 108	2 645 371	2 707 308	2 794 500	2 904 559	3 065 421	5.5
EE	56 861	24 388	30 797	33 050	27 714	31 635	36 032	13.9
EL	:	:	78 551	77 680	81 622	93 138	101 125	8.6
ES	171 653	349 881	719 516	736 262	880 596	984 756	1 145 112	16.3
FR	1 133 737	1 278 972	1 664 415	1 625 951	1 709 193	1 749 088	1 756 468	0.4
IE	:	3 946	115 259	136 078	139 612	145 769	137 683	-5.5
IT	1 177 468	1 327 229	2 186 824	2 084 562	2 244 509	2 377 938	2 572 245	8.2
LV	119 132	46 491	51 790	50 565	53 210	65 403	80 880	23.7
LT	217 617	94 366	97 244	101 015	102 123	110 900	110 335	-0.5
LU	19 981	25 916	31 191	32 311	48 986	49 499	55 794	12.7
HU	240 515	257 342	338 788	362 073	404 952	462 396	431 618	-6.7
NL	-1 107 135	-1 226 749	-799 705	-938 409	-858 271	-753 811	-1 156 480	53.4
AT	206 709	251 391	244 366	231 968	227 942	276 716	279 505	1.0
PL	315 069	270 286	307 355	333 925	310 785	348 840	377 714	8.3
PT	:	:	94 864	104 769	126 847	122 968	153 733	25.0
SI	33 639	34 902	38 125	39 299	37 898	41 982	41 608	-0.9
SK	249 025	210 652	265 484	263 569	273 122	255 925	264 127	3.2
FI	105 162	132 093	159 201	172 446	171 371	190 004	183 779	-3.3
SE	26 840	35 102	36 092	40 720	41 439	41 322	41 142	-0.4
UK	287 407	29 610	-433 143	-387 967	-324 865	-326 662	68 123	-120.9
BG	252 614	212 258	127 563	127 044	116 222	109 593	111 129	1.4
HR	26 763	10 408	42 104	31 833	27 443	30 278	26 828	-11.4
RO	275 754	223 038	126 151	107 387	145 601	197 100	191 269	-3.0
TR	124 750	263 542	560 616	614 878	667 112	803 993	843 063	4.9
NO	-1 031 422	-1 153 541	-1 962 454	-2 022 071	-2 561 226	-2 835 323	-3 068 945	8.2

Source: Eurostat

Weighing up imports against exports in 2004, the EU was very clearly a net importer: with net imports of slightly over 10.6 million TJ for the EU-25 and more than the 8.9 million for the EU-15 (see Table 3.7).

Looking at the country list, 21 of the 23 EU Member States using natural gas in 2004 (i.e. excluding Malta and Cyprus) were net importers and in many cases solely importers. Only the Netherlands and Denmark were net exporters, the latter being just an exporter. Also of note is the change of the United Kingdom from net exporter to net importer in 2004.

Looking at the period from 1990 to 2004, including the developments in countries that were sole importers or sole exporters, a number of observations can be made.

The highest relative growth among net importers was in Spain: its dependency on foreign gas supplies grew almost seven-fold between 1990 and 2004. Spain was followed by Luxembourg, where dependency more than doubled, and Italy, with a two-fold growth.

3. Import and Export

The only negative trends in net import balances were in the United Kingdom and the three Baltic States, Estonia, Latvia and Lithuania, which were solely importers. However, these indications should be viewed with caution, as data were compiled from several sources in the early 1990s.

United Kingdom in fact turned from being a net importer in 1990, with a balance of 287 407 TJ, to a net exporter from 1997 until 2003. In 2004, the United Kingdom became a net importer again (68 123 TJ).

Looking at changes among the two Member States with net export balances in 2004, the important Dutch exports remained quite stable between 1990 and 2004, but due to a noticeable reduction of imports in 2004, the Dutch surplus increased by 53% compared to 2003. Denmark, the other net exporting Member State, ranked second with its 2004 net export balance (-171 722 TJ) almost four times that of 1990.

Norway remains very important for the EU's natural gas supply, in both relative terms and absolute quantities. Solely an exporter, its net export balance increased by 198% between 1990 and 2004.

But its performance was also impressive in sheer volume, rising from a balance of just over -1 million TJ in 1990 to -3.1 million TJ in 2004. During the second half of the 1990s, its balance overtook that of the Netherlands.

Based on the available data, the EU's main gas suppliers were Norway and Russia in 2004, followed by Algeria

(Table 3.8). Nigeria also provided gas, but to a far lesser extent.

Looking at the breakdown by destination countries, although the data are incomplete, partly for confidentiality reasons, the bulk of the EU's imports have come from both Russia and Norway.

Table 3.8 also shows several 100% rates for the share of total imports: Finland, the three Baltic States and Croatia rely on a single country (Russia) for their gas supply.

Finally, the last column expresses these single import flows as a proportion of the gross inland consumption of natural gas (i.e. final gas consumption plus natural gas input to conventional thermal power plants) in the destination country. In the cases of Finland, the three Baltic States and Portugal, natural gas might have been stored or used for chemical purposes.

Physically, natural gas is carried through a network of pipelines across the EU. Norway's gas enters the EU essentially through two pipelines (to continental Europe and to the United Kingdom). Export lines to Scandinavian countries are planned for the future. Algeria's gas flows through two major lines: the 1067 km pipeline running via Tunisia and Sicily to mainland Italy and the one through Morocco to Cordoba (Spain), connecting to the Spanish and Portuguese transmission networks.

Algeria also liquefies natural gas (LNG) and exports it on special sea vessels to France, Belgium, Spain and Turkey.

Table 3.8: Main natural gas suppliers* to the European Union, 2004 (in TJ-GCV)

Producer	Quantity	Destination country	% of total imports of destination country	% of total inland consumption of natural gas of the destination country
Russia	3 989 679	all EU countries		
	1 466 679	Germany	43.3%	52.3%
	900 074	Italy	34.8%	47.6%
	384 911	France	21.2%	25.6%
	264 166	Slovakia	100.0%	>100%
	246 182	Czech Republic	73.9%	85.5%
	236 370	Poland	62.3%	68.5%
	183 779	Finland	100.0%	>100%
	110 335	Lithuania	100.0%	>100%
	80 880	Latvia	100.0%	>100%
	40 037	Croatia	100.0%	73.6%
	36 032	Estonia	100.0%	>100%
	24 912	Slovenia	59.9%	80.4%
	15 322	Belgium	2.3%	3.3%
Norway	2 745 951	all EU countries		
	1 038 277	Germany	30.6%	37.0%
	484 274	France	26.7%	32.2%
	343 323	United Kingdom	71.7%	14.6%
	251 582	Belgium	37.1%	54.3%
	230 012	Netherlands	36.6%	23.4%
	197 739	Italy	7.6%	10.5%
	93 200	Spain	8.1%	12.2%
	88 168	Czech Republic	26.4%	30.6%
	19 376	Poland	5.1%	5.6%
Algeria	2 035 924	all EU countries		
	976 579	Italy	37.7%	51.7%
	587 007	Spain	51.3%	77.1%
	226 428	France	12.5%	15.0%
	113 551	Belgium	16.8%	24.5%
	97 138	Portugal	63.2%	>100%
	18 601	Greece	18.4%	86.7%
	16 620	Slovenia	39.9%	53.7%
Nigeria	259 308	all EU countries		
	202 713	Spain	17.7%	26.6%
	56 595	Portugal	36.8%	95.1%

* Incomplete data; some information is not available or claimed to be commercially confidential.

Source: Eurostat

Russian gas reaches Western Europe through a pipeline running through the Ukraine and a pipeline connecting the Siberian fields through Belarus with Poland and Germany. Another pipeline from the Barents Sea via the Baltic Sea to Germany is planned in the near future.

Finally, Nigerian gas finds its way to the EU only as LNG carried on special gas vessels.

As Norway is a major producer (and exporter) but a negligible consumer (Norway consumed three times less natural gas than Luxembourg, for instance), it comes as no surprise that this country is highly independent as regards natural gas supply (see Table 3.9). To a lesser extent, the same can be said for Denmark and the Netherlands.

The majority of countries however remain dependent on gas imports. Unlike with electricity, this situation will not change in the short term as it is primarily linked to the existence of natural gas resources on a country's territory (or continental shelf). The range between low dependency (the United Kingdom, for instance) and high dependency (e.g. the three Baltic States) is less wide for natural gas than for electricity.

Table 3.9 gives an overview of the relative importance of net imports per country (imports minus exports) in relation to the total final consumption of natural gas and the natural gas input to conventional thermal power plants (figures are taken from Tables 2.16 and 2.23).

In terms of total national energy consumption, it can be concluded that Denmark and the Netherlands remain the two EU Member States that are least dependent on gas imports.

Table 3.9: Natural gas supply: degree of dependency*, 2004

NO DEPENDENCY ↑	Norway
	Denmark
	Netherlands
LOW	United Kingdom
DEPENDENCY ↓	Croatia
	Romania
	Ireland
	Germany
	Italy
	Hungary
	Austria
	Poland
	Luxembourg
	Turkey
	Portugal
	France
	Spain
	Czech Republic
	Belgium
	Greece
	Finland
	Slovenia
	Sweden
Slovakia	
Lithuania	
Bulgaria	
Latvia	
HIGH	Estonia

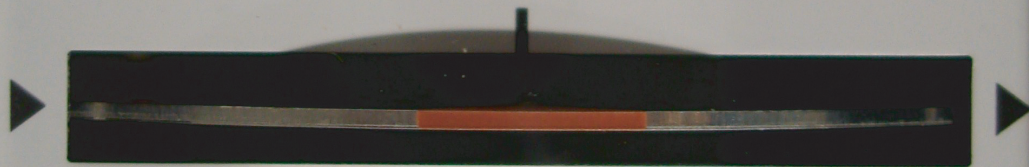
* based on natural gas trade and consumption.






Source: Eurostat

4. Prices and taxes

2004

0 2 0 7 2 2 1 kWh



Drehstromzähler     

212
345

Type **T3F-01S** 3x230/400 V 10(60) A 50 Hz

Nr. 36 808 942

75 U/kWh

Schltg. 4000

Eigentum des Netzbetreibers

444003-5059942

4. PRICES AND TAXES

4.1 Introduction

Prices paid by consumers for energy depend on a number of factors, and these prices are usually adjusted regularly to reflect current market economics. The basic final price is always the price without taxes or other possible duties.

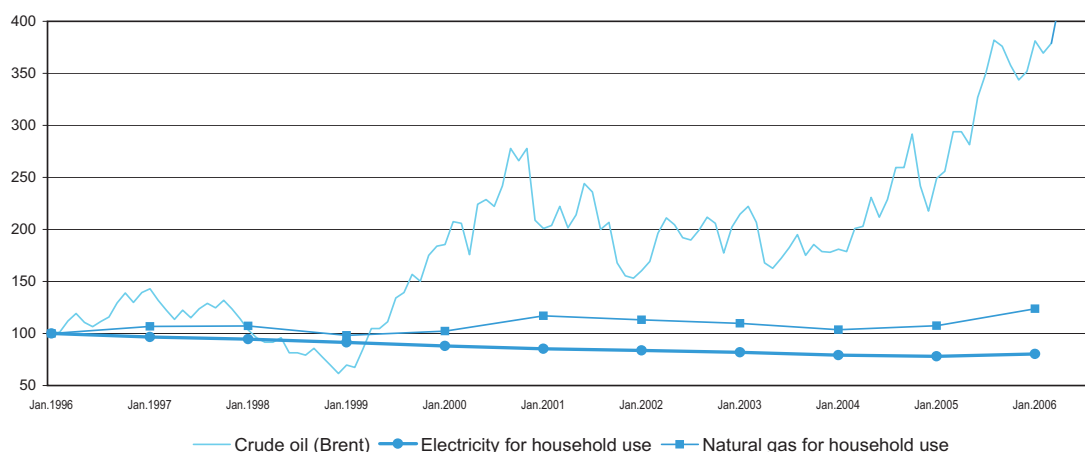
The two graphs below include a curve outlining the monthly development of the price of crude oil and curves showing the development of electricity and gas prices separately for household use (Graph 4.1) and for industrial use (Graph 4.2).

Corrected for inflation, natural gas prices for households at EU-15 level remained stable throughout the 1996-2005 period. Between 2005 and 2006, however, an increase of

16 index points was noted. Graph 4.1 insufficiently shows this high increase due to the scaling. Electricity prices for households gradually decreased by January 2005 to a level 22% under that of January 1996, a development also observed for electricity used in industry. 2006 again saw an increase, but much lower than for gas.

With regard to the price of natural gas for industrial use, the effects of liberalisation seem to have been offset by the increase in oil prices, a situation that has affected industry far more than households.

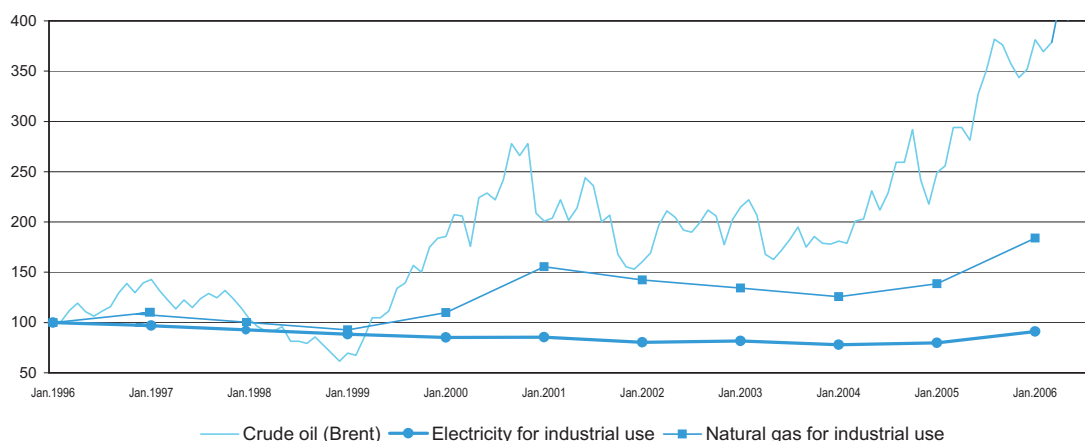
Figure 4.1: Development of household energy prices (without taxes) 1996-2006, EU-15 (deflated series)



Note: Electricity and gas prices apply to standard domestic consumers (3500 kWh/year and 83.70 GJ/year respectively).

Source: Eurostat and INSEE

Figure 4.2: Development of industrial energy prices (without taxes) 1996-2006, EU-15 (deflated series)



Note: Electricity and gas prices apply to standard industrial consumers (2 000 MWh/year and 41 860 GJ/year respectively).

Source: Eurostat and INSEE

4.2. Prices and taxes for electricity

4.2.1. Prices and taxes for electricity consumed in households

Taking 1996 as the starting point, the average price actually paid (i.e. all taxes included) for a kWh of electricity at EU-15 level (based on a standard consumer consuming 3 500 kWh per year, corresponding to a standard dwelling of 90 m²) actually decreased up to 1999. But whereas the price without taxes continued to decrease in the two following years and remained stable up to 2004, the price of a kWh with value-added tax and the price with all taxes included increased again (see Figure 4.3). Only in 2002 were the 1996 price levels reached again. Information on other standard consumers can be found on the CD-ROM attached to this publication or on Eurostat's website.

All price categories showed the same steep upward trend between 2005 and 2006. Although the 2006 price without taxes was almost at the 1996 level, the prices including VAT and all taxes were more than 8% higher.

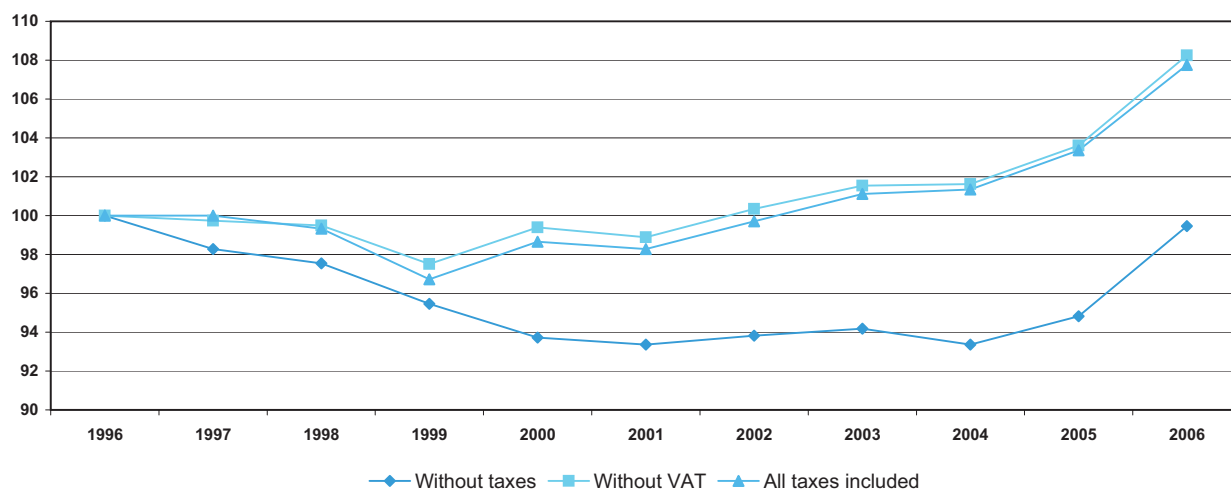
The fact that the curves of the price without taxes and the prices with taxes (VAT and all taxes) show an increasing

gap from 1999 onwards is explained by a noticeable increase in taxes in 2000 in Germany, Netherlands and Sweden. But whereas the difference amounted to 5 index points in 2000, it increased to 8 points 6 years later.

Nevertheless, electricity prices for households remained stable during the 1996-2002 period.

Although large electricity consumers (often industry) were the first to take advantage of increased competition on the electricity market, more and more households can now choose their electricity retailer too. Under EU Directive 96/92/EC of December 1996 concerning common rules for the internal market in electricity, all households should be able to choose their supplier by 1 July 2007. However, this full liberalisation does not affect national particularities with regard to taxes and duties due on electricity.

Figure 4.3: Development of the average price of one kWh for domestic electricity consumption, EU-15 (1996=100) - based on prices in EUR



Note: Based on the standard consumer Dc (3 500 kWh/year) on the 1st of January of each year, weighted by consumption.

Source: Eurostat and INSEE

4. Prices and taxes

Table 4.4: Electricity for households - average price of one kWh, without taxes - in cents

	1996	2001	2002	2003	2004	2005	2006	Change 2005-2006 (%)
EU-25	:	:	:	:	10.02	10.25	10.78	5.2
EU-15	11.00	10.27	10.32	10.36	10.27	10.43	10.94	4.9
BE	12.37	11.84	11.37	11.20	11.45	11.16	11.23	0.6
CZ	:	5.38	6.42	6.54	6.60	7.29	8.29	13.7
DK	6.46	7.81	8.65	9.47	9.15	9.27	9.97	7.6
DE	13.20	12.20	12.61	12.67	12.59	13.34	13.74	3.0
EE	:	:	4.57	5.50	5.50	5.76	6.20	7.6
EL	6.09	5.64	5.80	6.06	6.21	6.37	6.43	0.9
ES	10.92	8.59	8.59	8.72	8.85	9.00	9.40	4.4
FR	10.22	9.14	9.23	8.90	9.05	9.05	9.05	0.0
IE	7.17	7.95	8.83	10.06	10.55	11.97	12.85	7.4
IT	15.08	15.67	13.90	14.49	14.34	14.40	15.48	7.5
CY	:	9.90	8.45	9.15	9.28	9.15	12.25	33.9
LV	:	:	:	:	4.87	7.02	7.02	0.0
LT	:	:	:	:	5.35	6.09	6.09	0.0
LU	10.90	11.20	11.48	11.91	12.15	12.88	13.90	7.9
HU	3.72	6.34	7.23	7.33	7.94	8.51	8.96	5.3
MT	4.76	6.17	6.31	6.52	6.36	7.27	9.04	24.3
NL	8.69	9.78	9.23	9.70	10.31	11.02	12.07	9.5
AT	10.32	9.45	9.32	9.26	9.81	9.64	8.94	-7.3
PL	:	7.10	8.18	7.75	6.99	8.23	9.23	12.2
PT	12.59	12.00	12.23	12.57	12.83	13.13	13.40	2.1
SI	7.00	8.37	8.58	8.33	8.41	8.61	8.74	1.5
SK	:	:	:	:	10.24	11.23	12.16	8.3
FI	7.70	6.37	6.97	7.38	8.10	7.92	8.09	2.1
SE	:	6.29	7.01	8.38	8.98	8.46	8.76	3.5
UK	8.76	9.96	10.31	9.59	8.37	8.36	9.71	16.1
BG	:	:	:	:	4.86	5.37	5.52	2.8
HR	:	:	:	:	:	7.02	7.59	8.1
RO	:	:	:	:	:	6.55	8.59	31.1
NO	6.53	7.88	9.27	15.68	9.85	11.37	11.01	-3.2

Note: Based on the standard consumer Dc (3 500 kWh/year) on the 1st of January of each year, weighted by consumption.

Source: Eurostat

Looking at the time series for prices for one kWh without taxes (see Table 4.4); it can be noted that, at EU-25 level, the price increased by 5.2% between 2005 and 2006.

At country level, Cyprus and Malta registered the largest price increases with an impressive 34% and 24%, respectively. Austria was the only Member State to register a decline in prices (-7%) between 2005 and 2006.

In Norway, the price of one kWh without taxes peaked in 2003 at 15.7 cent per kWh - the highest price of all countries considered during the entire period observed -

but remained close to the EU-15 average again in the years that followed.

Limiting the view to 2006 and the EU Member States, the price for a kWh without taxes ranged from 6.1 cents in Lithuania to 15.5 cents in Italy. About a third of the EU Member States paid over the EU-25 average of 10.8 cent per kWh. However, this situation changes considerably when the price including all taxes is considered.

Over the 2005-2006 period, price increases were particularly marked in Cyprus and Malta, as could be expected when looking at the evolution of the base price. Conversely, Austria and Belgium reported price decreases of 5% and 3%, respectively.

Still based on standard household consumer Dc (3 500 kWh per year), the highest average price in 2006 was paid in Denmark: 23.6 cents per kWh. Italy and the Netherlands came close with 21.1 cents and 20.9 cents, respectively. The kWh price in Italy remained persistently high throughout the period observed.

Looking at the price span among the EU Member States in 2006, 16.6 cents separates the cheapest (Greece) from the most expensive country (Denmark). In other words: Danish standard consumers paid more than three times the price of that paid by Greek consumers. However, this should be seen in the light of the differences between average price levels in the various countries.

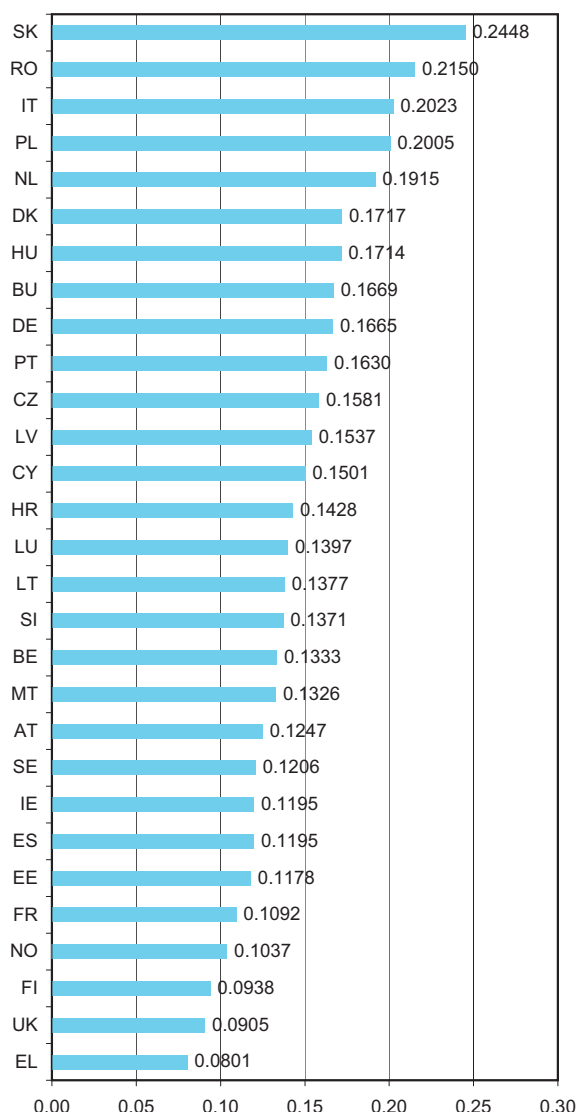
Table 4.5: Electricity for households - average cost of one kWh, all taxes included - in cents

	1996	2001	2002	2003	2004	2005	2006	Change 2005-2006 (%)
EU-25	:	:	:	:	13.20	13.54	14.16	4.6
EU-15	13.40	13.17	13.36	13.55	13.58	13.85	14.44	4.3
BE	15.14	14.50	13.94	13.76	14.22	14.81	14.42	-2.6
CZ	:	6.58	7.83	7.97	8.07	8.68	9.85	13.5
DK	16.11	20.66	22.02	23.03	22.62	22.78	23.62	3.7
DE	15.18	15.99	16.70	17.08	16.98	17.85	18.32	2.6
EE	:	:	5.39	6.49	6.49	6.78	7.31	7.8
EL	7.19	6.09	6.30	6.54	6.71	6.88	7.01	1.9
ES	12.67	10.48	10.47	10.63	10.79	10.97	11.47	4.6
FR	13.40	11.54	11.65	11.62	11.94	11.94	12.05	0.9
IE	8.06	8.94	9.94	11.79	12.56	14.36	14.90	3.8
IT	20.19	20.21	19.01	19.84	19.50	19.70	21.08	7.0
CY	:	10.90	9.29	10.52	10.88	10.74	14.31	33.2
LV	:	:	:	:	5.75	8.28	8.29	0.1
LT	:	:	:	:	6.32	7.18	7.18	0.0
LU	11.55	12.42	12.91	13.35	13.65	14.78	16.03	8.5
HU	4.17	7.10	8.09	8.21	9.92	10.64	10.75	1.0
MT	4.76	6.17	6.31	6.85	6.68	7.64	9.49	24.2
NL	10.21	17.03	16.60	17.58	18.27	19.55	20.87	6.8
AT	12.35	13.23	13.39	13.52	14.16	14.13	13.40	-5.2
PL	:	8.66	10.66	10.05	9.04	10.64	11.90	11.8
PT	13.24	12.62	12.86	13.22	13.50	13.81	14.10	2.1
SI	7.70	9.96	10.29	10.00	10.10	10.33	10.49	1.5
SK	:	:	:	:	12.18	13.38	14.48	8.2
FI	9.39	8.62	9.36	9.91	10.79	10.57	10.78	2.0
SE	:	10.28	11.33	13.49	14.40	13.97	14.35	2.7
UK	9.45	10.44	10.83	10.06	8.78	8.77	10.20	16.3
BG	:	:	:	:	5.83	6.44	6.60	2.5
HR	:	:	:	:	:	8.48	9.22	8.7
RO	:	:	:	:	:	7.79	10.23	31.3
NO	8.81	11.47	12.95	21.06	13.60	15.71	15.33	-2.4

Note: Based on the standard consumer Dc (3 500 kWh/year) on the 1st of January of each year, weighted by consumption.

Source: Eurostat

Figure 4.6: Electricity for households: average price of one kWh, all taxes included, as of 1 January 2006 - in Purchasing Power Standards (PPS)



Note: Based on the standard consumer Dc (3500 kWh/year).

Source: Eurostat

Figure 4.6 uses an alternative 'currency': the Purchasing Power Standard (PPS). The PPS is an artificial common reference currency unit that eliminates price level differences between countries. One PPS thus buys the same given volume of goods/services in all countries.

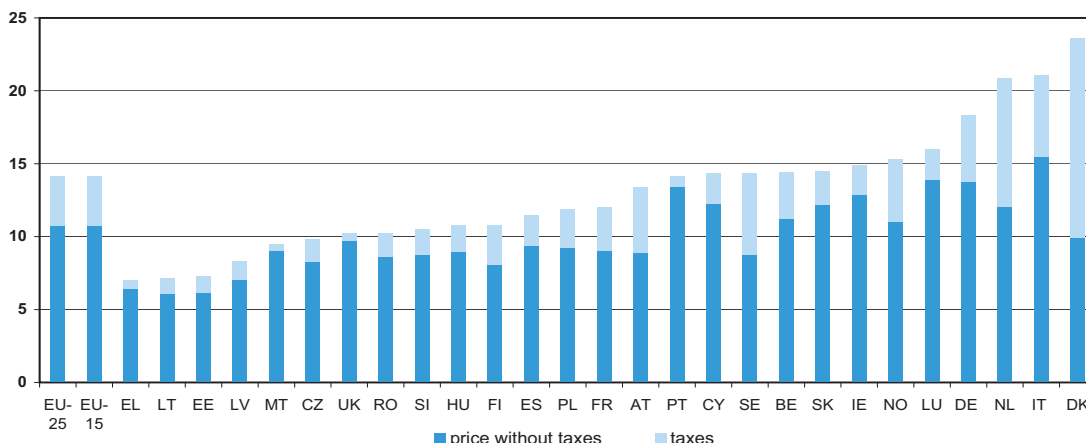
Looking at electricity prices in this way reveals a different picture: whereas in terms of absolute prices expressed in cents, Danish standard consumers paid most (23.6 cent), the price in PPS was far more reasonable (0.172 PPS), putting Danish consumers between Hungary and the Netherlands. Conversely, electricity was fairly expensive in Slovakia (0.245 PPS), double the price paid e.g. in Sweden. In Italy, the price was high both in terms of absolute prices expressed in cents (at 21.1 cent per kWh, the second most expensive after Denmark) and in terms of PPS (at 0.202 PPS, the third highest after Slovakia and Romania).

On the other side of the spectrum came three countries with a PPS price level of under 0.1: Finland, the United Kingdom and Greece.

Figure 4.7 shows that Greece and the three Baltic countries not only had a relatively low basic price (in cents) but also applied a low rate of taxation (VAT and/or other taxes).

At EU-25 level, the average price of 14.16 cent per kWh (all taxes included) comprised a 10.78 cent basic price (corresponding to 76% of the total) and 3.38 cents in taxes (the remaining 24%). In Belgium, Germany, France, Italy, Poland and Finland, about the same proportion of taxes (around 25%) is added to the basic price of electricity for domestic consumers. However, the average share of taxes in the total price may be as high as 58% in Denmark, 42% in the Netherlands and 39% in Sweden but also as low as 5% in Malta, Portugal and the United Kingdom, and 8% in Greece.

Figure 4.7: Electricity for households: composition of the price for one kWh, 1 January 2006 - in cents



Note: Based on the standard consumer Dc (3500 kWh/year).

Source: Eurostat

4.2.2. Prices and taxes for industrial electricity consumption

From 1996 to 2000, the average price paid by industry at EU-15 level for a kWh of electricity decreased significantly (see Figure 4.8). In 2000, it stood 7 percentage points lower than in 1995. This price development is remarkable when compared with that for households (see Figure 4.3). Indeed, in 2000, the domestic standard consumer paid only 1% less than in 1996.

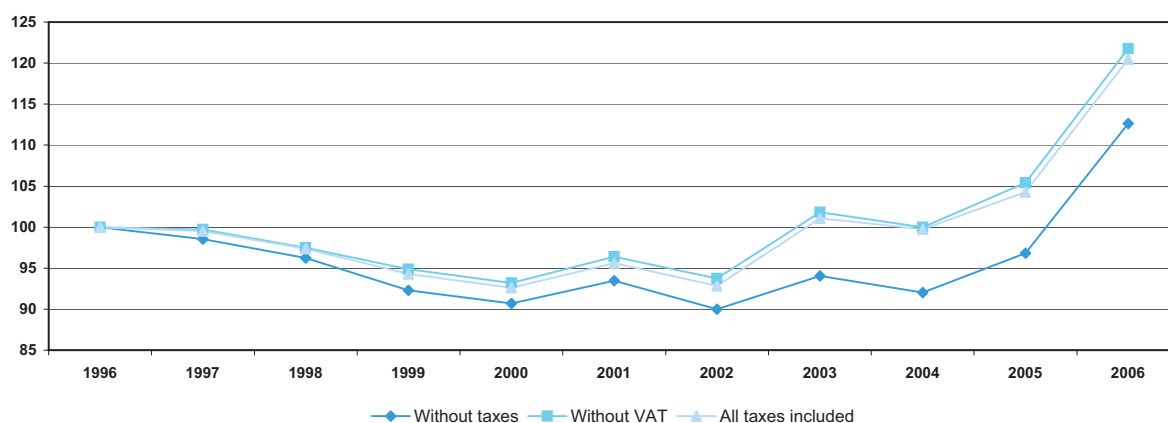
The period from 2000 to 2004 saw a less steady price development. The gap between the electricity price without taxes and the price with taxes widened, due to increased electricity taxation. In 2005 and 2006, prices increased considerably, both without VAT and with all taxes included, reaching levels more than 20% higher than a decade

earlier. The basic price for industrial energy increased by 13% during that period.

In absolute terms, the price paid for electricity by industrial customers stayed significantly under that paid by households.

As value-added tax (VAT) is often deductible for industrial and commercial users subject to taxation, Table 4.9 looks at the development of electricity prices for standard industrial consumer le expressed in cents, excluding VAT, but including other taxes, duties or levies applicable in the individual countries.

Figure 4.8: Development of the average price of one kWh for industrial electricity consumption, EU-15 (1996=100) - based on prices in EUR



Note: Based on the standard industrial consumer le (2000 MWh/year) on the 1st of January of each calendar year.

Source: Eurostat

4. Prices and taxes

Table 4.9: Electricity for industry: average price of one kWh, without VAT but including other taxes or duties - in cents

	1996	2001	2002	2003	2004	2005	2006	Change 2005-2006 (%)
EU-25	:	:	:	:	7.04	7.45	8.65	16.1
EU-15	7.21	6.95	6.76	7.34	7.21	7.60	8.78	15.5
BE	7.75	7.52	7.61	7.68	7.71	7.75	9.69	25.0
CZ	:	4.73	5.18	4.99	4.92	6.01	7.31	21.6
DK	5.54	6.25	7.07	7.64	6.98	7.15	8.01	12.0
DE	9.06	7.17	7.21	8.20	8.63	9.03	9.94	10.1
EE	:	:	4.65	4.55	4.55	4.72	5.11	8.3
EL	5.71	5.71	5.90	6.14	6.30	6.45	6.68	3.6
ES	7.56	5.78	5.47	5.55	5.66	7.21	7.57	5.0
FR	6.50	5.57	5.62	5.62	5.78	5.78	5.78	0.0
IE	6.15	6.62	7.68	7.76	8.12	9.30	10.11	8.7
IT	8.61	10.87	10.12	10.78	10.26	10.93	12.08	10.5
CY	:	10.50	9.03	9.62	8.41	8.10	11.36	40.2
LV	:	:	:	:	4.31	4.09	4.09	0.0
LT	:	:	:	5.50	5.13	4.98	4.98	0.0
LU	7.47	6.74	7.09	7.35	7.56	8.51	8.95	5.2
HU	3.41	5.20	5.95	6.04	6.61	7.09	7.61	7.3
MT	5.78	6.83	6.98	6.36	6.20	7.06	7.11	0.7
NL	6.08	7.04	:	:	:	8.99	9.57	6.5
AT	8.14	:	:	:	7.59	8.27	8.63	4.4
PL	:	4.92	5.85	5.66	4.88	5.55	6.33	14.1
PT	7.56	6.51	6.65	6.73	6.84	7.13	8.17	14.6
SI	5.86	6.03	5.99	5.82	6.09	6.11	6.51	6.5
SK	:	:	:	:	6.83	7.03	7.73	10.0
FI	4.81	4.15	4.44	6.11	5.89	5.73	5.63	-1.7
SE	4.13	3.13	3.10	6.66	5.20	4.68	5.93	26.7
UK	5.44	6.61	6.40	5.63	5.01	5.93	8.22	38.6
BG	:	:	:	:	4.09	4.29	4.60	7.2
HR	:	:	:	:	:	5.56	5.96	7.2
RO	:	:	:	4.42	5.10	7.69	7.04	-8.5
NO	3.22	3.44	4.33	5.60	5.42	6.49	6.46	-0.5

Note: Based on the standard industrial consumer (Ie) (2000 MWh/year) on the 1st of January of each calendar year. Energy and other taxes are included in this table.

Source: Eurostat

Looking at the evolution of the average price of one kWh between 1996 and 2006, Hungary recorded the highest increase (123%). In contrast, only France reported a price decrease (-11%). This decrease occurred mainly during the second half of the 1990s, as the price has remained stable over the past five years.

Focusing just on the last two reference years, the largest price increases were registered in Cyprus (+40.2%) and in the United Kingdom (+38.6%). However, the price in

Cyprus has fluctuated quite considerably over time and the price paid in 2006 (11.4 cent) is only 8.2% above that paid in 2001 (10.5 cent)

In absolute terms, the price span in 2006 among the EU Member States is not as wide as it is for households but nevertheless ranges from 4.09 cents per kWh without VAT in Latvia to 12.08 cents in Italy.

4.3. Prices and taxes for natural gas

4.3.1. Prices and taxes for natural gas used by domestic consumers

The price pattern of gas is very different from that for electricity, both in terms of general price evolution and the evolution of prices with or without taxes (Figure 4.10 - prices, as of 1 January of each year, weighted according to the quantity consumed). The information in this section is based on standard consumer D3 (corresponding to a household with the following equipment: cooking, water heating and central heating). Information for other standard consumers can be found on the attached CD-ROM or on Eurostat's website.

Worth noting is the parallelism in the evolution of the different price categories for one Gigajoule of natural gas for household (or domestic) consumption. Over the 1996-2006 period, the prices without taxes and without VAT followed, in linear terms, very closely the trends of the prices with all taxes included. There was no outstandingly large gap between the price categories arising from an increase or decrease in taxes, such as was the case for electricity.

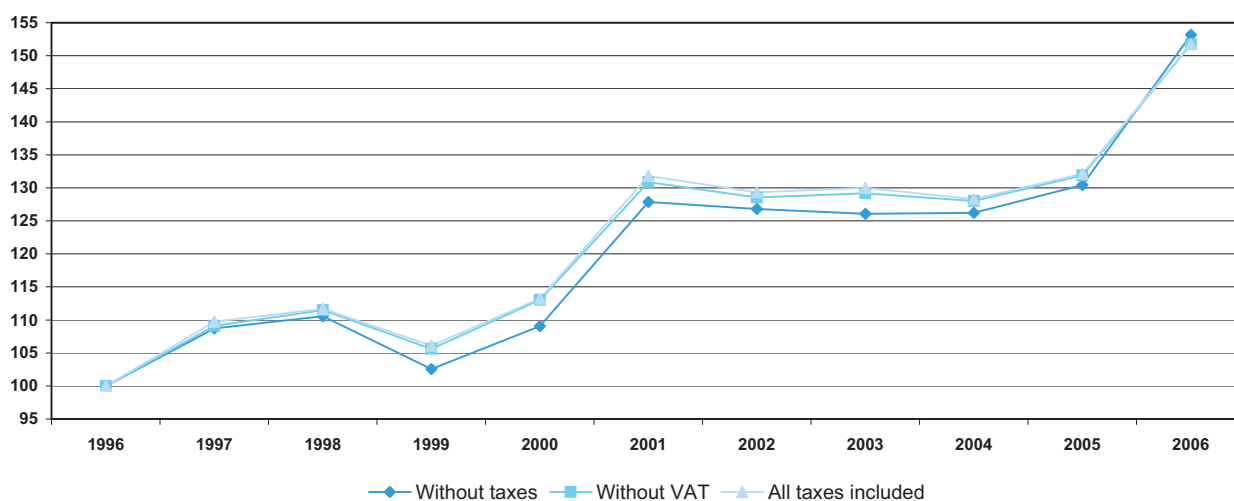
Moreover, connected with this homogeneous pattern, percentage growths were very close by 2006: prices without taxes grew by 53% compared to 1996, prices without VAT by 52% and prices with all taxes also by 52%.

The small gaps that had emerged between the curves for the price without taxes and the prices with VAT and all taxes included had also largely disappeared in 2006.

Now looking especially at the trends within the 1996-2006 period, the first five years were characterised by rapid ups and downs. The larger drop for the price without taxes between 1998 and 1999, to the extent that it regained almost the 1996 value, reflected a corresponding increase in VAT or taxes.

There was a steeper upwards path between 1999 and 2001, giving way to a slight downwards movement between 2001 and 2004. But whereas 2005 registered only a moderate increase, 2006 saw prices climb significantly.

Figure 4.10: Development of the average price of one Gigajoule (GCV) of natural gas for domestic consumption, EU-15 (1996=100) - based on prices in EUR



Note: Based on the standard domestic consumer D3 (83.70 GJ/year) on the 1st of January of each calendar year.

Source: Eurostat

Table 4.11: Natural gas for households - average price of one Gigajoule (GCV), without taxes - in EUR

	1996	2001	2002	2003	2004	2005	2006	Change 2005-2006 (%)
EU-25	:	:	:	:	8.07	8.42	9.93	17.9
EU-15	6.76	8.49	8.42	8.37	8.38	8.66	10.17	17.4
BE	6.83	9.45	8.34	8.58	8.39	8.85	10.75	21.5
CZ	:	4.51	5.81	5.20	5.38	6.30	8.43	33.8
DK	:	10.96	7.53	8.33	8.45	12.58	13.19	4.8
DE	6.69	9.65	9.24	8.93	9.10	10.16	12.25	20.6
EE	:	:	:	3.93	3.93	3.92	3.93	0.3
ES	9.15	11.06	10.46	10.43	9.95	10.25	11.75	14.6
FR	7.19	8.44	9.19	9.06	:	9.00	10.81	20.1
IE	7.18	7.28	7.27	7.27	7.93	8.80	11.02	25.2
IT	8.26	11.07	9.95	9.86	8.88	8.98	10.40	15.8
LV	:	:	:	:	3.58	3.85	4.54	17.9
LT	:	:	:	:	4.62	4.58	5.29	15.5
LU	5.78	7.63	6.64	6.91	6.67	7.68	9.74	26.8
HU	2.62	3.20	3.88	3.94	5.02	5.38	6.44	19.7
NL	6.08	6.31	7.03	8.17	8.17	9.64	11.09	15.0
AT	8.49	8.78	8.78	8.85	9.13	8.91	10.72	20.3
PL	:	5.29	6.64	5.91	5.20	6.19	7.76	25.4
PT	:	13.68	13.19	12.70	11.48	11.75	13.83	17.7
SI	5.05	8.18	7.31	7.40	7.23	7.82	10.03	28.3
SK	:	:	:	:	6.11	6.84	9.12	33.3
FI	5.46	:	:	:	:	:	:	-
SE	7.24	9.13	9.63	9.85	10.01	11.72	14.80	26.3
UK	5.67	6.27	6.63	6.56	6.52	6.91	7.84	13.5
BG	:	:	:	:	5.62	5.61	6.42	14.4
HR	:	:	:	:	:	6.27	6.42	2.4
RO	:	:	:	:	:	4.03	4.64	15.1

Note: Based on the standard domestic consumer D3 (83.70 GJ/year) on the 1st of January of each calendar year.

Source: Eurostat

By 2006, the average price of one Gigajoule of natural gas for households - without taxes - was EUR 9.93 at EU-25 level, a little lower than for the EU-15 (EUR 10.17). This represented an increase of more than three euros compared with the price of EUR 6.76 in 1996 (data available for the EU-15 only).

Largely responsible for this growth are the years 2005 and 2006, when the year-on-year increase amounted to 18% at EU-25 level.

Behind this EU picture, based on the available data for the Member States, is a range of prices from around half the EU-25 price to almost double: EUR 3.93 in Estonia to EUR 14.80 in Sweden.

Between 2005 and 2006, price increases were highest in the Czech Republic (+34%), Slovakia (+33%) and Slovenia (+28%). Households in Ireland, Luxembourg, Poland and Sweden saw the basic gas price (without taxes) increase by around a quarter. On the other side of the spectrum, the Estonian gas price remained very stable. Prices in Denmark increased by a relatively moderate 5% between 2005 and 2006, though after a considerable price increase a year earlier (+49% between 2004 and 2005).

Table 4.12: Natural gas for households - average price of one Gigajoule (GCV), all taxes included - in EUR

	1996	2001	2002	2003	2004	2005	2006	Change 2005-2006 (%)
EU-25	:	:	:	:	10.84	11.26	13.02	15.6
EU-15	8.84	11.65	11.43	11.49	11.34	11.68	13.42	14.9
BE	8.73	11.84	10.51	10.78	10.54	11.16	13.50	21.0
CZ	:	5.50	7.08	6.35	6.57	7.49	10.03	33.9
DK	:	22.00	17.98	18.98	19.12	28.44	29.82	4.9
DE	8.48	12.32	11.85	12.13	12.33	13.56	15.98	17.8
EE	:	:	:	4.64	4.64	4.63	4.63	0.0
ES	10.76	12.82	12.14	12.09	11.55	11.90	13.63	14.5
FR	8.77	9.91	10.81	10.65	:	10.57	12.72	20.3
IE	7.85	8.19	8.18	8.25	9.00	9.98	12.51	25.4
IT	14.09	18.42	17.15	16.77	14.92	15.34	16.02	4.4
LV	:	:	:	:	4.22	4.54	5.34	17.6
LT	:	:	:	:	5.45	5.41	6.24	15.3
LU	5.96	8.09	7.04	7.33	7.07	8.14	10.33	26.9
HU	2.41	3.58	4.35	4.41	5.77	6.19	7.40	19.5
NL	7.52	10.55	11.55	13.08	13.19	15.17	16.92	11.5
AT	10.33	11.84	11.84	12.26	13.71	13.36	15.65	17.1
PL	:	6.45	8.10	7.20	6.34	7.55	9.46	25.3
PT	:	14.37	13.85	13.34	12.05	12.34	14.52	17.7
SI	5.44	10.57	9.81	9.87	9.64	10.33	12.99	25.8
SK	:	:	:	:	7.27	8.14	10.88	33.7
FI	6.41	:	:	:	:	:	:	-
SE	:	16.11	17.26	18.32	19.57	22.18	25.95	17.0
UK	5.96	6.58	6.97	6.89	6.83	7.26	8.24	13.5
BG	:	:	:	:	6.75	6.73	7.70	14.4
HR	:	:	:	:	:	7.99	8.18	2.4
RO	:	:	:	:	:	4.79	5.52	15.2

Note: Based on the standard domestic consumer D3 (83.70 GJ/year) on the 1st of January of each calendar year.

Source: Eurostat

Turning now to price trends for natural gas with all taxes included, and recalling the parallelism characterising the different price categories, similar observations can be made as those for pricing without taxes, though with certain differences.

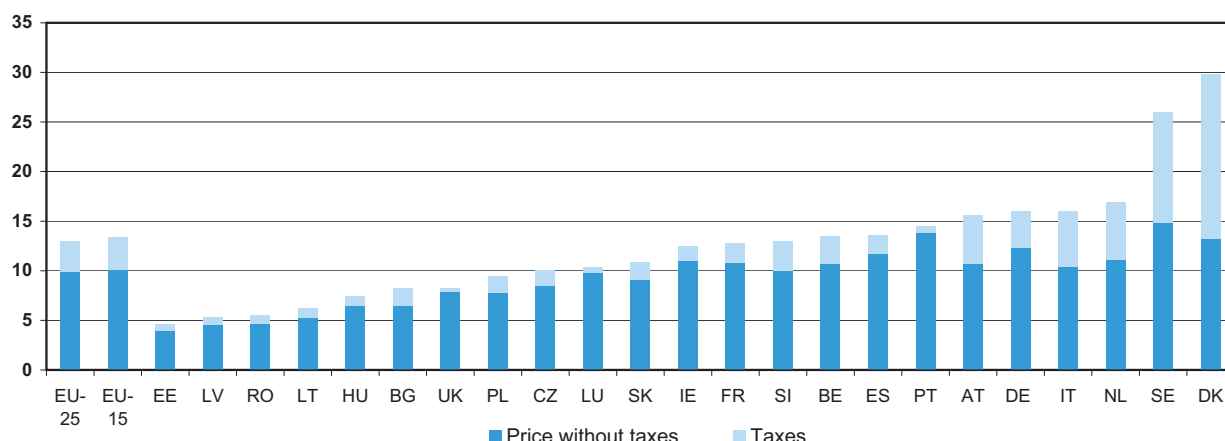
For the EU-25 in 2006, the average price domestic consumers had to pay was EUR 13.02 (EUR 13.42 for the EU-15). Based on the data available for the EU-25, the increase was nearly 16% between 2005 and 2006, slightly under the increase calculated for the Gigajoule price without taxes (17.9% - see Table 4.11).

Looking at differences between Member States, and based on the country data available, prices ranged from EUR 29.82 in Denmark and EUR 25.95 in Sweden - about

twice the average EU price - to EUR 4.63 in Estonia. The three Baltic States, i.e. Estonia, Latvia and Lithuania, reported the lowest prices among the Member States. In one third of the EU Member States, prices were over the EU-25 average price (EUR 13.02).

European households thus clearly pay different prices: Figure 4.13 gives a graphical representation of prices in 2006, with and without taxes, ranking them according to the price with taxes, with Denmark having the highest price (EUR 29.82) and Estonia the lowest at about a sixth of that amount (EUR 4.63). The graph reveals that taxation is particularly high in Denmark and Sweden.

Figure 4.13: Natural gas for households: composition of the price for one Gigajoule (GCV), 1 January 2006 - in EUR



Note: Based on the standard domestic consumer D3 (83.70 GJ/year).

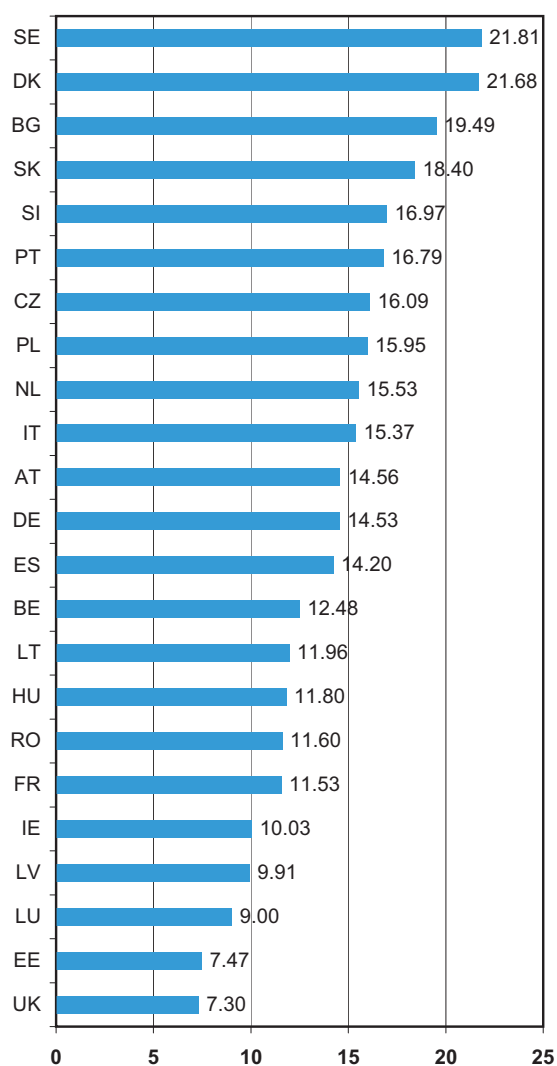
Source: Eurostat

Using purchasing power parities (PPS) - which eliminates differences in price levels between countries, giving a more accurate picture of the relative purchasing power of households - the order in this continuum changes (Figure 4.14).

Accordingly, households in Sweden were spending the most on one Gigajoule of natural gas (at 21.81 PPS) compared with their EU neighbours. United Kingdom households were spending the least, at 7.30 PPS, ahead of the Estonians at 7.47 PPS. The concept of the PPS is particularly well illustrated by the examples of Luxembourg and Slovakia, which pay similar prices in euros (EUR 10.33 for a Gigajoule in Luxembourg, EUR 10.88 in Slovakia). Expressed in PPS, this price 'hurts' far less in a high-income country like Luxembourg, where the price amounts to 9.00 PPS, whereas it is 18.40 PPS in Slovakia.

As shown in Figure 4.13, taxes accounted for about 25% of the average EU-25 price. In Denmark, however, they made up more than half at 56%, and in Sweden they amounted to 43%. At the other end of the spectrum came the United Kingdom and Portugal, with taxes accounting for less than 5%. In Luxembourg, they amounted to just 6%. Considering that the next lowest share was in Ireland (12%), these three countries had very low gas taxation.

Figure 4.14: Natural gas for households: average price of one Gigajoule (GCV), 1 January 2006 - in Purchasing Power Standards (PPS)



Note: Based on the standard domestic consumer D3 (83.70 GJ/year). All data are provisional.

Source: Eurostat

4.3.2. Prices and taxes for natural gas used by industrial consumers

Turning now to industrial consumption (Figure 4.15), the evolution of prices followed much the same general path - with the same graphical pattern of ups and downs, and the especially steep upturns between 2000 and 2001 and between 2005 and 2006 - as that for households.

However, the percentage changes were over twice as large in magnitude, with prices growing from 1996 to 2006 by 126% for all taxes included, 126% without VAT and 128% without taxes.

Moreover, the margins between the price categories were much narrower, even non-existent, reflecting stable taxation over the years. Increases were exactly the same in many years and the gaps that appeared were limited to about two or three percentage points.

Figure 4.15: Development of the average cost of one GJ for industrial natural gas consumption, EU-15 (1996=100) - in EUR



Note: Based on the standard industrial consumption I3-1 (41 860 GJ/year) on the 1st of January of each calendar year.

Source: Eurostat

Based on the data in Table 4.16, industry in the EU-25 paid EUR 8.60 in 2006 (without VAT, as most industrial consumers are exempt from paying this tax) for one Gigajoule of natural gas, and slightly more in the former EU-15 (EUR 8.76). Recalling the prices paid by households (EU-25: EUR 13.02; EU-15: EUR 13.42 - all taxes included), industry was paying one third less than household consumers.

For the EU-15, the average price in 2006 (EUR 8.76) stood 126% higher than a decade earlier (1996: EUR 3.88 per Gigajoule). Over this time span, the largest increases were registered before 2001 and between 2005 and 2006.

Looking at the individual Member States, prices in 2006 ranged from just EUR 2.84 in Estonia to more than four times that amount in Sweden (EUR 12.26). Sweden, Austria and Germany have the highest industrial gas prices. As for electricity, prices in the Baltic States (Estonia, Latvia, Lithuania) are the lowest. Quite in contrast with the price paid by industrial consumers in Italy for electricity (by far the most expensive at 40% over the EU average - see Table 4.9), the Italian industrial gas price remains low at 19% under the EU average.

Looking at the change between 2005 and 2006, three countries reported price increases above 50%: Spain (54.7%), the United Kingdom (51.0%) and Slovakia (50.6%). At the opposite end of the scale, rises of less than 6% were reported by Denmark (2.7%), Estonia (3.3%) and Italy (5.4%).

As mentioned earlier, most industrial consumers are exempt from paying value-added tax. This is why Figure 4.17 shows just the base price (lower part of the bars) plus any taxes that could apply apart from VAT (upper part of the bars).

Among the 24 countries for which such information is available (both EU and non-EU States), 12 only apply VAT.

Gas for industrial purposes is taxed relatively heavily in Austria, in the Netherlands, and, to a lesser extent, in Sweden, Germany and Slovenia.

4. Prices and taxes

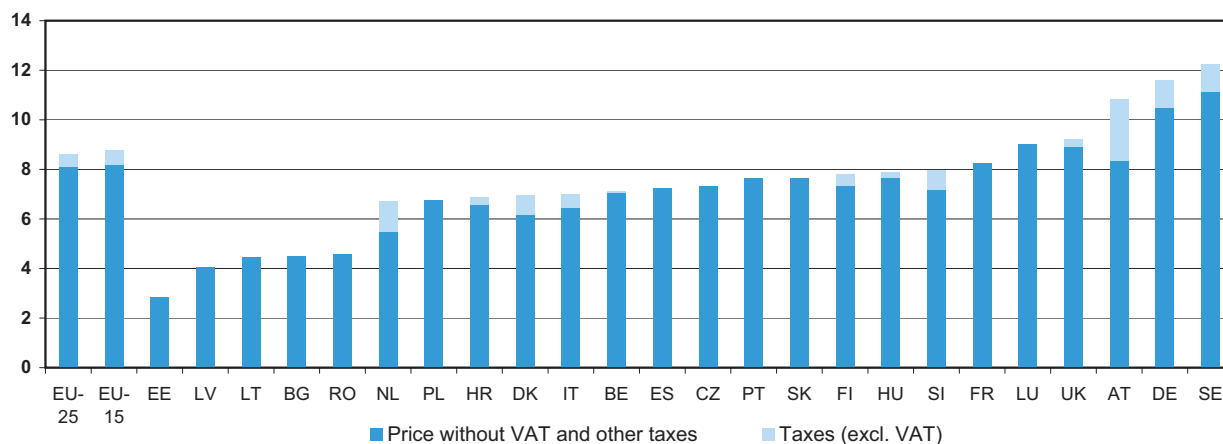
Table 4.16: Natural gas for industry: average price of one Gigajoule (GCV), without VAT - in EUR

	1996	2001	2002	2003	2004	2005	2006	Change 2005-2006 (%)
EU-25	:	:	:	:	5.68	6.45	8.60	33.3
EU-15	3.88	6.46	6.16	6.03	5.83	6.57	8.76	25.0
BE	3.97	6.32	5.25	5.42	5.28	5.32	7.11	33.6
CZ	:	3.88	4.68	4.14	4.20	5.11	7.34	43.6
DK	3.77	6.59	5.10	5.87	5.21	6.79	6.97	2.7
DE	4.94	8.35	7.90	7.84	7.50	8.87	11.58	30.6
EE	:	:	:	2.91	2.91	2.75	2.84	3.3
ES	3.14	5.54	4.34	4.81	4.41	4.68	7.24	54.7
FR	3.57	6.13	5.13	5.66	5.32	6.42	8.27	28.8
IE	2.93	4.65	4.88	4.94	:	:	:	-
IT	3.96	7.07	6.33	5.80	6.19	6.64	7.00	5.4
LV	:	:	:	:	3.47	3.48	4.05	16.4
LT	:	:	:	4.21	3.83	3.61	4.45	23.3
LU	4.86	6.89	5.90	6.17	5.94	6.95	9.01	29.6
HU	2.25	4.09	4.91	5.20	5.63	6.03	7.88	30.7
NL*	3.73	6.14	:	:	:	5.60	6.71	19.8
AT	4.84	6.62	6.71	6.42	7.64	8.19	10.82	32.1
PL	:	5.60	6.15	5.59	4.26	5.30	6.77	27.7
PT	:	6.88	6.26	6.39	5.68	6.03	7.63	26.5
SI	3.64	8.37	7.28	5.28	4.80	5.89	7.96	35.1
SK	:	:	:	:	5.33	5.08	7.65	50.6
FI	3.39	7.54	6.69	6.85	6.73	6.91	7.79	12.7
SE	:	10.81	9.14	7.87	7.65	9.20	12.26	33.3
UK	2.60	4.01	5.91	5.18	4.99	6.10	9.21	51.0
BG	:	:	:	:	3.50	3.78	4.50	19.0
HR	:	:	:	:	:	6.73	6.88	2.2
RO	:	:	:	2.29	2.83	3.68	4.59	24.7

Note: Based on standard industrial consumption I3-1 (41 860 GJ/year) - *: Data for 2005 and 2006 are estimated.

Source: Eurostat

Figure 4.17: Natural gas for industry: composition of the price for one Gigajoule (GCV), 2006 - in EUR



Note: Based on the standard industrial consumption I3-1 (41 860 GJ/year).

Source: Eurostat

Symbols and abbreviations

EU-25	European Union, including the 25 Member States (BE, CZ, DK, DE, EE, EL, ES, FR, IE, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, SI, SK, FI, SE, UK)
EU-15	European Union before the latest enlargement (May 2004), including the 15 Member States (BE, DK, DE, EL, ES, FR, IE, IT, LU, NL, AT, PT, FI, SE, UK)
BE	Belgium
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
EL	Greece
ES	Spain
FR	France
IE	Ireland
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom
BG	Bulgaria
HR	Croatia
RO	Romania
TR	Turkey
IS	Iceland
NO	Norway
:	non available
-	nil or not applicable
kWh	kilowatt hour, one watt x one hour x 10 ³
MW	Megawatt, or one watt x 10 ⁶
GWh	Gigawatt hour, one watt x one hour x 10 ⁹
GJ	Gigajoule, or one joule x 10 ⁹
TJ	Terajoule, or one joule x 10 ¹²
GCV	Gross calorific value
EUR	euro (€)
Cent	euro cent (1/100 EUR)