

European electricity market indicators of the liberalisation process 2004 – 2005

Statistics
in focus

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Highlights

- The electricity market of Ireland has recently been completely opened. By September 2005, this brought the number of Member States with full market opening to ten.
- A large number of electricity retailers can be found in Germany (940), Italy (400), Spain (315), the Czech Republic (238) and Poland (202).
- Apart from Cyprus and Malta where competition and market liberalisation is difficult due to the inherent country characteristics (limited market size, island), there are still six Member States with only a single retailer of considerable size (i.e. having a share of at least 5% of total electricity consumed by final customers).
- Market opening was first aimed at industrial consumers. Indeed, electricity supplier switching was most widespread in this sector: since market liberalisation, over 50 % of the customers have changed retailer in Denmark, Ireland, Italy, Finland, Sweden and the UK.

Table 1: Degree of market opening as of September 2005

	Declared market opening	Eligibility threshold	Size of open market (in TWh)
Belgium	90%	Full ¹	60
Czech Republic	74%	non HH	44
Denmark	100%	Full	33
Germany	100%	Full	500
Estonia	12%	>40GWh	1
Greece	62%	non HH ²	29
Spain	100%	Full	210
France	70%	non HH	275
Ireland	100%	Full	22
Italy	79%	non HH	225
Cyprus	35%	>350MWh	1
Latvia	76%	non HH	4
Lithuania	74%	non HH	6
Luxembourg	84%	non HH	3
Hungary	67%	non HH	22
Malta	0%	.	.
Netherlands	100%	Full	100
Austria	100%	Full	55
Poland	80%	non HH	120
Portugal	100%	Full	42
Slovenia	77%	non HH	10
Slovakia	79%	non HH	24
Finland	100%	Full	80
Sweden	100%	Full	135
United Kingdom	100%	Full ³	335

1: in the Flanders region only, non HH (non-households) in other regions.

2: all customers in non-interconnected islands are non-eligible.

3: in Northern Ireland, market open to non-households only.

Source: DG TREN, on the basis of information provided by Regulators / Member States.

Introduction

Reliable electricity supply at acceptable prices is a key driver to economic growth and competitiveness. In order to benefit from efficient energy supply, the EU decided to bring the energy sector into line with the competitive parts of its economy by gradually introducing competition. Directive 2003/54/EC concerning common rules for the internal market in electricity gave deadlines for the opening of the market: 1 July 2004 for all business customers and 1 July 2007 for households. Certain countries anticipated the liberalisation process; others are slower in adopting the necessary measures.

Data presented in this publication are mainly based on the results of a voluntary, questionnaire-based data collection aimed at monitoring competition in the electricity market.

Table 1, on the cover page, outlines the state of progress of the liberalisation process and expresses the degree of market opening (first column). The market opening is defined as the percentage of the total electricity consumed by customers given the

choice of their electricity supplier (eligible consumers).

By September 2005 full market liberalisation was completed in 10 Member States. Ireland was the latest country to reach full market opening in 2005. The eligibility threshold shows that for certain countries the freedom to choose supplier is still limited to non-household customers. In other countries the threshold is linked to consumption of a certain quantity, quantities that are not reached by household consumers.

The following pages attempt to give a picture of the situation in the individual countries and notably outline the number and importance of electricity generating companies, the installed capacity of the various electricity generating power plants as well as the number of suppliers to end-customers. As the information in this publication is based on a voluntary data collection, a complete picture of the situation in certain countries cannot always be presented.

Number of companies and their relative importance

In the process of moving from an often state monopoly to open competition, certain Member States adopted the indicative timetable mentioned in the EU Directive, while others anticipated this schedule. In 2001, five Member States had already declared full market opening (Germany, Austria, Finland, Sweden and the UK); by September 2005, five other countries could be added to the list (Denmark, Spain, Ireland, the Netherlands and Portugal).

The increasing number of electricity generating companies represents a challenge with regard to statistical data compilation as many smaller enterprises enter the market. For this reason mainly the information in Table 2 refers to the number of companies representing 95% of net electricity generation. In 2004 it appears that in 10 Member States the number of companies remained limited to five or less. In countries that declared full market opening by September 2005 this number is significantly higher, except for Ireland and Spain where respectively three and five companies were responsible for 95% of the electricity generation.

Table 2 displays the number of companies that are each responsible for at least 5% of the total national net electricity generation. The number of enterprises is generally very limited, still partially reflecting the former situation where one single company was often responsible for the quasi-totality of electricity generation. In 2004, nine EU Member States declared a single enterprise to have a significant share. Conversely, in the UK there are seven and in Germany, Austria, Poland and Finland, five electricity generating companies are of considerable importance.

Table 2: Number of electricity generating companies per country, 2003-2004

	Number of companies representing at least 95% of the net electricity generation		Number of companies producing at least 5% of the national net electricity generation	
	2003	2004	2003	2004
Belgium	2	3	2	2
Czech Rep.	20	17	1	1
Denmark	16	42	2	2
Germany	60	:	4	5
Estonia	2	2	2	1
Greece	1	1	1	1
Spain	5	5	4	4
France	4	4	1	1
Ireland	5*	3	3	2
Italy	79	83	4	4
Cyprus	1	1	1	1
Latvia	5	7	1	1
Lithuania	5	5	2	2
Luxembourg	9*	9*	1	1
Hungary	30	10	6	4
Malta	1	1	1	1
Netherlands	87	53	4	4
Austria	34	39	7	5
Poland	31	54	7	5
Portugal	36	46	3	3
Slovenia	3	3	3	2
Slovakia	6	6	1	1
Finland	25	29	4	5
Sweden	7	14	3	3
United Kingdom	22	20	6	7
Bulgaria	13	14	5	5
Croatia	2	2	2	2
Romania	11	12	7	6
Turkey	148	172	3	4
Norway	161	165	6	5

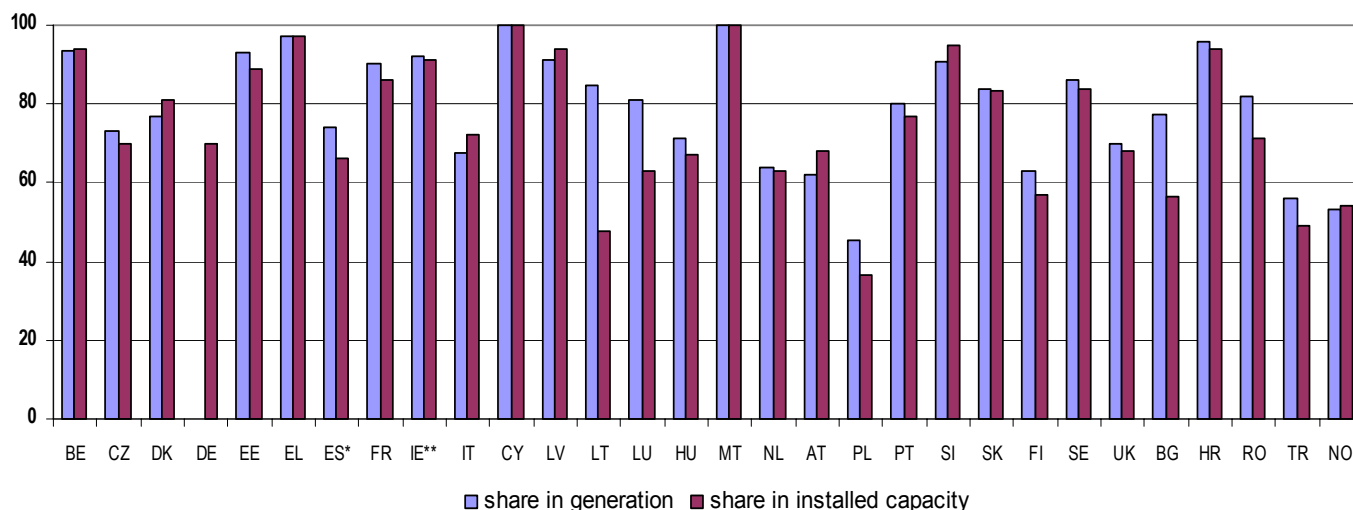
* ES: does not consider a multitude of small generating companies operating within a special regime. IE: based on installed capacity. LU: Generating over 1.5 MW.
Source: Eurostat

Disregarding Germany (for which no 2004 figure was available), the total number of electricity generating companies increased from 436 in 2003 to 457 in 2004 at the level of the EU. Most noticeable changes occurred in the Netherlands (34 enterprises less) and Hungary (20 enterprises less). Conversely, Denmark

and Poland registered 26 and 23 new enterprises respectively.

When limited to the major enterprises (this time including Germany), the number at EU-25 level decreased from 74 in 2003 to 68 in 2004.

Graph1: Cumulated share of electricity generating companies with at least 5% of the national electricity generation and their respective capacity, 2004 – in %



* Does not consider a multitude of small generating companies operating under the so-called 'special regime'; share in installed capacity is estimated.

** Share in generation : estimated.

Source: Eurostat.

Graph 1 displays the cumulated shares of companies in a given country having a share of at least 5% of their respective national markets, both with regard to the electricity actually generated in 2004 and the installed capacity of the generating power plants.

Cyprus and Malta report a monopoly situation where a single company (see Table 2) is responsible for the totality of electricity generation, and thus the installed capacity. In Greece two companies share the entire market.

Globally, an inverse relationship between the degree of market opening and the aggregated share of companies with at least 5% of the total generation/capacity can be observed. In Italy for instance, the four major companies (i.e. those which

have at least a 5% share in total national electricity generation) were together responsible for 67% of the total electricity generated. The remaining electricity was generated by smaller enterprises (i.e. each with a share of under 5% in total electricity generation). Similarly, these former major Italian companies represented 72% of the total installed capacity of the country.

In Austria, where full liberalisation was already achieved years ago, 39 generating enterprises were together responsible for at least 95% of the total net Austrian electricity generation in 2004. Between them, the five major companies had a share of 62% in total generation and 68% in installed capacity.

Power plant capacity

The average installed capacity of the various electricity generating stations available in 2004 is shown in Table 3. The information is given by type of power plant. At EU-25 level the total installed capacity amounted to almost 704 thousand MW.

On the basis of data available and considering all types of electricity generating plants, it appears that Germany has the highest capacity with 124 000 MW, followed by France with 117 000 MW. But whereas the majority of the capacity is conventional thermal in

Germany, France's nuclear power plants are responsible for 54% of its total installed capacity.

Conventional thermal installed capacity makes up the totality of the power generation in Cyprus and Malta, the near totality in Estonia (99.5%) and has a share of well over 90% in the Netherlands and Poland. Norway excels with a hydro-electric share in total installed capacity of 99%; among the EU Member States, Latvia and Austria scored highest with shares of 71% and 63% respectively.

Table 3: Installed capacity (net in MW) of electricity generating power plants, by type of plant – 2004

	EU-25	EU-15	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU
Conv. thermal	408 137	349 295	8 365	11 495	10 228	78 413	2 375	9 431	35 477	27 387	4 929	58 990	988	593	2 473	459
Nuclear	132 985	121 696	5 761	3 760	-	20 552	-	-	7 577	63 363	-	-	-	-	2 367	-
Hydro	127 769	117 374	1 415	2 160	11	8 251	4	3 077	18 118	25 475	240 ⁴	20 744	-	1 536	870	39 ⁴
Wind	33 626	33 526	93	19	3 124	16 629	8	448 ²	8 220	357	378	1 128	-	26	1	34
Other ¹	1 349	1 291	-	-	2	423	-	2	36	10	-	649	-	-	-	24
TOTAL	703 866	623 182	15 634	17 434	13 365	124 268	2 386	12 956	69 428	116 592	5 547	81 511	988	2 156	5 711	556
Added capacity	20246 ³	19 345	70	:	68	3 631	32	231	4 873	871	0,2	4 105	-	2	8	28
Decommissioned cap.	3254 ³	2 830	-	:	8	624	-	-	4	276	-	843	-	1	-	-
Capacity change	17 082	16 514	70	90	60	3 007	32	231	4 869	595	0,2	3 262	-	1	8	28

	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	BG	HR	RO	TR	NO
Conv. thermal	6 526	571	19 824	6 326	29 379	7 292	1 335	3 107	10 752	7 501	63 921	6 419	1 633	12 638	24 145	260
Nuclear	1 866	-	449	-	-	-	656	2 640	2 671	9 471	11 852	2 722	-	707	-	-
Hydro	51	-	37	11744 ⁴	2 282	4 852	974	2 518	2 986	16 137	4 248	2 567	2 079	6 279	12 645	28 000
Wind	3	-	1 073	627 ²	40	553	-	3	79	442	341	1	6	1	19	160
Other ¹	-	-	122	2	48	16	-	10	0	-	9	-	-	-	15	-
TOTAL	8 446	571	21 505	18 697	31 749	12 713	2 965	8 278	16 488	33 551	80 371	11 709	3 718	19 625	36 824	28 420
Added capacity	161	0	1 157	597	625	1 224	0,3	73	187	-	2 302	-	6	162	1 324	:
Decommissioned cap.	26	0	492	-	389	132	-	7	-	190	261	-	-	-	87	:
Capacity change	135	0	665	597	236	1 092	0,3	66	187	-190	2 041	-	6	162	1 237	:

¹ Geothermal, solar, other. ² 'Wind' includes capacity of 'Other'. ³ Without the Czech Republic. ⁴ without pumping stations.
Source: Eurostat.

The capacity of EU electricity generation through wind is very limited, except for Denmark (23 % of the country's total), Germany (13 %) and Spain (12 %). The category 'Other' in Table 3 includes the capacity of geothermal, solar and other (such as biomass) generating stations. In this category only Luxembourg declared a noticeable share of 4 %.

When looking at newly installed capacity in 2004, an additional 17 000 MW were added compared to a year earlier. All countries but Sweden (-190 MW) displayed a higher installed capacity.

Electricity trade

It is recalled that imports of electricity are often an economical choice rather than a shortage of generation possibilities.

EU electricity networks are interconnected and feature more or less significant exchanges. Where interconnection is insufficient, congestion can occur. Intermediate markets such as the Iberian, Nordic and Western European electricity markets are however a fact of today.

Looking at the electricity trade balance, it appears that for half of the EU Member States, the electricity balance in 2004 was negative. The highest deficit was recorded for Italy (46 000 GWh), followed by the Netherlands (16 000 GWh), Belgium (7 800 GWh) and the UK (7 700 GWh).

Conversely, France was the most important electricity exporting country in 2004 with 62 000 GWh. The balance of the Czech Republic was also largely positive, at 16 000 GWh.

Compared to 2003, Spain exported significantly more (11 139 GWh against 8 257 GWh). Portugal's balance was far more negative as it imported more and exported less (balance 2003: -2 794 GWh). In Sweden, the opposite occurred changing from a negative balance in 2003 (-13 165 GWh) to a positive one in 2004 (+2 104 GWh).

For a large country such as the United Kingdom, the trade balance is perhaps negative, but in relative terms the electricity volumes imported remain limited. This becomes obvious when relating the balance to the total final electricity consumption. The 7 725 GWh UK deficit represents only 2 % of the total final energy consumption. For countries with a negative balance, these proportions can be as high as 39% (Latvia) or even 55 % (Luxembourg).

Table 4: Imports and Exports, 2004, GWh

	Imports	Exports	Balance	Final electricity consumption*
BE	14 567	6 790	-7 777	80 603
CZ	9 072	24 789	15 717	53 801
DK	8 673	11 545	2 872	32 973
DE	48 187	50 808	2 621	513 327
EE	347	2 141	1 794	5 892
EL	4 862	2 043	-2 819	49 719
ES	8 111	11 139	3 028	230 669
FR	6 548	68 588	62 040	415 880
IE	1 574	0	-1 574	23 029
IT	46 426	791	-45 635	295 042
CY	-	-	-	3 658
LV	2 733	636	-2 097	5 381
LT	4 293	11 488	7 195	7 612
LU	5 450	1 967	-3 483	6 377
HU	13 791	6 320	-7 471	31 806
MT	-	-	-	1 798
NL	21 405	5 188	-16 217	103 118
AT	16 629	13 548	-3 081	56 368
PL	5 312	14 605	9 293	99 805
PT	8 612	2 131	-6 481	44 668
SI	6 314	7 094	780	12 589
SK	8 731	10 593	1 862	24 027
FI	12 218	7 221	-4 997	83 137
SE	15 646	17 750	2 104	130 361
UK	10 027	2 302	-7 725	340 042
BG	741	6 620	5 879	24 882
HR	5 339	2 296	-3 043	13 646
RO	2 584	3 766	1 182	38 736
TR	464	1 144	680	119 483
NO	13 420	5 547	-7 873	109 853

* provisional data.
Source: Eurostat.

At the other end of the scale Lithuania's positive balance (7 195 GWh) shows a volume that is close to its annual final electricity consumption (7 612 GWh), corresponding to a proportion of 95 %. The next highest proportions were noted for the Czech Republic and Estonia (around 30 %).

Retailing: consumers increasingly have the choice

An electricity generator is not necessarily also a retailer. With regard to the sales of electricity to end consumers, the latter increasingly have the choice as market opening has clearly led to the creation of new retailers.

Although not applicable to all countries, it can be noted that the number of electricity suppliers is generally highest where full liberalisation has already been achieved. Obviously the size of the country has an influence on the number of electricity retailers. Germany registered 940 retailers but only four reached a notable size (at least 5% of the total quantity of electricity supplied at national level).

Similarly, 166 electricity retailers were counted in France, but only one could be considered as 'major'. The Czech Republic, Spain, Italy and Poland registered several hundred retailers. In 2004, Italy reported only one with a market share of at least 5%, in Spain there were three major retailers, in Poland five, whereas the Czech Republic counted eight retailers of notable size.

Comparing the global situation of 2004 to that of a year earlier, the total number of retailers at EU-25 level (disregarding Finland, which could not supply precise data) decreased from 3 040 to 2 834.

Table 5: Retailing: number of electricity suppliers to final customers, 2003-2004

	BE	CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU
Total number of suppliers															
2003	45	365	113	940	42	5	375	166	6	390	1	1	8	11	12
2004	48	238	75	940	41	4*	315	166	8	400	1	4	8	11	12
Suppliers having a share of at least 5% of the total															
2003	2	8	5	4	1	1	6	1	4	3	1	1	3	3	7
2004	3	8	:	4	1	1	3	1	4	1	1	1	2	3	7
	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	BG	HR	RO	TR	NO
Total number of suppliers															
2003	1	42	160	175	5	8	18	>100	127	24	8	1	8	5	223
2004	1	34	125	202	9	7	23	>100	130	32	12	1	20	130	226
Suppliers having a share of at least 5% of the total															
2003	1	3	:	3	1	6	5	3	3	7	8	1	8	1	4
2004	1	3	5	5	1	6	5	3	3	7	8	1	9	1	4

* 4 suppliers were active in 2004, although there were 11 supply license holders — Data in italic: estimates.

Source: Eurostat.

Considerably fewer retailers were counted in Spain, Denmark, Austria and especially in the Czech Republic. Conversely, eight retailers more were registered in the United Kingdom, 10 more in Italy and 27 more in Poland.

Looking at the number of major retailers in the individual Member States, significant changes between the two years were only observed for Spain, Italy and Poland.

The number of customers switching suppliers is a natural indicator as to the effectiveness of competition. The main point remains the question what makes one retailer different from another. As the "quality" of the product bought remains strictly the same, it is mainly the price and the service that is likely to make the difference. Reliability of the supplier and clarity of information supplied might also be of influence. Certain electricity retailers also have a distinct character: for instance, some retailers sell electricity generated only by hydro-electric power stations or from wind. Electricity prices might be higher than those of other retailers but the fact of buying 'green' electricity might be of importance for a certain category of customer, especially households. Also, in countries such as Estonia, Hungary, Poland and Portugal, certain retailers offer 'long-term power purchasing contracts'. Finally, a customer can also

remain with the historical supplier but have the benefit of renegotiating conditions and price.

Based on information supplied to European Commission services by national regulators, Table 6 gives an overview of the proportion of end-customers who have changed electricity supplier since market opening.

As business customers have a strong incentive to save money, switching supplier is most likely to take place in this category. In general, one can state that the lower the proportion of customer switching, the more likely are problems with the functioning of a liberalised market.

When looking at the 'small commercial / household' category, it should be borne in mind that the small commercial markets have only recently been opened and that the household market is not yet required to be opened at all (although a number of countries anticipated this process). Hence, the 'starting position' of the country should be taken into account: high proportions of switching cannot be expected when a country has only recently opened the market and allowed households to become eligible for a choice of electricity retailer.

Table 6: Electricity supplier switching: cumulative switching since market opening (in % of customers)

	Large industrial users				Medium industrial / commercial				Small commercial / household			
	<5%	5 - 20%	20-50%	>50%	<5%	5 - 20%	20-50%	>50%	<5%	5 - 20%	20-50%	>50%
Belgium												
Czech Republic												
Denmark												
Germany												
Estonia												
Greece												
Spain												
France												
Ireland												
Italy												
Cyprus	not applicable				not applicable				not applicable			
Latvia												
Lithuania												
Luxembourg												
Hungary												
Malta	not applicable				not applicable				not applicable			
Netherlands	not available											
Austria												
Poland												
Portugal												
Slovenia												
Slovakia												
Finland												
Sweden												
United Kingdom												
Norway												

Note: including switching between affiliates of the same group of companies or a change from a standard regulated contract to an individually negotiated contract.

Source: DG Energy & Transport (on the basis of information from regulators)

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Country codes

EU: European Union, including the 25 Member States (EU-25): Belgium (BE), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Greece (EL), Spain (ES), France (FR), Ireland (IE), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK).

BG: Bulgaria
HR: Croatia
RO: Romania
TR: Turkey

NO: Norway

Symbols and abbreviations

“.” not available

“-“ nil or not applicable.

MW: megawatt, or one watt x 10⁶

GWh: gigawatthour, one watt x one hour x 10⁹

TWh: terawatthour, one watt x one hour x 10¹²

Definitions

Wind energy: Kinetic energy of wind exploited for electricity generation in wind turbines.

Geothermal energy: energy available as heat emitted from within the earth's crust, usually in the form of hot water or steam and used to generate electricity.

Solar energy: Solar radiation exploited for electricity generation by photovoltaic cells or solar thermal electric plants.

Biomass: covers organic, non-fossil material of biological origin which may be used as fuel for electricity production. It comprises charcoal, wood, wood wastes (wood chips, sawdust, shavings, etc.) and other solid wastes (straw, rice husks, nut shells, poultry litter, crushed grape dregs, etc.).

Imports and Exports: Amounts of electricity are considered as imported or exported when they have crossed the political boundaries of a country, whether customs clearance has taken place or not.

Data sources

The source of all figures presented in this publication (except Table 1 and Table 6) is a questionnaire-survey launched by Eurostat and reflects the state of data availability as of 15 February 2006.

It is recalled that the figures are collected on a voluntary basis. The reader is also reminded that the data in this publication might show differences with similar data published by other national and/or international authorities.

Data of Table 1 and Table 6 are based on information provided by Regulators / Member States to the Commission's Directorate General Transport and Energy .

Data as presented in this publication are not included in Eurostat's statistical reference database NewCronos.

Further information:

Databases

See page 7 - Methodological notes

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