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**Technical Annexes to the**

**Report from the Commission on the Implementation of the Gas and Electricity Internal  
Market**

{COM(2004)863 final}

## ANNEX 1 SUMMARY INFORMATION

### IMPLEMENTATION SUMMARY

	Electricity				Gas					
	Market opening	size of open market TWh	eligibility threshold	unbundling		Market opening	size of open market bcm	eligibility threshold	unbundling	
				TSO	DSOs				TSO	DSOs
<b>Austria</b>	100%	55	-	leg.	leg.	100%	7	-	leg.	leg.
<b>Belgium</b>	c.90%	60	<sup>1</sup>	leg.	leg.	c.90%	11	<sup>1</sup>	leg.	leg.
<b>Denmark</b>	100%	33	-	leg.	leg.	100%	5	-	own.	leg.
<b>Finland</b>	100%	80	-	own.	acc.					
<b>France</b>	70%	275	non HH	leg.	man.	70%	28	non HH	leg.	acc.
<b>Germany</b>	100%	500	-	leg.	acc.	100%	82	-	acc. <sup>2</sup>	acc.
<b>Greece</b>	62%	29	non HH <sup>3</sup>	leg.	none					
<b>Ireland</b>	56%	12	1GWh	leg.	man.	86%	3	0.5 mcm	man.	man.
<b>Italy</b>	79%	225	non HH	own.	leg.	100%	62	-	leg.	leg.
<b>Luxembourg</b>	57%	3	20GWh	man.	man.	72%	1	15mcm	man.	man.
<b>Netherlands</b>	100%	100	-	own.	leg.	100%	38	-	leg.	leg.
<b>Portugal</b>	100%	42	-	own.	acc.					
<b>Spain</b>	100%	210	-	own.	leg.	100%	20	-	leg.	leg.
<b>Sweden</b>	100%	135	-	own.	leg.	50% <sup>4</sup>	1	15mcm	acc.	acc.
<b>UK <sup>5</sup></b>	100%	335	-	own.	leg.	100%	95	-	own.	own.
<b>Norway</b>	100%	110	-	own.	leg./acc.					
<b>Estonia</b>	10%	1	40 GWh	leg.	leg.	95%	1	non HH	acc.	acc.
<b>Latvia</b>	76%	4	non HH	acc.	acc.	0%	0	-	acc.	acc.
<b>Lithuania</b>	n.k.		n.k.	leg.	leg.	70%	2	1mcm	acc.	acc.
<b>Poland</b>	52%	50	1 GWh	leg.	acc.	34%	4	15mcm	leg.	acc.
<b>Czech R</b>	47%	25	<sup>6</sup>	leg.	acc.	0%	0	-	none.	none.
<b>Slovakia</b>	66%	15	non HH	leg.	man.	34%	2	15mcm	man.	man.
<b>Hungary</b>	67%	22	non HH	leg.	acc.	69%	8	non HH	leg.	acc.
<b>Slovenia</b>	75%	10	non HH	leg.	acc.	91%	1	non HH	leg.	acc.
<b>Cyprus</b>	35%	1	350MWh	man.	none					
<b>Malta</b>	0%	0	n.a.		<sup>7</sup>					

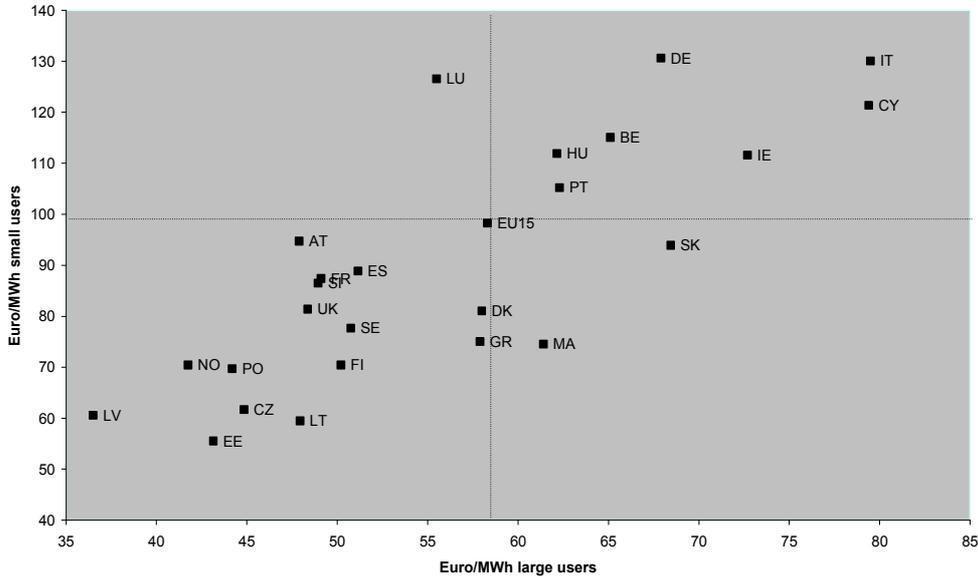
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- 1 Full market opening in the Flanders region. non households (non HH) in other regions
  - 2 some legal unbundling on a voluntary basis
  - 3 All customers in non-interconnected islands are non-eligible
  - 4 95% from 1 Jan 2005, all non-households
  - 5 In Northern Ireland, the electricity market is open to non-households.
  - 6 if hourly metered
  - 7 single buyer model

Electricity					Gas					
	Market opening	size of open market TWh	eligibility threshold	unbundling		Market opening	size of open market bcm	eligibility threshold	unbundling	
<b>Candidate Countries</b>										
<b>Romania</b>	33%	25	40GWh	leg.	man.	40%	5	3bcm	leg.	acc.
<b>Bulgaria</b>	22%	5	40GWh	acc.	acc.	82%	2	20bcm <sup>8</sup>	acc.	acc.
<b>Turkey</b>	29%	30	7.8GWh	leg.	acc.	80%	12	1bcm	leg.	leg.
<b>Croatia</b>	0%	0	-	none	none					
<b>Other Neighbouring Countries</b>										
<b>Bosnia</b>	0%	0	-	none	none					
<b>Serbia\Mont.</b>	0%	0	-	none	none					
<b>FYROM</b>	18%		100KV	none	none					
<b>Albania</b>	8%		50GWh	leg.	man.					
source: Information provided by Regulators/Member States										

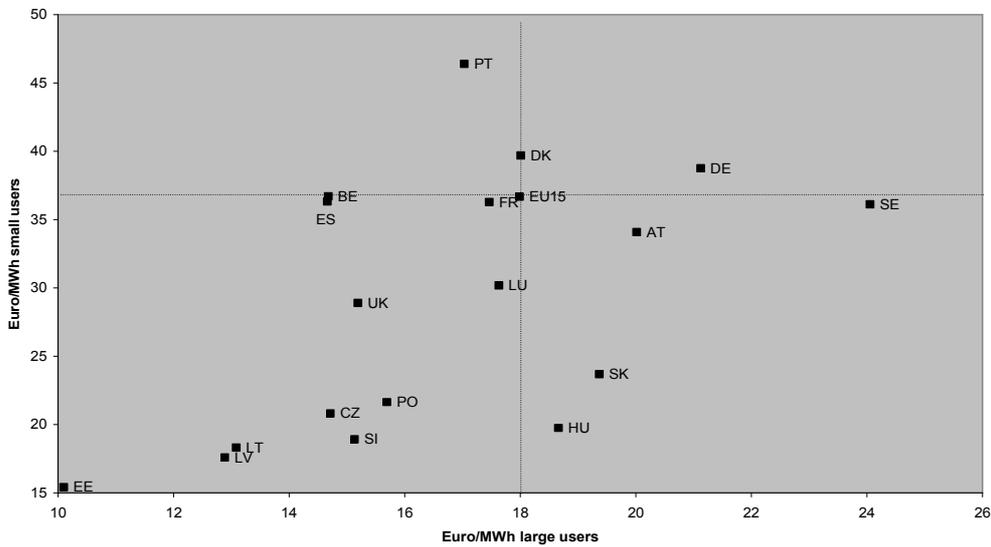
8 and all CHP producers and generators

## PRICE COMPARISONS

**Graph 1 End-user Electricity Price Comparison: July 2004<sup>9</sup>**



**Graph 2 End-User Gas Prices Comparison: July 2004<sup>10</sup>**



Source: Eurostat

<sup>9</sup> “Large”: average Eurostat price for Ie and Ig standard consumers. “Small”: average Eurostat price for Ib, Dc and Dd standard consumers. Prices are reported net of all taxes. Prices for Germany include municipal charges for rights of way.

<sup>10</sup> “Large”: average Eurostat price for I4 and I3 standard consumers. “Small”: average Eurostat price for I1, D3 and D2 standard consumers. Prices are reported net of all taxes.

## SWITCHING ESTIMATES: ELECTRICITY

	Large eligible industrial users <sup>11</sup>		Small commercial/ Domestic	
	since market opening	during 2003	since market opening	during 2003
<b>Austria</b>	22% <sup>12</sup>	7%	3%	1%
<b>Belgium</b>	35%	8%	19% <sup>13</sup>	19%
<b>Denmark</b>	> 50%	22%	5%	5%
<b>Finland</b>	> 50%	16%	n.k.	4%
<b>France</b>	22%	n.k.		
<b>Germany</b>	35% <sup>14</sup>	n.k.	6% <sup>15</sup>	n.k.
<b>Greece</b>	0%	0%		
<b>Ireland</b>	>50%	6%	1%	1%
<b>Italy</b>	c. 15%	n.k.		
<b>Luxembourg</b>	10%	n.k.		
<b>Netherlands</b>	30%	n.k.	35%	n.k.
<b>Portugal</b>	9% <sup>16</sup>	7%	1%	1%
<b>Spain</b>	18%	5%	0% <sup>17</sup>	0%
<b>Sweden</b>	>50%	5%	n.k.	10%
<b>UK</b>	>50%	n.k.	>50%	22%
<b>Norway</b>	>50%	15%	>50%	19%
<b>Estonia</b>	0%	0%		
<b>Latvia</b>	0%	0%		
<b>Lithuania</b>	17%	17%		
<b>Poland</b>	10%	7%		
<b>Czech R</b>	n.k.	n.k.		
<b>Slovakia</b>	10%	3%	4%	n.k.
<b>Hungary</b>	24%	19%		
<b>Slovenia</b>	10%	10%		
<b>Cyprus</b>	0%	0%		
<b>Malta</b>	0%	0%		
<b>Candidate Countries</b>				
<b>Romania</b>	24%	13%		
<b>Bulgaria</b>	0% <sup>18</sup>	0%		
<b>Turkey</b>	2%	2%		
<b>Croatia</b>	0%	n.k.		
<b>Other Neighbouring Countries</b>				
<b>Bosnia</b>	0%	0%		
<b>Serbia\Mont.</b>	0%	0%		
<b>FYROM</b>	0%	0%		
<b>Albania</b>	0%	0%		

source: Information provided by Regulators.

<sup>11</sup> in general this refers to clients consuming more than 1GWh/year

<sup>12</sup> 100% have renegotiated with their existing supplier

<sup>13</sup> Flanders region only

<sup>14</sup> The remaining approximately 65% have renegotiated with their existing supplier

<sup>15</sup> A further approximately 25-50% have renegotiated with their existing supplier

<sup>16</sup> Corresponds to 19% of high voltage customers' consumption

<sup>17</sup> Approximately 18% have renegotiated with their existing supplier

<sup>18</sup> 2-3 large customers have changed supplier during 2004

## SWITCHING ESTIMATES: GAS

	Large eligible industrial users		Small commercial/ Domestic	
	since market opening	during 2003	since market opening	during 2003
<b>Austria</b>	9%	9%	0.5%	0.5%
<b>Belgium<sup>19</sup></b>	60%	n.a.	4%	4%
<b>Denmark</b>	30%	3%	<sup>20</sup>	
<b>France</b>	25%	5%		
<b>Germany</b>	7%	n.k.	<2%	0%
<b>Ireland</b>	>50%	1%		
<b>Italy</b>	30%	n.k.	35%	35%
<b>Luxembourg</b>	<5%	n.k.		
<b>Netherlands</b>	c.30%	n.k.	2%	n.k.
<b>Spain</b>	>50%	22%	5%	5%
<b>Sweden</b>	n.k.	n.k.		
<b>UK</b>	>50%	19%	47%	13%
<b>Estonia</b>	20%	0%		
<b>Latvia</b>	0%	0%		
<b>Lithuania</b>	0%	0%		
<b>Poland</b>	0%	0%		
<b>Czech R</b>	0%	0%		
<b>Slovakia</b>	0%	0%		
<b>Hungary</b>	5%	5%		
<b>Slovenia</b>	0%	0%		
<b>Candidate Countries</b>				
<b>Croatia</b>	0%	0%		
<b>Romania</b>	>50%	>50%		
<b>Bulgaria</b>	0%	0%		
<b>Turkey</b>	n.k.	n.k.		

source: Information provided by Regulators.

<sup>19</sup> Large users: Flanders 90%, Wallonie 40%, Small users: Flanders only  
<sup>20</sup> around 3% of small commercial customers have changed supplier during 2004

## PRODUCTIVITY IMPROVEMENTS IN THE UTILITY SECTOR

Annual labour productivity growth electricity gas and water supply (% per annum 1990-2001, EU15 countries)

	1990-95	1995-2001
<b>Austria</b>	3.5	3.5
<b>Belgium</b>	4.4	6.3
<b>Denmark</b>	5.4	n.k.
<b>Finland</b>	7.9	5.4
<b>France</b>	2.2	3.6
<b>Germany</b>	3.5	6.2
<b>Greece</b>	2.0	5.5
<b>Ireland</b>	18.2	7.9
<b>Italy</b>	3.2	3.6
<b>Luxembourg</b>	5.2	5.4
<b>Netherlands</b>	1.9	4.5
<b>Portugal</b>	8.7	14.4
<b>Spain</b>	1.7	5.5
<b>Sweden</b>	1.6	0.6
<b>UK</b>	5.2	10.4

source: DG ENTR report<sup>21</sup>

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<sup>21</sup> EU productivity and competitiveness: An industry perspective  
[http://europa.eu.int/comm/enterprise/library/lib-competitiveness/series\\_competitiveness.htm](http://europa.eu.int/comm/enterprise/library/lib-competitiveness/series_competitiveness.htm)

## PRESENCE OF LARGEST COMPANIES IN SELECTED INDIVIDUAL MEMBER STATES

Company	Electricity		Gas	
	LARGEST	OTHER SIGNIFICANT	largest	OTHER SIGNIFICANT
Austria	VERBUND	RWE, EON, EDF	OMV	GDF, RWE
Belgium	E-BEL	EDF, ESSENT, NUON, CENTRICA	DISTRIGAS	ESSENT, NUON, CENTRICA
Denmark	ELSAM	E2, VF, EON	DONG	
Finland	FORTUM	VF, EON	GASUM	
France	EDF	E-BEL, ENDESA	GDF	TOTAL
Germany	RWE	EON, VF, EDF	EON	WINGAS, RWE, EXXON, SHELL
Greece	PPC		DEPA	
Ireland	ESB	NIE (Viridian)	BGE	RWE
Italy	ENEL	E-BEL, ENDESA, EDISON, VERBUND	ENI	EDISON
Netherlands	E-BEL	ESSENT, NUON, EON	SHELL	EXXON
Portugal	EDP	ENDESA	GDP	
Spain	ENDESA	IBERDROLA, EDP, ENEL, UNION FENOSA	GAS. NAT	BP, IBERDROLA, CEPSA
Sweden	VF	EON, FORTUM	EON	DONG,
UK		EDF, EON, RWE, CENTRICA	CENTRICA	SHELL, EXXON, BP, EON, EDF, RWE
Poland	BOT	PKE, PAK, E-BEL, EDF	PGNIG	
Czech R	CEZ	RWE, EON	RWE	EON
Slovakia	ENEL	TEKO, RWE, EDF, EON	SPP (GDF, EON)	
Hungary	MVM	EDF, EON, RWE	MOL	GDF, RWE, EON, ENI
Slovenia	HSE		GEOPLIN	

source: DG TREN estimates

## ANNEX 2    Unbundling and Network Access: Electricity

### Background

Fair network access conditions are crucial for the development of a competitive market. This refers to both the use of physical network access as well as for ancillary services such as the provision of balancing energy. In order to ensure this, the new Directives require regulation of the methodologies used to set charges for these services and the legal and functional unbundling of both transmission and distribution networks operators.

### Unbundling

Table 2.1 below shows the latest position for the unbundling of the electricity network businesses.

**Table 2.1    Unbundling of Network Operators: Electricity<sup>22</sup>**

	Basic unbundling model		Published accounts		Compliance officer <sup>23</sup>		Separate corporate identity		Separate locations		Total Yes
	TSO	DSO	TSO	DSO	TSO	DSO	TSO	DSO	TSO	DSO	
Austria	L	L	Y	Y	Y	Y	Y	N	Y	N	6
Belgium	L	L <sup>24</sup>	Y	Y	Y	Y <sup>25</sup>	Y	Y	Y	Y <sup>24</sup>	7
Denmark	L	L	Y	Y	Y	Y	Y	N	Y	N	6
Finland	O	A	Y	Y	Y	N	Y	N	Y	large	5½
France	L	M	Y	N	Y	Y	Y	N	Y	N	5
Germany	L	A	Y	Y	Y	N	Y	N	Y	partly	5½
Greece	L	N	N	N	N	N	Y	N	N	N	1
Ireland	L/M	M	Y	Y	N	Y	Y	Y	Y	N	6
Italy	O	L	Y	Y	Y	Y	Y	N	Y	N	6
Lux	M	M	Y	Y	N	N	N	N	N	N	2
Neth	O	L	Y	Y	Y	Y	Y	N	Y	N	6
Portugal	O	A	Y	Y	Y	Y	Y	N	Y	Y	7
Spain	O	L	Y	Y	Y	Y	Y	Y	Y	N	7
Sweden	O	L	Y	Y	Y	N	Y	Y	Y	Y	7
UK	O	L	Y	Y	Y	Y	Y	often	Y	Y	7½
Norway	O	L/A	Y	Y	Y	N	Y	N	Y	N	5
Estonia	L	L	Y	Y	Y	Y	N	N	Y	N	5
Latvia	A	A	Y	Y	Y	Y	N	N	Y	Y	6
Lithuania	L	L	Y	Y	Y	Y	Y	N	Y	Y	7
Poland	L	A	Y	N	N	N	Y	N	Y	N	3
Czech R	L	A	Y	Y	N	N	Y	Y	Y	N	5
Slovakia	L	M	Y	Y	N	N	Y	N	Y	?	4
Hungary	L	A	Y	Y	N	N	Y	N	Y	N	4
Slovenia	L	A	Y	Y	N	N	Y	N	Y	N	4
Cyprus	M	N	Y	N	Y	Y	N	N	N	N	3
Malta		A		Y		N		N		N	1

<sup>22</sup>    Ownership, Legal, Management, Accounts. L/M means system operator is legally unbundled, system owner management unbundled

<sup>23</sup>    If ownership unbundled, automatically set to “Y”

<sup>24</sup>    Brussels region not yet legally unbundled

<sup>25</sup>    not in Flanders region

<b>Candidate Countries</b>												
Romania	L	M	Y	Y	Y	N	Y	N	Y	Y	6	
Bulgaria	A	A	Y	Y	Y	Y	N	N	N	N	4	
Turkey	L	A	Y	Y	N	N	Y	N	Y	N	4	
Croatia	N	N	N	n.k.	N	n.k.	N	n.k.	N	n.k.	0	
<b>Other Neighbouring Countries</b>												
Bosnia	N	N	N	n.k.	N	n.k.	N	n.k.	N	n.k.	0	
Serb\Mont.	N	N	N	N	N	N	N	N	N	N	0	
FYROM	N	N	N	n.k.	N	n.k.	N	n.k.	N	n.k.	0	
Albania	L	M	Y	Y	Y	N	Y	N	Y	N	5	
source: Regulators												

These show that, for the transmission system, almost all Member States are compliant with the requirements of the Directive. There is also a relatively high degree of management unbundling of these companies in terms of the four indicators chosen.

Other than for their accounts, distribution system operators do not need to be unbundled until 2007 and a number of Member States have not yet taken this step. In addition, for most Member States distribution would appear to be still integrated with the supply businesses in management terms and these are still organised by municipal government agencies. Only a few have a separate corporate identity or location.

### Network Access

Strict rules on unbundling are required to ensure that network access charges are cost reflective and do not contain hidden cross subsidies. A key task of regulators is, therefore; too ensure that network operators do not earn excessive profits. Otherwise this may enable, for example, vertically integrated companies to run their affiliated supply business at a loss and allow predatory pricing. Regulators also need to ensure appropriate cost allocation on shared services and that tariff structures are non-discriminatory and apply equally to all network users, including affiliated and non-affiliated suppliers.

Table 2.2 below provides the latest available information from regulators on network tariffs currently being paid by a range of customers. These still show a significant degree of divergence, particularly for small commercial customers and households, which will be mainly reflective of differences in distribution charges. Some Member States appear to have network tariffs significantly above the average and the reason for this should be closely examined by regulators in their approval of tariff methodologies.

**Table 2.2 Network Access: Electricity<sup>26</sup>**

	Number of transmission companies	Number of distribution companies	Medium Voltage Estimated average total charge Eurostat Ig (€/MWh)	Low Voltage Estimated average total charge Eurostat Ib (€/MWh)	Estimated average total charge Eurostat Dc (€/MWh)
Austria	3	133	11	56	61
Belgium	1	27	14	50	58
Denmark	2	125	n.a.	23	42
Finland	1	104	16	32	40
France	1	166	12	40	48
Germany	4	950	9	55	62
Greece	1	1		Not available	
Ireland	1	1	17	44	50
Italy	1	170	11	52	36
Luxembourg	2	11		Not available	
Netherlands	1	20	11	31	36
Portugal	1	11	6	42	38
Spain	1	308	7	36	35
Sweden <sup>27</sup>	1	180	11	22	44
UK	2 <sup>28</sup>	15	15	35	30
Norway	1	150	13	27	30 <sup>29</sup>
Estonia	1	17	-	-	-
Latvia	1	7	18	42	38
Lithuania	1	7		Not available	
Poland	1	21	13	34	27
Czech Rep	1	360	12	32	32
Slovakia	1	3	22	33	32
Hungary	1	6	9	30	40
Slovenia	1	5	10	45	29
Cyprus	1	1		Not available	
Malta	0	1		Not available	
<b>Candidate Countries</b>					
Romania	1	8	10	18	18
Bulgaria	1	9	6	11	26
Turkey	1	9	10	11	11
Croatia	1	1		Not available	
<b>Other Neighbouring Countries</b>					
Bosnia	3	4			
Serb\Mont.	1	27			not covered in this report
FYROM	1	1			
Albania	1	1			

source: Regulators, DG Tren Analysis

<sup>26</sup> Charges are estimated excluding all taxes and levies. Both transmission and distribution charges are included

<sup>27</sup> Based on STEM examples: 5GWh, 30MWh, and 5000KWh consumers

<sup>28</sup> National Grid will shortly be appointed as system operator for Great Britain as a whole

<sup>29</sup> Based on a household with average consumption (18000KWh)

## Balancing

The conditions for the provision of balancing energy also make a vital contribution to the functioning of the electricity market. This is because electricity suppliers will not always be able to exactly match the quantity of power they inject into the network with the amount being used by their customers. This balancing service is fulfilled by the transmission system operators which, in turn, call on other generators in the market to provide the appropriate back-up. In the Directive, regulators are required to approve the methodology used to determine balancing prices. They may also intervene ex-post in requiring such charges to be revised.

There are two main models adopted for the trading of electricity on the wholesale market in the EU, which affect the way balancing is organised. Most Member States organise trading on the basis of bilateral contracts between generators and suppliers or between generators and large industrial users. Where a supplier has not purchased a sufficient amount to cover the needs of its customers in any period, that supplier is out of balance. It therefore has to pay for extra energy to be injected by the TSO. The TSO, in turn, procures this electricity from the other generators in the market through a market process known as a “net pool”.

The price paid by the out-of-balance supplier is often determined on the basis of the price at which the other generators offer balancing energy to the TSO. A further distinction is then whether there is a dual price system or a single price system. In the former, the price paid by suppliers which are “short” of energy is different to the price received by those which are “long” in energy. This maintains incentives on all suppliers to remain in balance. In a single price system, the same reference price is used for both “long” and “short” suppliers. In this case the TSO acts rather as a go-between through which those companies offering balancing energy buy from\ sell to other suppliers.

The other approach to electricity trading, mainly used in Spain is for **all** exchanges of electricity to be conducted via a “mandatory pool”.<sup>30</sup> This means that suppliers purchase all their energy in this way, including the energy required to cover any imbalances (both up and down) and, to an extent, the costs associated with balancing are socialised. Depending on how this is designed, this approach may tend to reduce the risks to new suppliers entering the market. At the same time, however, it may be a more costly scheme overall since network users have less incentive to minimise imbalances. A summary of the main balancing conditions is contained in Table 2.3 below.

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<sup>30</sup> Bilateral hedging contracts known as “contracts for differences” may be used between generators and suppliers if they wish to agree a bilateral arrangement based on a fixed price.

**Table 2.3 Electricity Balancing Arrangements**

	Balancing model <sup>31</sup>	Balancing period (minutes)	How are charges set	Single price or dual price system	Super-national (S) National (N) or regional (R) balancing	Intraday market possible	“Gate closure”	Dominant single generator within balancing area?	% of balancing energy supplied by non national sites during 2003
Austria	N	15	market	other	R	planned	day ahead	Y	0%
Belgium	N	15	regulated	D	N	yes	“ex-post”	Y	n.k.
Denmark	N	60	market	D	S	yes <sup>32</sup>	½ hour	N	25%
Finland	N	60	market	D	S	yes	½ hour	N	n.k.
France	N	30	market	D	N	yes	6during day	Y	n.k.
Germany	N	15	market	S	R	partial	3during day	Y	0%
Greece	N	60	TSO	S	N	no	day ahead	Y	4%
Ireland	N <sup>33</sup>	30	reg/mkt	D	N	no	day ahead	Y	n.k.
Italy	N/P	60	reg/TSO	D	R	no	day ahead	Y	0%
Lux						not available			
Neth	N	15	market	D	N	Y	1 hour	N	marginal
Portugal	N	60	regulated	D	N	Y	2during day	Y	0%
Spain	P	60	market	S	N	Y	2¼-3¼ hrs	N	0%
Sweden	N	60	market	D	S	Y	1 hour	N	n.k.
UK	N	30	market	D	N	Y	½ hour	N	n.k.
Norway	N	60	market	S	S	Y	1 hour	N	significant
Estonia	N	60	TSO	n.k.	S	N	day ahead	Y	0%
Latvia	N	60	TSO	n.k.	S	N	2 hours	N	0%
Lithuania	N	60	Reg/TSO	n.k.	N	Y	2 hours	Y	some
Poland	N	60	market	D	N	N	day ahead	N	0%
Czech R	N	60	market	n.k.	N	Y	1½ hours	Y	0%
Slovakia	N	60	regulated	n.k.	N	N	day ahead	Y	25GWh
Hungary	N	15	regulated	S	N	N	day ahead	Y	0%
Slovenia	N	60	market	D	N	N	day ahead	Y	0%
Cyprus	N	30	TSO	n.k.	N	N	6 hours	Y	no
Malta						not applicable, only one generation company			
<b>Candidate Countries</b>									
Romania	N	60	market	n.k.	N	N	day ahead	N	0%
Bulgaria	N	60	regulated	n.k.	N	N	day ahead	N	0%
Turkey	N	300-660	market	n.k.	N	N	day ahead	N	n.k.
Croatia	not available								

source: Regulators, ETSO “Current State of Balance Management in Europe”, Dec 2003

Balancing arrangements may cause problems for new suppliers for a number of reasons. For example, if the price for balancing energy is determined in a market framework, and there are

<sup>31</sup> N – bilateral trading and “net Pool” balancing market, P – “gross Pool”

<sup>32</sup> for Denmark east region

<sup>33</sup> expected to shift to mandatory pool in 2005

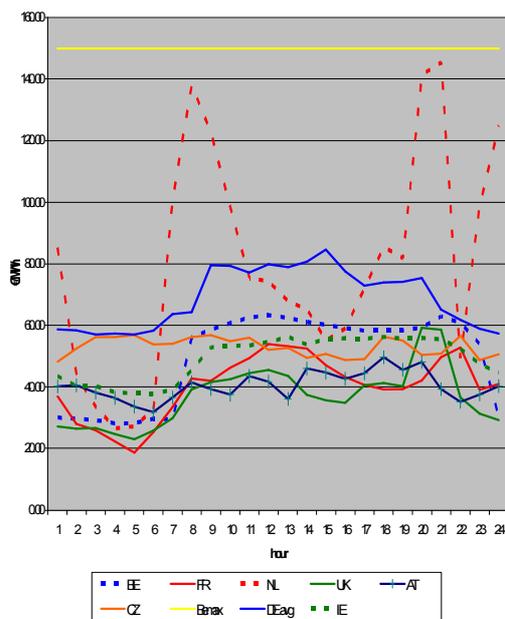
only one or two generators in a position to provide balancing services, the price charged may be unreasonable.

The graphs below show an example of the prices paid for balancing energy in selected Member States during the month September 2004. The graph on the left shows the price paid **to** TSOs in the event that the supplier does not have electricity injected to cover demand. The graph on the right shows the price paid **by** TSOs in the event that too much electricity has been injected by a particular supplier. The further these two prices are apart, the greater the potential costs to suppliers where unexpected events occur.

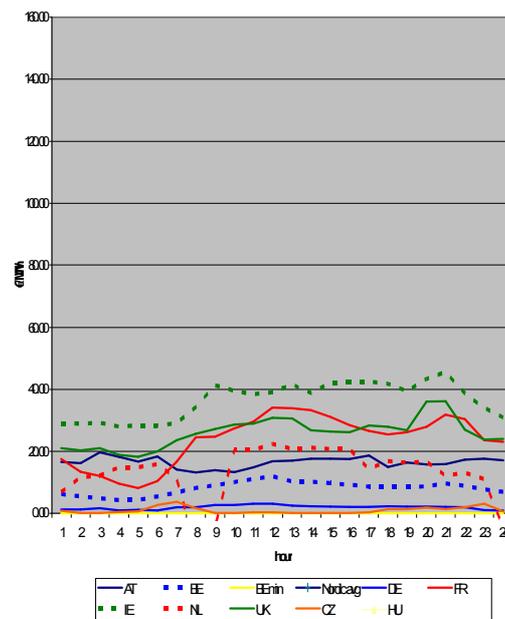
These graphs shows unfavourable conditions in a number of Member States, in particular where there are large differences between the buy and sell price prevailing in the country concerned. High prices to buy energy at periods of low demand, for example during the night need to be carefully examined by regulators when they assess the methodology being used to determine these.

**Graph 2.1 Prices for balancing energy in selected Member States, average for 1-30 September 2004**

**Paid to TSO for balance upwards**



**Paid by TSO for balance downwards**



source: TSO websites

note; BEmax is the price paid/received in Belgium if the imbalance exceeds a certain threshold

Problems raised by large differences between the buy and sell price are exacerbated if there are insufficient opportunities for a supply company to minimise its imbalances through normal trading. If nominations cannot be modified close to real time and there is no intraday market, the supplier may find itself penalised for a imbalance that it could have resolved if more time was available. Even if trading opportunities are available, the concentrated structure in many Member States may also put new entrants at a disadvantage since they are forced into an unsatisfactory choice between trading with their main incumbent competitors, or being subject to balancing charges which their competitors also have a strong role in determining.

In such circumstances direct regulatory involvement may be preferable. However at the very least, balancing markets need close regulatory supervision to ensure that the incumbent companies are not abusing their dominant position in the balancing market. In some cases it is still seen as appropriate for regulators to directly control the price at which balancing services are provided.

In the medium term, significant improvements could be realised by integrating smaller balancing areas into larger blocks, both within and between Member States. This would improve the market structure considerably. The Nordic market has a partially integrated balancing market and measures are being considered between Germany and Austria. The introduction of demand side bidding has also been shown to bring about significant benefits.

**Conclusions**

Network Access conditions will need to be carefully overseen by national regulators to ensure non-discrimination. Suppliers need to have the confidence that the conditions they face in using the network are identical to those faced by other network users, including companies which are affiliated to the operators of those networks. The information reviewed above on network access and unbundling issues can be summarised in the table below.

**Table 2.4 Summary of Regulated Third Party Access**

Network Access	LARGE USERS	SMALLER USERS
network tariffs out of line with norm or not available <sup>34</sup>	GR <sup>35</sup> , LU	AT, BE, DE, GR, IT, LU
<b>Balancing</b>		
balancing regime favourable\ prices in line with norm	DK, FI, SE, UK, NO, IE, ES,	
some favourable elements	AT, FR, IT, NL, PT, LT, LV, CZ, SK, HU, SI	
out of line with norm or unclear	DE, BE, GR, EE, PL	

<sup>34</sup> out of line implies a tariff significantly above €15/MWh for a large user connected at medium voltage and significantly above €40/MWh for a small users connected at low voltage.

<sup>35</sup> distribution network tariffs are not available in Greece at present.

The unbundling of distribution system operators from supply companies would still appear to be inadequate to ensure competition in many Member States, particularly for households and small commercial customers. It is this area of restructuring which now needs to be the focus of Member States and regulators.

Regulators should also work towards a more liquid and reliable market for balancing energy to prevent suppliers being faced with potentially penal charges. Suppliers should also be given more chance to remove their imbalances through intra-day trading. Greater integration of intraday and balancing markets would assist this objective. It would appear, in some cases at present, that suppliers operating outside their traditional areas are exposed to excessive risks relating to balancing and that an improvement in this area would considerably facilitate the functioning of the internal market.

## **ANNEX 3 Competition in the Electricity Sector**

### **Background**

A successful competitive market is more likely to develop where there are a sufficient number of players in both the generation and supply market. Where only a small number exist, the market may lack credibility with final customers and there will inevitably be concerns that prices are not determined competitively. This may then mean greater regulation of wholesale and retail markets than is necessary or desirable. This is why it is of the highest importance to establish a really integrated European energy market with the minimum of physical constraints and with no artificial barriers to trade such as market rules, access to grid conditions and customer switching practices. This would result in a significantly higher number of potentially competitive market participants.

### **Generation Market Structure**

The key to the overall market structure is the generation sector. Experience in the electricity market to date has shown that there is a general tendency for integration between generation companies and supply companies in order to avoid exposure to risk. It therefore seems likely that, without regulatory intervention, the market structure in generation will be reflected into the structure of retail supply.

Therefore, where generation capacity is concentrated in the hands of one, or a few companies, it is likely that the real possibility of consumers to switch supplier will be limited. This may in turn affect the performance of the market since companies will be able to keep prices higher than otherwise without fear of losing their share of the market.

### **Development of liquid wholesale markets**

Liquid wholesale markets are an important component of competition in the electricity market. They are important since they offer the possibility for companies to purchase or sell electricity on reasonable terms in the event that their generation and supply portfolios do not match, for example where plant is offline or still being built. Without liquid markets, companies inevitably have to turn to other generators on an individual basis to provide such a back-up service. This means they, in effect, have to buy from their competitors, which will put new entrants at a significant disadvantage.

Establishing a liquid market is much easier if there are a sufficient number of competitors since, in this case, there would be a general desire of all market actors to trade in such a way and no company would be able to gain an advantage through restricting the amount of capacity that it made available to other companies for purchase. This is something of an idealised solution and even well developed markets have to be carefully monitored to ensure companies are not seeking to take advantage of a privileged position in a certain location or time period.

For those Member States with companies with very dominant position, it may be that their bidding behaviour into the market needs to be carefully monitored and regulated. Measures such as virtual power plant auctions are a form of regulated bidding and have helped create some liquidity in markets such as France.

**Table 3.1 Wholesale Market development**

	Total consumption TWh	Volume traded in power exchange TWh	Volume traded in standardised OTC market TWh		Total consumption TWh	Volume traded in power exchange TWh	Volume traded in standardised OTC market TWh
Austria	54	1	n.k.	Estonia	5	-	-
Belgium	78	-	-	Latvia	5	-	-
France	393	8		Lithuania	8	1.5	-
Germany	499	39	342	Poland	103	1	-
Netherlands	100	15	n.k.	Czech R	51	-	-
Italy	282	15	56	Slovakia	23	-	-
Spain	207	204	4	Hungary	31	-	-
Portugal	43	-	6	Slovenia	12	0.4	-
UK	333	35	2200				
Ireland	22	-	-				
Norway							
Sweden							
Denmark	350	120	1200				
Finland							

source: Regulators' and electricity market participants' submissions

The degree of liquidity in spot markets and bilateral markets is summarised in Table 3.1 below. Ideally, spot markets should have enough liquidity to give a reliable and transparent price signal. Meanwhile trading in “over the counter” (OTC) markets normally needs to be several times the volume of actual consumption in order for participants to trade without risking that particular individual transactions cause a shift in the market. The normal benchmark from other commodity markets is that the volume of trade should be roughly 10 times the amount of physical deliver. Table 3.1 above shows that only a few markets, that is the UK and Nordic markets, are approaching this level.

### Interconnection and development of regional markets

Building larger markets would help correct some of the problems associated with an inappropriate market structure. For example, as part of a larger regional market, the market positions of big incumbents such as EDF, EON and RWE would be smaller. Integration of national electricity markets requires additional infrastructure as well as clear and consistent rules concerning the allocation of capacity and the interaction of congestion management with the electricity wholesale market.

As demonstrated in Table 3.2 below, the current levels of interconnection capacity remain at a rather low level when compared with the scale of the market power issues outlined in the section above. Furthermore, in comparison with the Nordic market, the degree of interconnection in other nascent regional markets is much lower in several cases.

**Table 3.2 Interconnection and Market Structure**

	Installed generation capacity (GW) <sup>36</sup>	Import capacity <u>NTC</u> <sup>37</sup> (GW)	Import capacity as % of installed capacity		Installed generation capacity (GW)	Import capacity <u>NTC</u> (GW)	Import capacity as % of installed capacity
	a	b	b ÷ a		a	b	b ÷ a
Belgium	16	4.6	29%	Estonia	3	2.0	66%
France	112	14.0	13%	Latvia	3	3.6	100%
Germany	109	12.2	11%	Lithuania	6	3.1	50%
Lux	1	1.0	90%				
Neth	20	4.7	17%	Poland	34	3.5	10%
Austria	18	4.3	24%	Czech R	16	3.5	23%
Italy	80	6.0	8%	Slovakia	8	3.0	37%
				Hungary	8	3.1	38%
Portugal	12	1.0	8%	Slovenia	3	2.1	68%
Spain	56	2.2	4%				
				Greece	13	1.5	12%
UK	80	2.3	3%	Romania	22	3.5	16%
Ireland	5	0.3	6%	Bulgaria	10	2.0	20%
				Turkey	28	1.9	7%
Norway	23	4.2	18%	Croatia	4	2.3	55%
Sweden	27	7.8	29%	Bosnia	2	0.9	45%
Denmark	8	4.0	50%	Serbia\Mon	15	4.2	28%
Finland	14	1.9	14%	FYROM			
				Albania	2	0.5	25%

### Current Market Structure

Table 3.3 overleaf depicts the current market structure in a selection of national and regional markets. Successful markets, such as the Nordic and UK market, have between five and ten major competitors, plus a range of fringe companies in the generation sector. In these circumstances it would appear that customers have a reasonable appreciation that a competitive market exists, both when prices are increasing as well as when they are falling. In other countries and regions market structure is less advantageous, particularly where individual Member States' electricity markets are not sufficiently integrated with each other.

Furthermore, many of the electricity generation markets in new Member States are characterised by the continuation of long term power purchase agreements. Thus, although there might appear to be a reasonable number of generation market participants in, for example Poland or Hungary, there is in fact very little scope for competition. The challenge for these countries is to both restructure these contracts and to achieve greater integration of their markets.

<sup>36</sup> UCTE July 2003 forecast, Nordel winter 2003-4 forecast, NGC and ESBNG 7 year statement.

<sup>37</sup> Based on ETSO Winter 2004-05 NTC data, includes capacity from Switzerland and South East Europe, excludes Morocco Ukraine and Russia

The integration of individual electricity markets makes an important contribution to customers' confidence in the market. In particular it will lead to an increase in the liquidity of wholesale markets, greater credibility of the prices that result, and a larger range of different contract structures.

**Table 3.3 Generation Market Structure<sup>38</sup>**

	Generation Largest producer by capacity	Top 3 producers by capacity
Austria	45%	75%
Germany	30%	70%
Belgium	85%	95%
Neth.	25%	80%
Lux	n.a.	n.a.
Denmark		
Finland		
Sweden	15%	40%
Norway		
France	85%	95%
Greece	100%	100%
Ireland	85%	90%
Italy	55%	75%
Portugal	65%	80%
Spain	40%	80%
UK	20%	40%
Estonia	90%	100%
Latvia	95%	100%
Lithuania	50%	80%
Poland <sup>39</sup>	15%	35%
Czech R	65%	75%
Slovakia	75%	85%
Hungary	30%	65%
Slovenia	70%	95%
Malta	100%	100%
Cyprus	100%	100%

**Wholesale market developments and market surveillance**

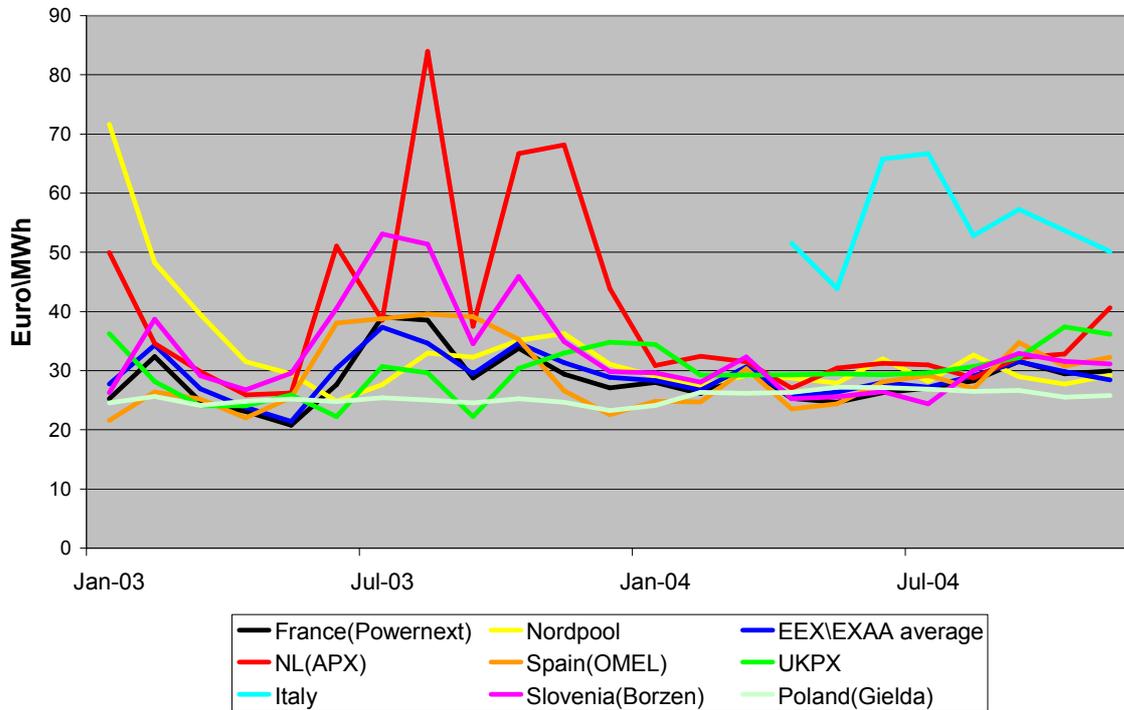
Recent price developments in wholesale markets have been the subject of much discussion. As shown by the graphs below, prices in these markets have increased from roughly €20-25/MWh in early 2003 to around €30-35/MWh today. Although prices have been volatile, a much more stable pattern has emerged since the beginning of 2004.

<sup>38</sup> rounded to nearest 5%

<sup>39</sup> Consolidation is currently occurring in Poland.

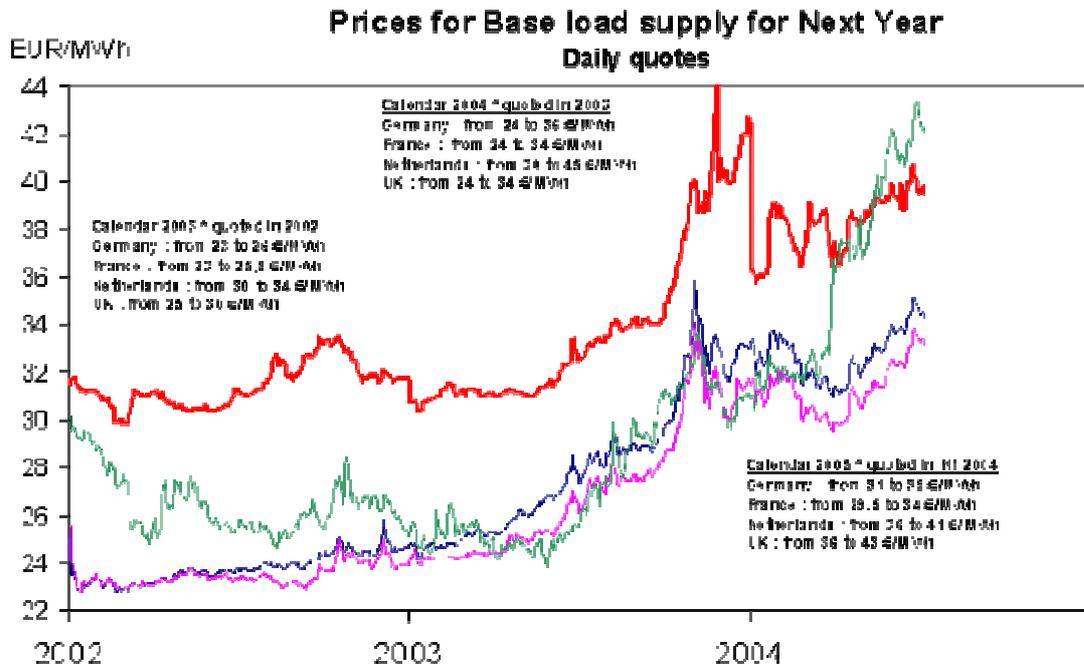
**Graph 3.1 Wholesale electricity prices: day-ahead spot price**

**July 2002 – November 2004**



source: relevant power exchange websites

**Graph 3.2 Wholesale electricity prices: Forward base-load for calendar year ahead**



source: IFIEC: Germany (blue), Netherlands (red) France (pink) UK (green)

However, forward prices for electricity to be delivered on a “year-ahead” basis demonstrated a significant increase in 2003 which has also continued into 2004 especially in the Dutch and UK markets. Prices have also increased in the non-standardised bilateral OTC market reported by market monitoring agencies. These increases appear to be the result of very high natural gas prices expected for the winter 2004-05 period in the UK which was the subject of an investigation from the regulator.

Price increases are always likely to be questioned by consumers and there may be concerns about market power. Such concerns may arise naturally from the market structure and way the market is organised in each Member State without there necessarily being any illicit behaviour. Alternatively, the possibility exists that market participants are deliberately acting in a way to inflate prices directly or indirectly by influencing other competitive conditions. Clearly, at the same time, price movements might also be caused by shifts in the supply-demand position as well as overall trends in global energy prices.

Therefore, the situation needs to be closely monitored. In most cases, this type of market surveillance is the task of the competition authority in the Member States concerned, although the regulatory authority is usually consulted or involved in some other way. These are summarised in Table 3.4 below, including an indication of the quantity and nature of investigations and enquiries into competition issues.

**Table 3.4 Interaction between Competition Authorities \ Regulators in Electricity Markets**

	Role of regulator in Competition Law <sup>40</sup>	Monitoring of wholesale\balancing market	Number of investigations	Nature of cases	Outcomes involving penalties/remedies
Austria	A	regulator	2	Retail market	0
Belgium	A	regulator studies	0	-	-
Denmark	N	TSO (Nordpool), Comp. Auth	4 <sup>41</sup>	Wholesale market	1
Finland	N	TSO	0	-	-
France	C	regulator	1	Wholesale market	0
Germany	N	Comp Authority (BKA)	>10	Network access, Balancing	remedies
Greece	N	none	0	-	-
Ireland	A	regulator	0	-	-
Italy	A	regulator	0	-	-
Lux				-	-
Neth	C	regulator	ongoing	Wholesale market	n.k.
Portugal	A	regulator	0	-	-
Spain	A	regulator	1	Wholesale market	penalty
Sweden	A	TSO	“some”	Wholesale market	-
UK	C	regulator	0	-	-
Norway	A	TSO	>10	Wholesale market	1
Estonia	N	none	0	-	-
Latvia	C	none	0	-	-
Lithuania		none	0	-	-
Poland	A	regulator	1	Balancing	remedy
Czech R	N	none	0	-	-

<sup>40</sup> A – advisory, C – concurrent powers\ regulator within competition authority, N –limited or no formal role

<sup>41</sup> 1 referred to Danish Competition Authorities by Nordpool, 3 merger cases

Slovakia	N	none	0	-	-
Hungary	A	regulator	0	-	-
Slovenia	A	regulator	0	-	-
Cyprus	N	none	0	-	-
Malta	A	regulator	0	-	-

source: Based on Submissions from regulators

Many countries are trying to consider how, in future, to deal with the problem of concentration other than structural remedies such as divestment or capacity release. Greater transparency from generation companies about the projected availability of capacity, and guidelines on bidding behaviour of dominant generators would appear to be a possible avenue for a regulatory solution to the question of market concentration. Whereas for severe concentration problems, longer arrangements such as virtual power plant auctions also have potential. Without such solutions it seems likely that the main tool will still be the retention of price caps for end users which are prevalent in most Member States, which have the obvious risk of negating some of the benefits that competition is expected to deliver.

### Trends in retail markets

As already noted it is expected that, over time, retail markets will come to be dependent on the market structure on the generation side. This is already true to a large extent judging from the information set out in Table 3.5 below. However, in some cases, the municipal suppliers retain a substantial share of the market, even if they are usually dependent on the main generation companies. Some consolidation might be expected over time.

**Table 3.5 Market shares retail supply**

	Number active licensed suppliers	Number of suppliers independent of DSO	Number with market share > 5%	Top 3 suppliers' share (all consumers) <sup>42</sup>	Market share of foreign owned suppliers
Austria	144	19	4	67%	2%
Belgium	41	17 <sup>43</sup>	2	c. 90%	<10%
Denmark	69	23	5	67%	n.k.
Finland	70	8	6	30%	25%
France	20-25	15	1	88%	9%
Germany	1050	100	3	50%	c. 20%
Greece	10	9	1	100%	0%
Ireland	9	7	4	88%	12%
Italy	305	270	6	35%	n.k.
Lux	12	1	2	100% (2)	0%
Neth.	37	16	3	88% <sup>44</sup>	18%
Portugal	4	3	3	99%	33%
Spain	70	62	5	85%	8%
Sweden	127	127	4	70%	39%
UK	80	66	6	60%	50%
Norway	130	70	4	44%	2%
Estonia	17	1	1	?	3%
Latvia	14	4	1	99%	0%

<sup>42</sup> includes both eligible and non-eligible markets

<sup>43</sup> Although independent, the two most important suppliers have strong ownership links with DSO's

<sup>44</sup> for household customers

Lithuania	21	14	1	100% (1)	0%
Poland	357	328	3	32%	17%
Czech R	370	0	8	46%	n.k.
Slovakia	25	21	4	84%	28%
Hungary	26	20	7	56%	97%
Slovenia	76	71	6	71%	20%
Cyprus	1	0	1	100%(1)	0%
Malta	1	0	1	100%(1)	0%
<b>Candidate Countries</b>					
Romania	55	47	1	45%	1%
Bulgaria	9	0	n.k.	52%	0%
Turkey	8	0	2	85%	0%
Croatia	n.k.	n.k.	n.k.	n.k.	n.k.
<b>Other Neighbouring Countries</b>					
Bosnia	4	0	3	n.k.	n.k.
Serb\Mont.	11	0	n.k.	72%	0%
FYROM	1	0	1	n.k.	n.k.
Albania	1	0	1	100%	0%

Source: Eurostat: Regulators' Survey Responses

## Conclusions

Competition continues to develop in the electricity sector in the majority of Member States. In some cases, however, this development has been disappointing and there are some signs of stagnation and a lack of innovation on the part of suppliers. The summary table relating to market structure below shows an unsatisfactory position in most Member States.

**Table 3.6 Summary of Market Structure: Significant Market Participants<sup>45</sup>**

	Generation	Supply
six or more	UK, Nordic, PL	UK, Nordic, IT, CZ
three to six	AT, DE, BE, NL, LU, IT, ES, PT, CZ, SK, SI, HU,	AT, DE, IE, NL, PT, ES, PL, SK
less than three	FR, GR, IE, CY, MT, EE, LT, LV	BE, FR, GR, LU, EE, LV, LT, CY, MT

One consequence of this market structure are concerns that suppliers are becoming more conservative and are unwilling to venture out of their traditional areas or to offer a contract based on a stable long term price rather than the spot market. This is a sign that the market that is not functioning properly since suppliers should feel as comfortable serving customers in any part of the single market. They should also be prepared to negotiate with customers to find a mutually advantageous deal. It is crucial, especially as prices have risen in recent years, that customers have confidence in the functioning of the market.

Member States need to follow an active competition policy. If structural remedies to dominance cannot be implemented immediately, then measures to ensure fair and transparent bidding in wholesale and balancing markets are imperative. A dominant position in generation risks foreclosing the supply market.

<sup>45</sup> Some Member State have been grouped into regions where appropriate.

## ANNEX 4 Unbundling and Network Access: Gas

### Background

As with electricity, fair network access conditions are crucial for the development of a competitive market. This refers to both the use of physical network access as well as the provision of ancillary services such as the provision of balancing energy. In order to ensure this, the new Directives require regulation of the methodologies used to set charges for these services and the legal and functional unbundling of both transmission and distribution networks operators.

### Unbundling

The basis for ensuring non-discriminatory access to networks is the unbundling provisions in the second gas Directive. This required legal unbundling for transmission networks by 2004 and for distribution by 2007. Table 4.1 below shows the latest position for the unbundling of the gas network businesses.

**Table 4.1 Network Unbundling: Gas**

	Basic Model		Unbundling		Published accounts		Compliance officer		Separate corporate identity		Separate HQ location		Total Y
	TSO	DSO	TSO	DSO	TSO	DSO	TSO	DSO	TSO	DSO	TSO	DSO	
Austria	L	L	Y	Y	Y	Y	Y	N	Y (3/7)	N			5½
Belgium	L	L	Y	Y	Y	Y <sup>46</sup>	Y	Y	Y	Y	Y	Y <sup>48</sup>	7
Denmark	O	L	Y	Y	Y	N	Y	N	Y	N	Y	N	5
France	L	A	N	N	Y	Y	Y	N	Y	N	Y	N	4
Germany	A	A	N	N	N	N	N	N	N	N	N	N	0
Ireland	M	M	N	N	Y	Y	N	N	N	N	N	N	2
Italy	L	L	Y	Y	N	N	Y	N	Y	N	Y	mixed	5
Lux	M	M	Y	Y	Y	N	N	N	N	N	N	N	3
Neth	L	L	Y	Y	Y	Y	Y	N	Y	N	Y	N	6
Spain	L	L	Y	Y	Y	Y	Y	N	Y	N	Y	N	6
Sweden	A	A	Y	Y	N	N	N	N	N	N	N	N	2
UK	O	O	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	8
Estonia	A	A	N	N	Y	Y	N	N	N	N	N	N	2
Latvia	A	A	N	N	N	N	N	N	Y	Y	Y	Y	2
Lithuania	A	A	Y	Y	Y	Y	N	N	N	N	N	N	4
Poland	L	A	N	N	N	N	N	N	N	N	N	N	0
Czech R	N	N	N	N	N	N	N	N	N	N	N	N	0
Slovakia	M	M	N	N	N	N	Y	N	N	N	N	N	1
Hungary	L	A	Y	Y	N	N	Y	N	Y	N	Y	N	4
Slovenia	L	A	Y	N	N	N	N	N	N	N	N	N	1
<b>Candidate Countries</b>													
Romania	L	A	Y	Y	N	N	Y	N	N	N	Y	Y	4
Bulgaria	A	A	Y	Y	Y	N	N	N	N	N	N	N	3
Turkey	L	L	Y	Y	N	N	Y	N	Y	N	Y	N	4
Croatia	not available												
source: Regulators' Survey responses													

<sup>46</sup> not in Flemish region

The table demonstrates that significant progress still remains to be made for full compliance with the provisions of the Directive and it can be stated that progress within Member States is significantly behind that for electricity. Infringement procedures may well be necessary regarding these Member States which will continue until the unbundling requirements are met. However it is expected that, during 2005, significant progress will be made, especially for transmission. Member States, in general, appear unwilling to implement legal unbundling of distribution companies at this stage, in advance of the required deadline.

### **Network Access**

Among other things, strict rules on unbundling are necessary to ensure that network access charges are cost reflective and do not contain hidden cross subsidies. A key task of regulators is therefore to ensure that network operators do not earn excessive profits. Otherwise this may, for example, enable vertically integrated companies to run their affiliated supply business at a loss and allow predatory pricing. Regulators also need to ensure appropriate cost allocation on shared services and that tariff structures are non-discriminatory and apply equally to all network users, including affiliated and non-affiliated suppliers.

Table 4.2 below provides the latest available information from regulators on network tariffs currently being paid by a range of customers. These still show a significant degree of divergence. Member States appear to have network tariffs (especially in the distribution segment) significantly above the average and the reason for this should be closely examined by regulators in their approval of tariff methodologies. More and more emphasis must also be laid on the charging aspect in the distribution areas as these account for a significant element of final bills.

The structure of tariffs is also important, particularly for transmission. Many Member States' TSOs have now introduced entry-exit systems which appear to be more conducive to a competitive market and allow for greater coherence between Member States. Further progress is needed in this field in order to make the transmission of gas more understandable at a European level.

Postalised tariffs are also widely used in many Member States. Although this is a simple system, its general application may lead to a risk of pancaking for transactions affecting more than one TSO or Member State as the more TSOs affected, the higher the charge will be. In general, only the smallest Member States and those where there is no predictable aggregate direction of flow could a purely postalised system be seen as fully cost reflective, although in some cases it may be a reasonable approximation.

**Table 4.2 Gas Network Tariffs**

	number of transmission companies		tariff structure <sup>47</sup>	Number of distribution companies	Estimated networks charges (€/MWh)		
	national	regional			Eurostat category I4	Eurostat category I1	Eurostat category D3
Austria <sup>+</sup>	3	4	entry-exit	20	2.0-3.0	10.0	13.0
Belgium	1	0	entry-exit	19	2.0	4.5	10.5
Denmark <sup>+</sup>	1	0	entry-exit	4	2.0	6.0	n.k.
France	3	0	entry-exit	22	1.0 <sup>48</sup>	9.5	13.0
Germany <sup>+</sup>	15	20	mixed <sup>49</sup>	730	2.5	10.5	n.k.
Ireland	1	0	entry-exit	1	4.5	14.0	
Italy	2	0	entry-exit	557	2.5	n.k.	8.0
Luxembourg	1	0	postalised	4	1.0		
Netherlands	1	0	entry-exit	27	1.0	2.5	3.0
Spain	3	6	postalised	25	2.5	11.0	21.5
Sweden <sup>+</sup>	1	2	postalised	7	5.0		
UK	1	0	entry-exit	1	2.5	4.5	6.5
Estonia	0	0	postalised	11	n.k.		
Latvia	1	0	postalised	1	3.5	4.0	4.0
Lithuania	1	0	postalised	5	4.2	6.2	8.7
Poland	1	6	postalised	68	5.0	8.0	8.0
Czech R	1	0	n.k.	124	n.k.		
Slovakia	1	0	postalised	1	6.5	8.0	
Hungary	1	0	postalised	11	2.5	5.5	5.5
Slovenia	1	0	postalised	17	1.1		
<b>Candidate Countries</b>							
Romania	1	0	postalised	21	2.5	2.5	2.5
Bulgaria	1	0	postalised	30	1.1	7.0	12.5
Turkey	1	0	postalised	24	2.5	4.5	4.5
Croatia				not available			

source: CEER Monitoring Reports: 8<sup>th</sup> Madrid Forum, July 2004

rounded to nearest €0.5/MWh

+ No data submitted by regulators. Estimates based on those in 3<sup>rd</sup> draft benchmarking report.

Finally, the flexibility of capacity reservation procedures also makes an important contribution to the scope for a competitive supply market. Rules need to allow network users to change their position frequently and allow equal opportunities to all market participants to use the network. This is reviewed in Table 4.3 below.

<sup>47</sup> point to point charges remain in place for some existing transit contracts: e.g. Austria

<sup>48</sup> Assuming connected direct to transmission, all based on entry Tasniere, exit Paris

<sup>49</sup> both BEB and Ruhrgas have very recently introduced access regimes with some entry-exit elements.

**Table 4.3 Gas Network Access Conditions: Compliance with Madrid Guidelines**

	Minimum booking period firm service	Minimum period interruptible services	type of booking	capacity	capacity allocation rule decided by:	allocation method	use it or lose it?
Austria	1 day\ 1 month <sup>50</sup>	1 month	entry-exit		TSO	fcfs	yes
Belgium	1 week	1 year	point-point		regulator\TSO	fcfs	yes
Denmark	1 day	1 day	entry-exit		regulator\TSO	fcfs	yes
France	1 month	1 year	entry-exit <sup>51</sup>		regulator\TSO	fcfs	yes
Germany	1 day	1 day	mixed		TSO	fcfs	partial
Ireland	1 year	not offered	point-point		regulator\TSO	fcfs	yes
Italy	1 year	1 day	entry-exit		regulator	fcfs	yes
Luxembourg	1 year	not offered	entry-exit		TSO	fcfs	no
Netherlands	1 day	1 day	entry-exit		TSO	fcfs	yes
Spain	no minimum	not offered	entry-exit		regulator	fcfs	yes
Sweden	1 year	not offered	point-point		regulator\TSO	fcfs	no
UK	1 day	1 day	entry		regulator\TSO	auction	yes
Estonia	1 day	not offered	n.k.		TSO	fcfs	short term
Latvia	n.k.	not offered	n.k.		n.k.	n.k.	no
Lithuania	1 day	not offered	n.k.		regulator	“other”	yes
Poland	1 month	1 month	n.k.		TSO	fcfs	no
Czech R	n.k.	n.k.	n.k.		n.k.	n.k.	n.k.
Slovakia	1 year	not offered	point-point		TSO	n.k.	no
Hungary	3 days	3 days	entry-exit		TSO	auction	no
Slovenia	1 day	not offered	n.k.		regulator\TSO	fcfs	no

**Candidate Countries**

Romania  
Bulgaria  
Turkey  
Croatia

not covered in this report

source: CEER Monitoring Reports: 8<sup>th</sup> Madrid Forum, July 2004

**Balancing**

Balancing rules are one of the most important aspect of whether granted third party access is effectively non-discriminatory and whether a given market/region offers realistic opportunities for market participants, especially for potential new market entrants. The costs of getting the commodity to the end-use customer should be predictable in advance, including the possible financial risks in the event that some problem occurs in the supply chain, or in case of unexpected demand patterns.

The financial risks stem in part from the respective balancing rules. As gas physically travels from production sites to its final consumption destination, it is often necessary for a market participant to take into account several balancing regimes to cover full market risk and hedging possibilities along the chain are generally more limited than in electricity markets. It is also more challenging to realise portfolio effects with respect to supply diversity. It is therefore important for all market participants to know well in advance all elements of the respective balancing market regime. Charges for imbalances must be either market based

<sup>50</sup> 1 month for transit, 1 day for domestic flow.

<sup>51</sup> within individual zones

and/or reflective of the real costs of managing the network rather than being based on arbitrary penalties.

**Table 4.4 Summary of Gas balancing rules**

	Balancing period	Conditions set/approved by	Tolerance bands	Premium for "short" imbalance over tolerance band (x market price)	Pooling and trading allowed
Austria	hourly	market	no	market based price	ex-post
Belgium	daily	TSO/regulator	10%	+140-180%	ex-ante
Denmark	daily	TSO/regulator	15%/5%	+20%	ex-ante
France	daily	regulator	20%	+50%	ex-ante
Germany	hourly/daily	TSO	15%	+100-420%	ex-ante
Ireland	daily	TSO/regulator	3%	+40% max	ex-post
Italy	daily	regulator	8%	+10% max	ex-post
Luxembourg	daily	TSO/regulator	5%/3%	+50% max	ex-ante
Netherlands	hourly/daily	regulator	2/13%	up to +180%	ex-ante, ex-post with penalty
Spain <sup>52</sup>	daily	TSO/Ministry		+50%	no
Sweden	daily	n.k.	n.k.	n.k.	ex-ante
UK	daily	market	zero	usually <20%	ex-post
Estonia	daily	TSO	yes	at market price	no
Latvia	hourly	TSO	10%	n.k.	n.k.
Lithuania	daily	TSO	yes	n.k.	no
Poland	daily	TSO	no	not decided	ex-post
Czech R			rules not yet in place		
Slovakia	hourly	TSO	no	n.k.	no
Hungary	daily	regulator	yes	+ €1.5/MWh <sup>53</sup>	no
Slovenia	daily	TSO/regulator	yes	n.k.	ex-ante
<b>Candidate Countries</b>					
Romania	monthly	TSO	no	n.k.	no
Bulgaria	daily	TSO/regulator	yes	n.k.	no
Turkey	daily	market	yes	n.k.	no
Croatia			not available		

source: CEER Monitoring Report 2004

The collected data in Table 4.4 demonstrates the prevailing of daily balancing period regimes. However, it must be mentioned that often hourly tolerance levels are also established within a daily regime, having as an effect that acting in daily regimes sometimes also necessitates hourly balancing action.

As a general statement it must be differentiated between physical balancing activities and financial balancing activities. It is the role of the TSO (GGP 2) to provide for system integrity, meaning the safe operation of the grid within the physical tolerance levels (which is an ongoing activity), and the role of the shipper to balance the nominations made and the physical input/outtake. Sometimes indicated balancing periods do not reflect the physical side but the financial cash out period (only). The looser the tolerance limits/balancing period for shippers are the more flexibility tools a TSO must contract for, meaning access to safe gas resources. These contracts can often only be provided (on a firm basis) by the dominant market participant of that area or via a direct contract for storage, meaning a considerable

<sup>52</sup> new network code is currently under discussion

<sup>53</sup> approx. equivalent to HUF 0.1/MJ

amount of annual fixed costs. There is thus a trade off between first sight generous “flexibility” of systems and considerable socialised costs attached to it.

It can also be seen that most balancing rules result of a joint effort by TSO and the regulatory authorities. If no market solutions are in place it is the role of the regulatory authorities to prevent artificial barriers to market entrants, however taking into account the necessity of physical balancing incentives. A “dynamic” approach, taking into account the overall physical position of the system and the charges for out-of balance positions might be a good solution.

A considerable range of tolerance bands exist. As stated, the effect of tolerance bands has to be jointly assessed with the imbalance charges. Zero tolerance might allocate incurred costs most effectively, however in that case it must be assured that the unit “out-of-balance”, which will always exist must not be excessively charged if the system is overall balanced and it must be clear that each participant has access to risk hedging facilities (e.g. a balancing market). The avoided costs (for reduced overhead socialising) might be higher than the small amounts of out of balance charges, bringing an overall positive effect to pricing. In markets with static premium, tolerance levels must exist to ensure market opportunities for actors without a big portfolio. Pooling of imbalance positions is one of the possible tools to allow for risk hedging and to assure charges set in line with the overall incurred costs. Pooling of imbalances (also between customers within a given control area), ex-ante, ex-post or both is usually a strong means of attracting market participants.

As a general line it might be assumed that in the beginning phase of a competitive market for natural gas, (no intra-day/online balancing market mechanism) balancing periods should be longer and tolerance periods larger, thus socialising a significant share of the costs incurred between the market participants, which have ultimately to be born by the final customers. End-users with stable, flat consumption and a low swing factor have to cross subsidise volatile consumers, however easing market opportunities for new entrants.

Care must be taken about excessive, “static” out-of-balance charges, which do not respect the effective physical situation of the system and do not provide for “netting effects”. In cases where no balancing markets are installed the regulatory authorities might have a role to carefully assess the effects of such static balancing charges on the market attractiveness; established intra-day balancing markets give effective price signals and regulatory authorities might in such cases limit their tasks to monitor and detect eventual abuse of a dominant position in the balancing market (persistent high prices). Where intraday balancing tools exist, there might be scope to take care of minimising effects of cross subsidisation between energy markets (balancing periods merely in line between gas and electricity markets) and tolerance levels might be tighter.

### **Storage**

Whereas balancing services relate to short term differences between injection and withdrawal, gas storage serves the purpose of dealing with the fact that demands in winter months are always far in excess of summer demand. For households this “swing” ratio may be as much as 1:10. By contrast, gas is usually purchased from producers with a flat profile and the availability of storage is therefore a pre-requisite for any company seeking to enter the market.

Unlike the transmission networks, storage is not necessarily a natural monopoly. There are also other flexibility instruments that can provide the same service to an extent. At the same time, however, there are only a limited amount of suitable geological conditions available for the development of storage, usually depleted fields. Where these are largely in the hands of the incumbent company, third party access is required to ensure competition further down the line. The Directives require negotiated access to storage where it is technically and economically necessary for competition. Guidelines for access to storage are currently being discussed in the context of the Madrid Forum and a more detailed analysis of compliance with good practice and the impact of storage on gas competition will be carried out following these discussions.

## Conclusions

In general, the third party access regime for gas is not as well developed and well regulated as that for electricity. This is clearly demonstrated by the table below which summarises the current position.

**Table 4.5 Summary of Regulated Third Party Access**

<b>Pipeline Access</b>	
Network tariffs in line with norm\ flexible TPA service	BE, DK, NL, UK, HU, SI, IT,
High network charges <u>or</u> inflexible service	AT, FR, ES, LV,
High network charges <u>and</u> inflexible service	DE, IE, SE, PL, EE, LT, CZ, SK
<b>Balancing</b>	
Favourable conditions: cost/market based	AT, UK, IT
some favourable elements	DE, DK, ES, FR, SE, BE, IE, HU, SI
unfavourable or unclear	NL, LU, EE, LT, LV, PL, CZ, SK

Although some improvement has been recorded during 2004, there are still numerous difficulties associated with access to the network for new entrants in the market. Often it is the case that although one aspect of third party access such as tariffs may be favourable, others such as balancing charges or flexibility arrangements are not. Availability of capacity remains a problem at certain points in the network which are the subject of long term reservations. The guidelines agreed at the Madrid Forum and incorporated into the proposed Regulation should allow this to begin to be addressed ensuring that a greater range of network users can participate in the market at those points. Increasing the effectiveness of regulation through the implementation of the Directive will also be of key importance.

## **ANNEX 5 Competition in the Gas Sector**

### **Background**

Natural gas markets have been designed with an international perspective in most cases, as domestic production could not cope with demand increase. Hence systems are very interlinked and most large market actors are present in a large number of countries, at least in the former transit business.

Given the small number of indigenous resources, the strong dependence on external supply areas with monopolistic and protected markets and the heavy economies of scale in the upstream business, this has resulted in a limited number of competitors in the field of gas production. Under these conditions it is of extreme importance to provide for accessible markets within the whole of the EU to allow for calculable business opportunities and to attract new players to enter that market. This is very true for the transmission layer, to be able to get bulk gas from the source to the destination area but even more so for the effective opening of the distribution area, as it is quite useless to ship gas for many km to find the connection between the TSO system and the inlet of the customer economically blocked by vertically integrated incumbent suppliers.

On the other hand, it is extremely important to allow distribution companies (there are several thousand in the EU) to be active on an international scale to get supplies directly, or, in the best case, to provide for open systems until the end-user layer in order to allow for direct pooling/clustering of end-user demand in a control area, which for itself should be as large as possible.

### **Current Upstream Market Structure**

Table 5.1 below shows that most national markets still exhibit the characteristics of monopoly provision, backed up by long term relationships with procedures and long term capacity reservations. However there are some areas where this is gradually being broken down, particularly in the coastal regions which have access to a greater range of physical sources of gas, including LNG. Germany also has considerable, untapped as yet, potential for competition given the range of different companies involved in the upstream market. In other cases, particularly for the new Member States, the amount of market participants remains limited. This will remain the case while barriers to certain forms of cross border transactions continue to exist.

**Table 5.1 Market Structure in Import and Production of Gas**

	% of gas from domestic production	% of gas from imports (no. of sources)	No. of companies with at least 5% share of available gas <sup>54</sup>	% of available gas controlled by largest company	Gas release programme	Existence of NBP type trading
Austria	23%	77% (3)	1	>90%	yes	limited
Belgium	0%	100% (3)	1	92%	no	significant
Denmark	93%	7% (1)	1	80-85%	yes	planned
France	3%	97% (6)	1	91%	planned	no
Germany	18%	82% (4)	12	50%	in progress	no
Ireland	16%	84% (1)	5	40%	no	no
Italy	18%	82% (4)	3	68%	in progress	limited
Luxembourg	0%	100% (3)		not meaningful		
Netherlands	88%	12% (2)	1	60%	no	limited
Spain	1%	99% (11)	4	40%	completed	limited
Sweden	0%	100% (1)	1	97%	no	no
UK	92%	8%	5	25%	completed	significant
Estonia	0%	100% (1)	3	50%	no	no
Latvia	0%	100% (1)	1	100%	no	no
Lithuania	0%	100% (1)	2	59%	no	no
Poland	33%	67% (4)	1	98%	no	no
Czech R	1%	99% (2)	1	99%	no	no
Slovakia	2%	98% (1)	1	100%	no	no
Hungary	15%	85% (4)	1	100%	no	no
Slovenia	1%	99% (3)	1	100%	no	no
<b>Candidate Countries</b>						
Romania	70%	30% (1)	4	87%	yes	limited
Bulgaria	1%	99% (1)	1	100%	yes	no
Turkey	3%	97% (4)	1	97%	yes	no
Croatia						no

source: Regulators' survey responses

### Trends in Wholesale Gas Markets and Market Surveillance

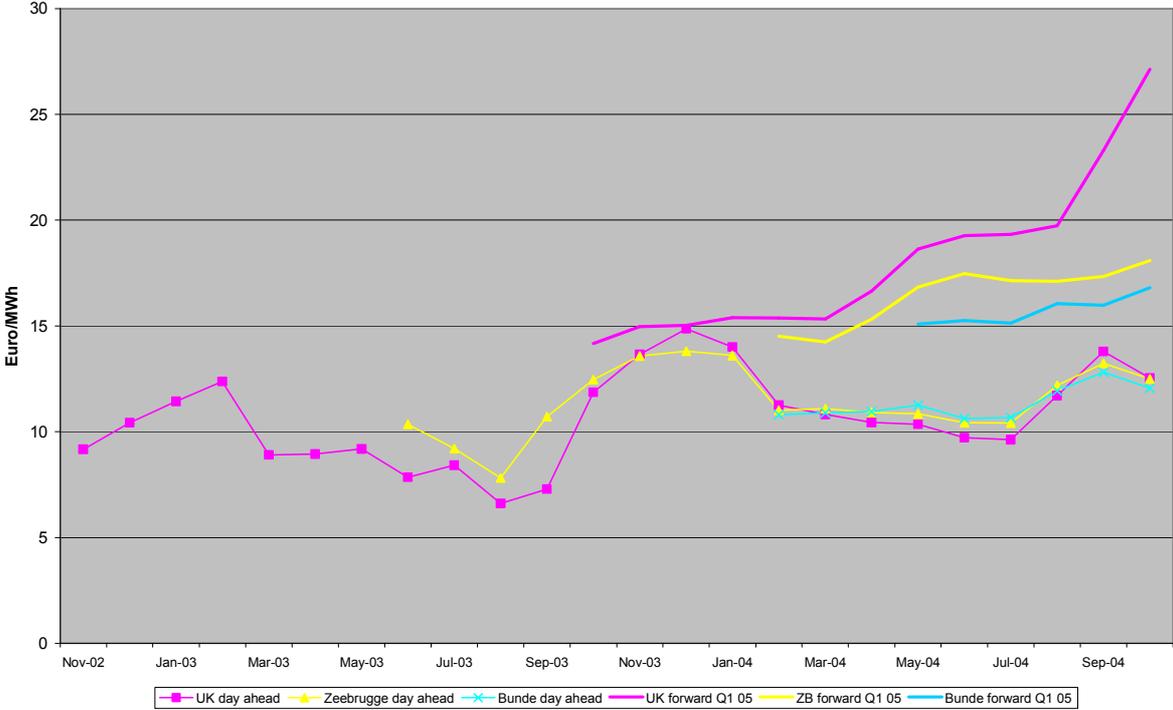
Wholesale trading in gas is becoming more prevalent with a number of Member States having developed gas exchanges or “hubs”. However progress is rather behind that for electricity due to the very unfavourable market structure. This has consequences for the transparency of price formation in the market. This is an important problem since more liquid markets would encourage competition and security of supply. If new suppliers have access to gas in a liquid market, the problems associated with fluctuations in demand become less acute and it is easier to maintain a balanced portfolio. Similarly, companies will be more encouraged to make the required investments to import gas to Europe if there is always a liquid wholesale market into which gas can be sold in the absence of a specific buyer. The UK market is based on a “virtual” balancing point in the network. This is made possible by and entry-exit tariffication system which allows all injected gas to be traded on a consistent “entry paid” basis. Similar virtual hubs have been set up in the Netherlands and in Italy.<sup>55</sup> Other trading points have been

<sup>54</sup> available gas from either local production or import, figures refer to 2001.

<sup>55</sup> known as TTF (Netherlands) and PCV(Italy)

formed at Bunde in Germany, Zeebrugge in Belgium and at Baumgarten in Austria. However these do not usually give the same liquidity as a harmonised single trading point for gas. As well as prices indices produced by these exchanges, the price of imported gas at the borders of some Member States is also reported regularly. The graph below summarises the most recent price data from gas wholesale markets.

**Table 5.2 Development of Wholesale Gas Prices**



source: Argus Gas Connections

Table 5.2 shows that gas prices increased during 2004, particularly those relating to the Q1 2005 period. UK wholesale gas prices show a significant overshooting of the continental price which has led to concerns about market manipulation. A recent investigation by the UK regulator suggested that some increase in transparency relating to offshore facilities and the operation of the interconnector was needed. It also called for the further development of competition in continental European gas markets.

**Supply Market**

Table 5.2 shows that the nature of the supply market varies considerably by Member State. Even though the wholesale gas market is rather concentrated, there are rather more competitors in the supply market, although these are often still restricted to a local area based around their existing distribution zone. In most cases, some consolidation has occurred and there is usually just a handful of significant competitors in each Member State.

**Table 5.2 Retail Supply and Consumer Choice Supplier market share**

	Number of active licensed suppliers	Suppliers independent of DSO	No. of suppliers with > 5% share	Top 3 suppliers' share <sup>56</sup>	Share of foreign owned suppliers
Austria	29	6	3	90%	n.k.
Belgium	16	16 <sup>57</sup>	3	95%	5%
Denmark	8	4	4	65%	4%
France	11	10	2	91%	3%
Germany	760	n.k.	0	10%	n.k.
Ireland	10	9	4	88%	23%
Italy	410	338	5	63%	n.k.
Luxembourg	6	1	1	n.k.	n.k.
Netherlands	27	7	3	87% <sup>58</sup>	31%
Spain	21	6	4	80%	19%
Sweden	7	0	5	79%	60%
UK	112	112	6	82%	27%
Estonia	2	0	1	100%	0%
Latvia	1	0	1	100%	0%
Lithuania	13	9	4	99%	0%
Poland	77	3	6	65%	<5%
Czech R	133	3	7	59%	n.k.
Slovakia	1	0	1	100%	49%
Hungary	19	11	7	62%	69%
Slovenia	41	22	4	86%	0%
<b>Candidate Countries</b>					
Romania	24	3	5	75%	0%
Bulgaria	30	0	6	42%	0%
Turkey	1	1	1	100%	0%
Croatia	no information available				
Source: Regulators' survey responses					

## Conclusions

Gas markets remain very concentrated at national level and this forms a severe obstacle to the development of competition and an open market. This is summarised in the table below. The level of integration of national markets in terms of supply remains low, despite the fact that most gas crosses at least one border during the delivery process. There remain considerable regulatory barriers which are retarding unnecessarily the development of the European gas market.

<sup>56</sup> includes both eligible and non-eligible markets

<sup>57</sup> Although independent, the two most important suppliers have strong ownership links with DSOs

<sup>58</sup> households only

**Table 5.4 Summary of Market Structure**

Wholesale Gas market		Retail Gas Supply	
largest shipper < 50%	IE, ES, UK	6 or more	DE, UK, PL, CZ, HU
largest shipper 50-90%	DE, IT, EE, LT, NL	3-6 suppliers	AT, BE, DK, IE, IT, NL, ES, SE, LT, SI
largest shipper > 90%	AT, BE, FR, LU, SE, LV, PL, CZ, SK, HU, SI	1-3 main suppliers	FR, LU, EE, LV, SK

The most important feature of the gas market hindering competition is the continuation of segmentation of the market on national lines. If this problem were to be resolved a much more vigorous market would start to become evident. This is already occurring to a degree in some areas such areas around the North Sea and in southern European markets provided that access condition and the regulatory framework are supportive of competition. However barriers to competition remain in virtually all parts of the European Union.

## **ANNEX 6 Security of Supply Data**

### **6.1 Electricity: Current Position**

Table 6.1 overleaf summarises the information contained in the most recent UCTE reports on Power Balances in European Union as well as information collected from similar TSO organisations in those Member States not part of UCTE.

This table shows the improvements in the supply demand position which has have taken place since 2003 during which a number of difficulties were recorded relating to supply-demand, particularly during the heatwave in central Europe that summer. Construction of new capacity in, for example, Italy means that the degree of reserve capacity is expected to be substantially better in 2005. Some improvement is also expected in the Nordic region for which there has previously been some concerns. Nordel the relevant grouping of TSOs, in its most recent publication, still highlights potential difficulties in the event of an extremely cold winter.

Ireland still has a very tight supply-demand position which led to a tender process for new capacity being launched. However a further announcement by Viridian to build a second CCGT close to Dublin will help resolve the problems in the medium term. The position in Greece also remains marginal although new additions to interconnection infrastructure and greater co-operation in the south east Europe region is likely to reduce the likelihood of any difficulties.

**Table 6.1 Electricity Security of Supply**

	Actual reserve capacity during 2003: lowest monthly value (GW) <sup>59</sup>	Forecast amount of reserve generation capacity 2005 (GW) <sup>60</sup>	as % of generation capacity	of import capacity (% generation capacity) <sup>61</sup>
Austria <sup>62</sup>	3.8	5.4	30%	22%
Belgium	0.4	-0.1	0%	29%
Denmark	0.4	0.8	8%	51%
Finland	-0.8	-0.8	-6%	25%
France	3.8	9.8	10%	>10%
Germany	3.2	4.5	5%	14%
Greece	0.4	-0.4	-2%	10%
Ireland	-	0.0	0%	6%
Italy	-1.7	3.5	2%	12%
Luxembourg	0.4	0.4	24%	90%
Netherlands	2.5	1.0	4%	17%
Portugal	0.7	1.3	12%	8%
Spain	6.0	7.3	11%	5%
Sweden	-4.0	0.2	0%	29%
UK	-	n.k.	c.10%	3%
Norway	2.0	0.6	5%	18%
Estonia	-	n.k.		75%
Latvia	-	n.k.		>100%
Lithuania	-	1.3	27%	50%
Poland	6.4	6.3	12%	10%
Czech R	1.3	2.3	16%	23%
Slovakia	0.4	0.2	5%	44%
Hungary	-0.1	0.0	5%	22%
Slovenia	0.0	0.2	8%	53%
Cyprus	-	n.k.	26%	-
Malta	-	n.k.	25%	-
<b>Candidate Countries</b>				
Romania	1.3	1.3	11%	6%
Bulgaria	2.1	2.1	20%	10%
Turkey	-	n.k.	n.k.	7%
Croatia	1.0	1.3	32%	55%
<b>Other Neighbouring Countries</b>				
Bosnia	0.9	0.8		
Serb\Mont.	-0.8	0.1	6%	20%
FYROM	0.0	0.1		
Albania	-	n.k.	n.k.	30%

source: UCTE, Nordel, NGC, ESBNG

<sup>59</sup> UCTE 2003 Power Balance Retrospective: June 2004, Nordel figure based on “Power and Energy Balances, Retrospect 2003, Forecast 2007; published June 2004

<sup>60</sup> According to UCTE definition of “remaining capacity” = “guaranteed capacity” minus “load at 11 am” as a percentage of “total generation capacity”. Power Balance of UCTE: Forecast 2004-10, published 19 January 2004. Forecast for 2005: lowest value from January or July.

Nordel figure based on “Power and Energy Balances, Retrospect 2003, Forecast 2007; published June 2004. Forecast 2007/08, normal winter temperatures

UK based on NCG seven year statement, “plant margin 2005/06 = 22%” adjusted to approximately correspond to “remaining capacity” definition with outages/overhauls and system reserve = 10% and non-usable capacity 0-5%.

Ireland based on ESB NG Generation Adequacy Report 2004-10: Published November 2003. Results for 2005 median assumptions on availability and demand growth, interconnector deducted.

<sup>61</sup> Based on ETSO NTC winter 2004-05 including Switzerland, Ukraine, Russia and Morocco

<sup>62</sup> High levels of reserve capacity reported result from inclusion of storage plant capacity of some 6,4 GW.

Table 6.2 shows that the main policies currently adopted by Member States in order to encourage generation. It shows that most countries have either implemented or are considering some form of capacity support mechanism and very few have a market based solely on the energy price. However, the key to encouraging investment above all is a stable regulatory framework with commitment by regulators and Member States on a medium to long term basis of their particular approach to this question.

**Table 6.2 Measures to support electricity security of supply**

	<u>Incentives</u> e.g. capacity payments	<u>Obligation</u> on Existing long term PPAs	<u>Tender by</u> Regulator or TSO
Austria	x		
Belgium		(x)	
Denmark			
Finland			
France			(x)
Germany			
Greece			x
Ireland	x		x
Italy	x		
Luxembourg			
Netherlands		(x)	
Portugal	(x)		x
Spain	x		
Sweden	x	(x)	
UK			
Norway	x		
Estonia			x
Latvia			
Lithuania	x	(x)	
Poland			x
Czech R			x
Slovakia			x
Hungary			x
Slovenia			
Cyprus			
Malta			

source: Regulators’ survey responses

**6.3 Gas Security of Supply**

Table 6.3 below summarises similar information for gas that has been collected from national regulatory authorities.

<sup>63</sup> (x) = under consideration

**Table 6.3 Current Security of Supply Position: Gas**

	Security of Supply Position 2003 (bcm)					increase in consumption 2003.v. 2002 (% p.a.)
	consumption	amount of local production	of import capacity <sup>64</sup>	total supply capacity		
Austria	9	2	34	36		+8%
Belgium	16	0	36 <sup>65</sup>	36		+7%
Denmark	4	7	2	9		+2%
France	46	2	70	72		+5%
Germany	86	15	87	102		+4%
Italy	76	14	238	252		+9%
Ireland	4	0	4	4		+2%
Luxem.	1	0	4	4		n.k.
Netherl.	46	70	25	95		0%
Spain	24	0	21	21		+15%
Sweden	1	0	2	2		+1%
UK	106	103	10	113		+2%
Estonia	1	0	2	2		n.k.
Latvia	2	0	2	2		+1%
Lithuania	3	0	6	6		+9%
Poland	12	4	9	13		+4%
Czech R	10	0	12	12		+3%
Slovakia	7	0	90	90		+5%
Hungary	14	2	15	17		+2%
Slovenia	1	0	4	4		+4%
<b>Candidate Countries</b>						
Romania	18	13	12	25		-1%
Bulgaria	3	0	6	6		+6%
Turkey	21	1	26	27		+20%
Croatia					no information	
source: Regulators' survey responses, GTE website						

This analysis shows that some countries have a relatively urgent need for investment in additional import capacity, particularly the UK and Ireland, Spain and possibly Poland. These investments do, however, seem to be coming forward and a number of projects are being planned to bring additional gas to the European market.

<sup>64</sup> From all physical import pipelines directly or indirectly linked to producing countries plus LNG, source GTE.  
<sup>65</sup> plus 48 bcm/year transit capacity

## **Electricity**

### **Background**

Energy network industries provide “services of general economic interest” and following the sectoral approach described in the Commission’s white paper on services of general interest (Com (2004) 364 final) Member States have the possibility to impose on electricity and gas utilities public service obligations. Such public service obligations may relate to “security, including security of supply, regularity, quality and price of supplies and environmental protection”. Such obligations need to be “clearly defined, transparent, non-discriminatory and verifiable and shall guarantee equality of access for EU electricity companies to national consumers”.

The integration of high standard public service obligations and customer protection within the framework of a liberalised market is a primary goal of the new Art. 3 of the electricity and gas Directives. However, subsidiarity remains the principle governing the implementation. The benefits of an open market with new suppliers able to offer more competitive prices and services should be in line with the implementation of these public service obligations.

Since July 2004 non-household customers are free to choose their supplier and by July 2007 household customers will also be eligible customers, customer protection should be tailor-made according to these stages of market opening, allowing customers to be sufficiently informed to make intelligent price comparisons.

Transparency regarding general contractual terms and conditions is also required. The full implementation of Annex A of the new electricity and gas Directives is needed in order to provide the appropriate protection for electricity and gas customers.

The electricity and gas Directives stipulate that when a financial compensation is granted by a Member States to fulfil public service obligations, this should be done in full compliance with the principles of transparency and non-discrimination. In its judgment in the case of Altmark Trans GmbH<sup>1</sup>, the Court of Justice of the European Communities held that public service compensation does not constitute State aid within the meaning of Article 87 of the EC Treaty provided that four criteria are met:

- First, the recipient undertaking must actually have public service obligations to discharge, and the obligations must be clearly defined.
- Second, the parameters on the basis of which the compensation is calculated must be established in advance in an objective and transparent manner, to avoid it conferring an economic advantage which may favour the recipient undertaking over competing undertakings.
- Third, the compensation cannot exceed what is necessary to cover all or part of the costs incurred in the discharge of public service obligations, taking into account the relevant receipts and a reasonable profit.

- Fourth, where the undertaking which is to discharge public service obligations, in a specific case, is not chosen pursuant to a public procurement procedure which would allow for the selection of the tendered capable of providing those services at the least cost to the community, the level of compensation needed must be determined on the basis of an analysis of the costs which a typical undertaking, well run and adequately provided with means of transport so as to be able to meet the necessary public service requirements, would have incurred in discharging those obligations, taking into account the relevant receipts and a reasonable profit for discharging the obligations.

### **Universal service**

Universal service is a new provision of Art. 3 - Directive 2003/54/EC. The concept is defined as the “right to be supplied with electricity of a specified quality within their territory at reasonable, easily and clearly comparable prices. From the following table (7.1) it can be seen that in (nearly) all Member States there exists an obligation to connect and supply all electricity customers, especially household customers.

The Supplier of Last Resort (SOLR) is a necessary fall-back position to protect customers in case of:

- Bankruptcy of the current supplier
- Supply of vulnerable customers, being unable to pay
- Supply to Remote customers

The supplier of last resort designated by Member States is in the vast majority of cases the Distribution System Operator.

### **Vulnerable customers**

This class of consumer is difficult to define in general and will mainly depend on the specific national or local circumstances. A majority of Member States have introduced regulations to protect vulnerable customers via social tariffs or via provisions of the national social welfare system (table 7.1). The protection of vulnerable customers is especially an important issue in some new Member States and the acceding countries.

**Table 7.1 Obligations to supply**

	BE		CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT <sup>1</sup>	PL	PT <sup>3</sup>	SI	SK	FI	SE	UK <sup>2,3</sup>
	F	W																								
<b>Universal Service and the 'Supplier of Last Resort': Operator in charge</b>	Y/ DSO	Y/ DSO	Y/ DSO	Y/ S- DSO	Y/ DSO <sup>4</sup>	Y	Y/ S- DSO	Y/ DSO	Y/ S- DSO	Y/ S- DSO Under preparation	Y/ DSO	Y/ S	N			N	Y Sole supplier	Y/ S	N	Y Under preparation	Y/ DSO	Y		Y/ S- DSO	Y DSO	Y/ S- DSO
<b>General obligation to supply all customers</b>	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y			Y	Y	(n.a.)	Y/ Only if the customer already has a supply contract	Y	N	Y		Y	(n.a.)	Y
<b>Solutions offered to vulnerable customers</b>	Y/ SW	Y/ Pre- payment meter	N	N	Y/ SW	Y/ SW	n.a.	Y/ SW	Y/ SW	Y/ Pre- payment meter	N	(n.a)	N			Y/ SW	Y	Y Pre- payment meter	N	Y Pre- payment meter	Y Security deposit	Y Pre- payment meter		Y/ SW	Y SW	Y Pre- payment meter
<b>Social tariffs</b>	Y	Y	N	N	N	N	N	N	Y	Y	Y	(n.a)	N			N	Y	N	N	Y	Y	N		N	N	Y
<b>Procedure in case of disconnection for non payment</b>	Y	Y	N	Y Advance- notice to be given	Y/ Advance- notice to be given	Y Advance- notice to be given	n.a.	Y Advance- notice to be given	Y	Y	Y	(n.a.)	Y			Y	N	N	N	Y	Y	Y		Y		Y
<b>Compensation to the supplier</b>	Y	Y	Y Compen- sation Fund	Y/ «Feed-in System»	Y/ Direct social payment	Y	Y	Y	Y	Y	Y	Y	Y			Y	(n.a.)	(n.a.)	N	(n.a.)	(n.a.)	(n.a.)		(n.a.)		(n.a.)
<b>Compensation to be recovered by network tariffs</b>	Y	Y	Y	Y	(n.a.)	Y	Y	Y	Y	Y	Y	N	Y			Y	(n.a.)	(n.a.)	Y	(n.a.)	(n.a.)	(n.a.)		Y		Y

DSO = Distribution System Operator  
S = Supplier  
SW = Social Welfare system  
(n.a.) = not available

Member State characteristics:

- 1) In AT, Supplier of Last Resort is assigned to a balance group by regulatory decision.
- 2) In the UK, the procedure for the SLR is assigned by the Regulator when needed.
- 3) In Portugal this tariff covers about 3500 costumers; in the United Kingdom a social tariff covers approximately 250,000 clients.
- 4) Allgemeinversorger.

**Table 7.1. a) End User Price Control (Households)**

Household customers are protected by systems of ex-ante price control using regulated or fixed tariffs. Ex ante price control should be set at realistic levels, taking consumption levels into consideration. Ex-post price control may be required to avoid abuse of a dominant position.

	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
	F	W																								
<b>End User Price Control (Households)</b>	N/ DSO tariff	Y/ R	Y/ R	Y/R	Y/ R	Y/ R Price cap	Y/ R-F	Y/ R-F	Y/ R	Y/ R	Y/ R	Y/ R	Y/ R			Y/ R	Y/ R	Y/ R	Y/ R [ex-ante]	Y/ R [ex-ante]	Y/ R-F	Y/ R	(n.a)	Y/ R [ex-post]	N	N

F = Fixed tariff  
R = Regulated tariff  
(n.a.) = not available

## Environmental protection

Nearly all member States have introduced public service obligations to foster environmental protection, especially climate change policy. Various systems exist to support renewable energy, energy efficiency and CHP. Such obligations are financed via feed-in systems and/or network tariffs (table 7.2). Such national public service obligations form part of the Member States strategies to achieve EU objectives on renewables or efficiency.

These public service obligations are best placed on suppliers rather than DSOs and should be supported by all parties involved in the electricity market in order to avoid distortion of competition. These should be implemented by a general obligation rather than citing individual companies.

**Table 7.2. Primary fuel obligation for generation and environmental obligations**

	BE		CZ	DK <sup>1</sup>	DE	EE	EL	ES	FR	IE	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	SI	SK	FI	SE	UK	
	F	W																									
RES	Y	(n.a.)	Y	Y	Y	Y	Y	Y	Y	Y	Y	(n.a.)	Y			Y	N	(n.a.)	Y	(n.a.)	(n.a.)	Y		Y	Y	Y	
CHP	(n.a.)	(n.a.)	(n.a.)	Y	Y	(n.a.)	(n.a.)	Y	Y	Y	(n.a.)	(n.a.)	Y			(n.a.)	N	(n.a.)	(n.a.)	(n.a.)	(n.a.)	Y		(n.a.)	Y	Y	
Others, Lignite, Peat, etc.	Waste		(n.a.)	(n.a.)	N	(n.a.)	Lignite	Waste	Y/ Waste	Peat	(n.a.)	(n.a.)	Y/ Waste			(n.a.)	N	(n.a.)	N	Lignite	(n.a.)	(n.a.)			N	Peat	N
Compensation for the supplier	Y	Y	Y	Y	Y	Y	Y	Y	Y	Compensation Fund	Y	(n.a.)	Y			Y	N	N	Direct support to customers	(n.a.)	(n.a.)	Y			Y	Only invest. aid	Pay or buy out
Network tariff	Y	Y	Y	Y	Y	(n.a.)	Y	Y	Y	Y	Y	(n.a.)	Y			Y	N	N	Y	(n.a.)	(n.a.)	Y		Y	N	Y	
Purchase obligation	Y	Y	Y	Y	Y	Y	Y	(n.a.)	Y	Y	Y	(n.a.)	Y			Y	N	N	N	(n.a.)	(n.a.)	Y			(n.a.)	Y	Y
Energy Efficiency obligation for generation	Y	Y	Y	Y	Y	Y	Y	(n.a.)	Y	Y	Y	(n.a.)	Y			Y	N	N	N	(n.a.)	(n.a.)	(n.a.)			Y	(n.a.)	Y

RES= Renewable Energy Sources

CHP = Combined heat and power

(n.a.) = not available

1) In DK PSOs compensation under "Feed-in system".

## Quality of supply

Most Member States already have a high level of supply quality (Table 7.3). However it is still important to control, maintain and improve the standards of service throughout the opening up of the market. Regulatory Authorities need to set appropriate tariffs in line with expected performance levels. This is required so as to ensure that network companies maintain the network and guarantee high performance levels.

**Table 7.3 Quality of supply**

	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
	F	W																								
<b>Obligation to respect quality performance: Operator in charge</b>	Y/ DSO	Y/ DSO	Y/ TSO- DSO	Y/ DSO- TSO	Y/ DSO- TSO	Y/ DSO- TSO	Y/ DSO	Y/ DSO	Y/ S- DSO	Y/ DSO	Y/ S	Y/ S	Y/ TSO			Y/ TSO- DSO	N	Y	N	Y/ Bilateral contracts	Y/ TSO- DSO	Y/ TSO		Y/ S- DSO	Y/ TSO	Y/ TSO- DSO
<b>Responsibility for technical problems</b>	DSO	DSO	DSO	DSO- TSO	DSO	TSO	DSO	DSO	S- TSO	S- TSO	S	TSO	TSO			TSO	N	Y	TSO	S- TSO	S- TSO	TSO		TSO	TSO	S
<b>Penalties for end supplier</b>	N	N	Y	(n.a.)	N	N	(n.a.)	Y	(n.a.)	Y	Y	(n.a.)	Y			Y	(n.a.)	Y	N	Y	Y	(n.a.)		Price reduction	N	Y

DSO=Distributor System Operator  
 TSO=Transmission System Operator  
 S=Supplier  
 (n.a.) = not available

## **Customer Choice**

Only by July 2007 all household customers will have the possibility to choose the most attractive electricity and gas suppliers. Information of these customer groups is widely differing in Member States and more detailed and informative in those Member States having already achieved 100% market opening.

Customer switching will only be facilitated if information is provided enabling final customers to compare prices and other services. Electricity and gas consumers, in general positively disposed as regards these services of general economic interest, claim to have difficulties obtaining adequate information required to make comparisons between different commercial offers (table 7.5). This lack of information virtually excludes the possibility of price comparison, a basic feature for any market to function. Improvements on information to allow price comparisons and to trigger customer switching are absolutely required.

Similar to what has happened in other sectors, in view of the full opening up of the market, a certain number of operators have already started using their website as a means to illustrate their products and services.

Change of supplier should be possible, easy and feasible – subject to reasonable penalty if the contract is broken. Disputes need to be settled quickly and fairly to build confidence – outside the courts, if possible.

Transparency of information is normally guaranteed in most Member States by Regulatory Authorities. However, additional national and/or Regional Authorities, as well as customer's organisations are also in charge of objective information.

**Table 7.4. Customer Choice and Information**

	BE		CZ	DK	DE	EE	EL	ES	FR	IE	IT	CY	LV <sup>3</sup>	LT	LU	HU <sup>3</sup>	MT	NL	AT	PL	PT	SI	SK	FI <sup>1</sup>	SE	UK <sup>2</sup>
	F	W																								
<b>Comparability</b>	W	P	W	W	W	W	P	P	W	W	P-W	Sole supplier	P-W			P	P	P	W	P	(n.a.)	P		P-W	P-W	W
<b>Maximum time for pre-notification</b>	Y 1 month	Y 1 month	(n.a.)	Y 1 month	(n.a.)	Y 30 days	Y 3 months	(n.a.)	N	N	Y 1 month	(n.a.)	(n.a.)			(n.a.)	(n.a.)	(n.a.)	Y 5-8 weeks	N	(n.a.)	(n.a.)		Y 2 weeks	Y 1 month notice	Y 1 month notice
<b>Supplier-change charge</b>	N	N	N	N	N	N	Contractual clause	N	N	N	N	(n.a.)	N			N	(n.a.)	Contractual clause	N	(n.a.)	N	N		N	N	N
<b>Dispute settlements (Formal Procedure)</b>	Y/ O	Y/ RA	Y	Y/ R	N	Y/ I	Y/ R	Y/ R	Y/R	Y/ R	Y	(n.a.)	Y			Y/ R	Y	Y	Y/ R	Y/ R for complaints in access O for others	Y/ R	Y/ O		Y/ Client complaint Board and R	Y	Y/ R
<b>Response time for complaints</b>	Y/ 2 weeks	Y/ 4 months	Y/ 15 days	(n.a.)	N	N	N	N	(n.a.)	Y/ 10 days	Y/ 20 days	(n.a.)	Y/ 15 to 30 days			Y/ 15 to 30 days	N	Y 4 months	Y/ 7 weeks	Y/ R 30 days	Y/ R 20 days O 15 d	Y		Y	N	Y/ 17 weeks

W=Website  
P =Publications and/or advertising campaigns  
O = Operator  
R = Regulator  
RA = Regional Authority  
I = Inspectorate  
(n.a.) = not available

Member state characteristics:

- 1) In Finland, the TSO can charge for an extra meter reading if the period from the last change of supplier is less than one year.
- 2) EnergyWatch is the gas and electricity consumer representative body in the UK.
- 3) In Latvia and Hungary charges to install metering equipment must be considered.

**Table 7.4 b) Contract duration**

	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
	F	W																								
<b>Contract duration</b>	(n.a.)	(n.a.)	LT	I	I	I	(n.a.)	I	I	I	LT-ST	(n.a.)	LT			LT-ST	Single buyer	I LT and ST	ST	(n.a.)	LV 1 month MH, VH 1 year	S- 1year		S- LT	(n.a.)	1 month advanced notice

I = indefinite  
 LT = Long Term  
 ST = Short Term  
 LV = Low Voltage  
 MHVH = Medium, high and very high Voltage  
 (n.a.) = not available

Customers should be clearly informed about the duration of their contracts (Table 7.4 b). A range of contract structures should be given to customers according to their needs, particularly concerning the duration of the contract. Long term contracts should be allowed if requested.

**Table 7.5 Consumer’s attitude towards electricity and gas supply service**

These tables aim to highlight the results of the study "European Consumers and Service of General Interest" which has been financed by DG SANCO. This study addressed the customers' perception concerning gas and electricity services in the 25 Member States.

**GAS**

	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
Prices	P	B	P	P	P	P	P	P	P	B		P	P	P	N	P	P	P	B	P	B	N	P	P	P
Access	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P
Information	B	P	P	P	P	P	P	P	P	P		P	P	P	P	P	B	B	P	B	P	P	P	P	B
Customer Service	P	P	P	P	P	P	P	P	P	P		P	P	P	P	P	P	P	P	P	P	P	P	P	P
Quality of service																									
Complaints																									
Terms & Conditions	F		F	F	F	F	F	F	F	GF	F	F	F	F	F	F	F	GF	F	F	F	F	F	F	F

**ELECTRICITY**

	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
Prices	P	P	P	P	B	N	B	B	P	N	N	P	N	P	N	N	B	B	N	N	B	B	P	N	P
Access	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Information	B	P	P	P	N	N	N	P	P	P	N	P	N	P	P	P	N	N	P	N	P	P	N	N	P
Customer Service	P	P	P	P	P	B	N	P	P	P	P	P	P	P	P	P	N	N	P	N	P	P	N	N	N
Quality of service							P										P	P		P				P	P
Complaints	many						many	few						few			many	many		few			few	few	
Terms & Conditions	F			F		N	N	F	F	N	N		F	F			F	F		N			F	N	F

P= Positive; F= Fair; GF= Generally Fair; B= Balanced, between P; N= Negative.

Electricity is considered to be a basic service: “Press the button” and the light comes on. Electricity and gas customers are quite satisfied with the service provided. However, in general, consumers feel that they have no control over the services offered and that they have difficulties obtaining the information required to make a comparison between different commercial offers. This lack of transparency virtually excludes the possibility of price comparison. Most consumers are not aware of the terms and conditions of their contract.

The main expectation of liberalisation relates to price reductions. The interest of consumers in switching suppliers is more pronounced for electricity than for gas. The Public Authorities should retain a substantial supervisory and regulatory capacity predominantly for safety considerations.

General reasons for price dissatisfaction are linked to a frequent feeling of repeated sizeable price increases, often related to taxes. In most Member States, strong feelings of price dissatisfaction are often correlated with lower social status.

Quality of service is considered to be acceptable. The customers' perception is that bills are complicated and unclear, that pricing regarding peak and off-peak periods is complex and bills are often produced using inaccurate estimated consumption. For these reasons most complaints relate to billing. It is likely that customers require further education on this subject.

There is quite some dissatisfaction with regard to the availability and competence of utility staff to be addressed in case of complaints. This dissatisfaction goes along with an increasingly automated customer service.

Requests have been made for more energy efficiency information and clear labelling of the source of electricity.

**Table 7.6 Consumer's attitude towards competition and public service**

**ELECTRICITY**

	<b>COMPETITION</b>	<b>PUBLIC SERVICE</b>
BE	Fear of loosing "social" rates	Continued supply and maintenance in remote areas; "vigilance" with respect to prices
CZ	Dubious of cost reduction	-
DK	Attitude generally receptive but reservation among vulnerable customers	Continued supply; maintenance in remote areas
DE	Attitude of hope (related to price)	Safety
EE	Expectations related to price	-
EL	Generally receptive and interested	Maintenance in remote areas; "vigilance" with respect to prices
ES	Sceptical regarding price reduction	Continued supply
FR	Mixed attitudes/interest in principle	Continued supply and maintenance in remote areas; quick intervention
IE	Mixed attitudes/interest in principle	Continued supply; quick intervention
IT	Mixed attitudes/interest in principle	Continued supply and maintenance in remote areas; "vigilance" with respect to prices
CY	-	-
LV	Expectations related to price	-
LT	Expectations related to price	-
LU	Partly receptive and interested	Continued supply
HU	Expectations related to price	-
MT	Expectations related to price	-
NL	Attitude generally receptive but reservation among vulnerable customers and price transparency	Continued supply; safety; "vigilance" with respect to prices
AT	More sceptical	Continued supply; safety & maintenance in remote areas; "vigilance" with respect to prices
PL	Expectations related to price	-
PT	Mixed attitudes/interest in principle	Continued supply
SI	Expectations related to price	-
SK	Expectations related to price	-
FI	Attitude generally receptive	"Vigilance" with respect to prices
SE	Fairly widespread frustration	-
UK	Holds the largest number of consumers having changed supplier Mixed attitudes due to lack of comparability of prices	Maintenance in remote areas; quick intervention; "vigilance" with respect to prices

GAS

	COMPETITION	PUBLIC SERVICE
BE	Interest due to an expectation of lower prices	Positive Attitude
CZ	General interest in possibility of choice	Positive Attitude
DK	Interest due to an expectation of lower prices	Positive Attitude
DE	Interest in principle	Positive Attitude
EE	General interest in possibility of choice	Positive Attitude
EL	Interest in principle	Positive Attitude
ES	Interest in principle	Positive Attitude
FR	Interest in principle	Positive Attitude
IE	Interest due to an expectation of lower prices	Positive Attitude
IT	Interest due to an expectation of lower prices	Positive Attitude
CY	-	-
LV	General interest in possibility of choice	Positive Attitude
LT	General interest in possibility of choice	Positive Attitude
LU	Interest in principle	Positive Attitude
HU	Interest in principle, but fear of price increases	Positive Attitude
MT	Expectations relate to price	Positive Attitude
NL	Interest due to an expectation of lower prices	Would like to connect remote areas
AT	Interest due to an expectation of lower prices	Positive Attitude
PL	Theoretical interest	Positive Attitude
PT	Interest in principle	Positive Attitude
SI	General interest in possibility of choice	Positive Attitude
SK	General interest in possibility of choice	Positive Attitude
FI	Interest in principle	Positive Attitude
SE	Interest in principle	Positive Attitude
UK	Consumers who have changed supplier express the satisfaction of procuring the same service at a slightly lower price.  Complaints about lack of comparability of prices.	Would like to connect remote areas

## ANNEX 8 ENVIRONMENTAL IMPACT OF THE INTERNAL ENERGY MARKET

### 8.1 Background

The opening of the electricity and gas markets to competition takes place in the context of clear commitments by the European Union to achieving reductions in carbon emissions. A number of policy initiatives have been introduced with the aim of achieving this objective including the renewables and cogeneration Directives and measures to reduce demand for energy, for example, in buildings. Meanwhile the Emissions Trading Directive is designed to ensure reductions in carbon output in an efficient manner. As well as these measures, many Member States also have fiscal incentives aimed at reducing the level of energy consumption. Mostly these apply to both electricity and gas.

### 8.2 Fiscal Policy

The fiscal framework for electricity and gas consumption is reviewed in Table 8.1 below. This shows some divergence of policy among Member States to this question. Some countries such as Denmark, the Netherlands and Germany having heavy taxes on electricity and gas, while others such as Portugal have low levels of both VAT and other levies.

**Table 8.1 Environmental Policy Fiscal Framework**

	VAT rate	energy tax: electricity	energy tax: gas
Austria	20	*	****
Belgium	21	*	*
Denmark	25	****	***
Finland	22	**	*
France	19.6/5.5 <sup>66</sup>	*	*
Germany	16	***	**
Greece	8	none	none
Ireland	13.5	none	none
Italy	10	*	***
Lux	6	*	*
Neth	19	***	**
Portugal	5	none	n.a.
Spain	16	*	none
Sweden	25	***	***
UK	17.5/5	*	*
Norway	24	**	n.a.
Estonia	18	*	none
Latvia	18	none	none
Lithuania	18	*	none
Poland	22	*	none
Czech R	19	none	none
Slovakia	19	none	none
Hungary	25	*	*
Slovenia	20	none	none
Cyprus	0	*	n.a.
Malta	5	none	n.a.

<sup>66</sup> Communal and Departmental taxes of up to 12% also apply

	VAT rate	energy tax: electricity	energy tax: gas
<b>Candidate Countries</b>			
Romania	19	*	*
Bulgaria	20	none	none
Turkey	18	*	n.a.

source: Regulators' survey responses

\* average energy tax less than €5/MWh

\*\* average energy tax between €5-15/MWh

\*\*\* average energy tax above €15/MWh

\*\*\*\* average energy tax above €50/MWh

### 8.3 Electricity from Renewable Sources

As well as measures aimed at reducing the level of demand, a key objective of the Community is an increase in the proportion of electricity generated from renewable sources.

**Table 8.2 Environmental Policy Framework: Electricity generation**

	main RES support mechanism	Net addition to generation 2003 (MW)			
		net new coal/oil	net new gas	net new RES/CHP	other
Austria	feed in tariff	0	0	+340	0
Belgium	green certs. and fiscal incentives	0	0	+80	0
Denmark	feed in tariff	0	0	+350	0
Finland	fiscal investment subsidies	0	0	+20	+55
France	obligation (tender)	-500	-10	+285	0
Germany	feed in tariff	0	0	+2900	0
Greece	feed in tariff plus subsidies	+380	0	+110	0
Ireland	obligation (tender)	-	-	-	-
Italy	green certificates	-350	+1740	+450	+240
Lux	feed in tariff	-	-	-	-
Neth	obligation (green certs)	+800	0	-	0
Portugal	feed in tariff	0	+392	-	0
Spain	feed in tariff	0	+1600	+1300	+117
Sweden	obligation (green certs)	0	0	+250	+
UK	obligation (green certs)	0	-250	+750	0
Norway	direct grants	0	0	+50	0
Estonia	obligation	0	0	+4	0
Latvia	feed in tariffs	0	0	+10	0
Lithuania	fixed price purchase	-	-	-	-
Poland	obligation	0	0	+50	0
Czech R	feed in tariff	0	0	0	+1000
Slovakia	obligation to purchase	0	0	+6	0
Hungary	feed in tariff	0	0	+130	0
Slovenia	feed in tariff	0	0	+4	0
Cyprus	obligation to purchase	-	-	-	-
Malta		no information available			
<b>Total (approx.)</b>		<b>+330</b>	<b>+3450</b>	<b>+7000</b>	<b>+1450</b>
<b>Candidate Countries</b>					
Romania	certificates	-	-	-	-
Bulgaria	feed in tariff	0	0	+13	0
Turkey	obligation	+1600	+1800	+300	0
Croatia		no information available			
<b>Other Neighbouring Countries</b>					
Albania	tax incentives	0	0	+26	0

source: Regulators' survey responses

Table 8.2 above shows the main approach in each Member State and the results currently being achieved in terms of the amount of new generation capacity in 2003 for each fuel type. The results are particularly encouraging in this regard, with over 7000MW of new renewable and CHP generation having been connected, more than half the overall total.

#### **8.4 Conclusions**

There is no reason at all why the opening of the electricity market should have any negative environmental consequences provided that the framework for producers and consumers is set in an appropriate way. The Community is working hard to ensure that this is the case and a range of measures have been adopted and are being implemented with this in mind.

## ANNEX 9 EXTERNAL DIMENSION

### 9.1 Switzerland

In 2002 a draft law providing for ultimately complete opening of the Swiss electricity market, following essentially the concepts of the electricity directive, was rejected in a referendum by the Swiss population by a narrow majority. Following the Italian black-out in September 2003, which was caused by an incident on a Swiss transmission line, and a ruling of the Swiss Federal Court that third party access to networks has in principle to be granted on the basis of Swiss competition law, the government has resumed pursuing the objective of opening the market at least for industrial customers. A draft law, providing for market opening for larger commercial customers (degree of opening of around 40%), unbundling and a regulatory authority, was submitted for consultation to stakeholders in September 2004. The draft law also contains rules on cross-border issues, similar to the rules contained in the Regulation on cross-border electricity exchanges, notably on congestion management. Given the time necessary for the legislative procedure and a possible referendum, first steps of market opening can be expected in 2008, in case the law is finally approved. First discussions have already taken place with Switzerland on negotiating an agreement on electricity trade between the EU and Switzerland, which would become effective when the Swiss market becomes actually open. At the same time discussions are ongoing to ensure that, independantly from the issue of market opening in Switzerland, non-discriminatory transit through Switzerland is ensured, notably with respect to congestion management rules.

### 9.2 South East Europe

The South East Europe Energy Regulatory Process launched by the signature of the Memorandum of Understanding on the Regional Electricity Market in South East Europe (REMSEE) and its Integration into the European Union Internal Electricity Market (the Athens Memorandum of 15 November 2002).

The second Athens Memorandum, signed in 2003, recapitulates the first but updates it to include the new EU legislation and includes gas. It maintains all the commitments of the first memorandum, with the exception of market opening, includes environmental commitments, reciprocity provisions, asks the countries to implement security of supply strategies and asks the countries to agree dates for market opening and environmental legislation. It is stronger than the EU *acquis* in that it substantially goes beyond the *acquis* in pooling sovereignty in this strategic sector.<sup>67</sup> Within the “Athens Process” the following Institutional Structure is in place:

**The Ministerial Council**, which takes place annually with the participation of the Ministers of Energy of the member countries and the Commissioner for Energy and Transport, in order to take the strategic decisions and give directions to the Forum or to formally adopt or endorse conclusions of the Forum. The Presidency of this Council rotates on a six monthly basis.

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<sup>67</sup> It was agreed by Croatia, Bosnia and Herzegovina, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia, Romania, Bulgaria, Turkey, Albania (Kosovo joined pursuant to UN Resolution 1244): in addition, Moldova, Hungary and Slovenia were observers. Greece, Italy and Austria are political participants to the process.

**The Permanent High Level Group**, which is composed by representatives of the Ministers of Energy of the Member Countries and the Commission. The group shall be convened, when necessary, on the initiative of either the Commission or the country holding the Presidency at the time, in order to prepare the Ministerial Council and to ensure the follow – up of its decisions. The Commission co-chairs this group along with the President in Office.

**The South East Europe Energy Regulation Forum – the Athens Forum.** The Forum comprises representatives of the Commission, governments, regulators and transmission system operators of the countries of Southeast Europe, the Council of European Energy Regulators (CEER), the European Transmission System Operators (ETSO), the Union for the Co-ordination of Transmission for Electricity (UCTE), representatives of donors, electricity producing companies, and consumers. The Forum is co-chaired by the European Commission and a representative of the president in office.

### **9.3 Mediterranean countries**

In May 2003 the first Declaration of intention was signed concerning the development of an integrated electricity market in the Maghreb countries with the view to integrating this market in the European electricity market. A Memorandum of Understanding has subsequently been signed by the Ministers of the three countries and the Commissioner for Energy on 2 December 2003. The European Commission provides technical assistance to the creation of the integrated Maghreb electricity market and its integration in the EU electricity market.

For the Mashrek countries a declaration of intention has been signed on 2 December 2003 concerning Euro Mashrek cooperation in the field of natural gas, which ultimately aims at creating a similar legal framework in the Mashrek countries to the framework prevailing in the European Union.

A process of energy cooperation between Israel and the Palestinian authority is equally underway focussing on the establishment of a joint energy office, cooperation in the field of renewable energy and energy efficiency and the study of common projects in the electricity and gas fields.

### **9.4 Russia**

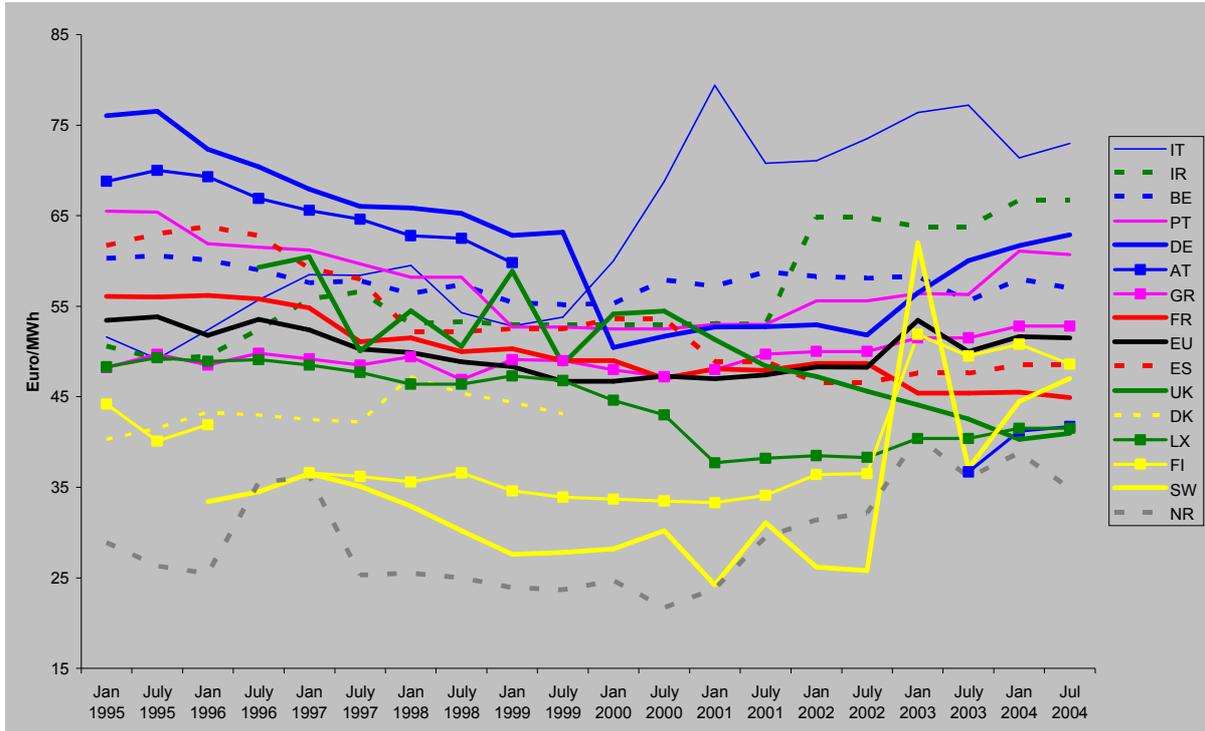
Both the EU and Russia pursue the objective of integrating their electricity markets, on the basis of the existence of a level playing field in terms of market rules and environmental rules, including nuclear safety. Furthermore, the establishment of a reliable physical interconnection between both electricity systems is necessary. The issue has been dealt with in the context of the EU-Russia energy dialogue.

With respect to the necessary equivalence of market and environmental standards, a fact finding exercise, jointly undertaken with the Russian side and aiming at establishing a report describing the existing standards in the EU and Russia, is nearing conclusion. Once the report is available, a decision at the political level will have to be made on how to proceed further, as agreed at an electricity round table, organised in Moscow on 16 October 2003 in the context of the energy dialogue. In this respect the approach adopted for the creation of an electricity market in South-East Europe, consisting in a request to the Council by the Commission to negotiate a bilateral agreement on electricity trade, could serve as a model.

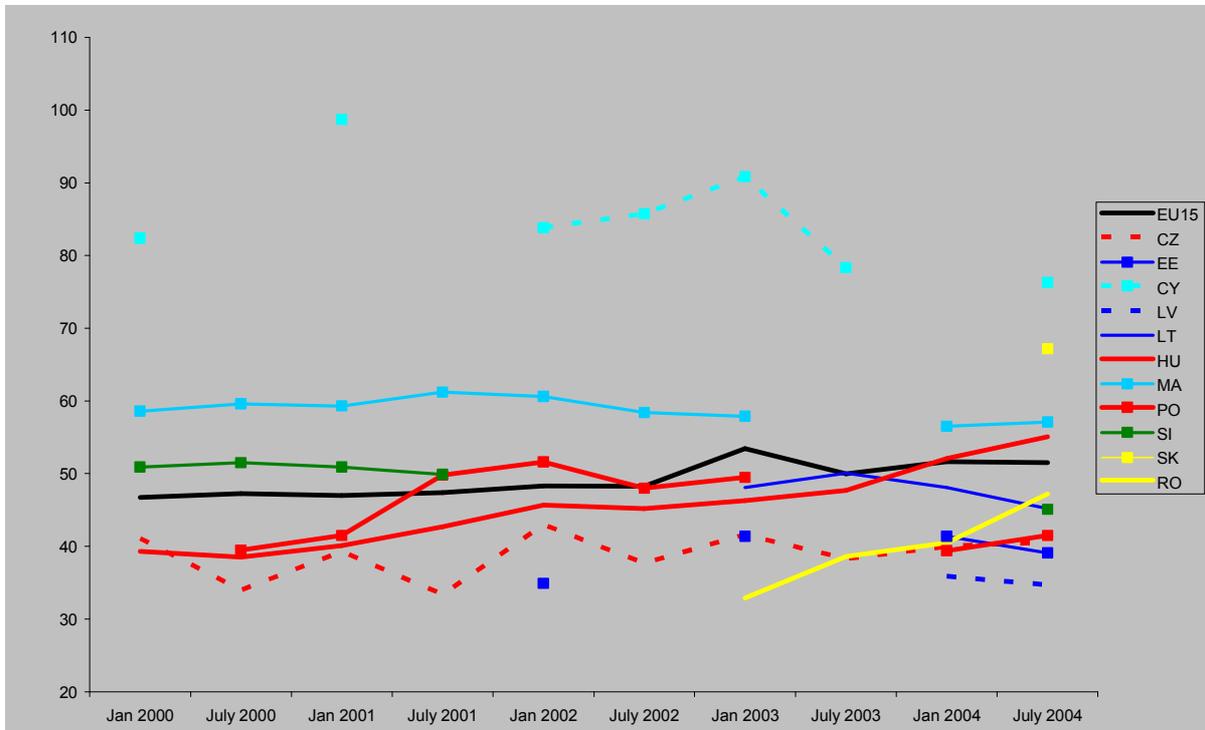
Regarding the issue of an interconnection between the Russian/CIS system and the continental European electricity system, operated by UCTE, the Commission has declared on a number of occasions that it is prepared to co-finance a comprehensive study looking at this issue as a priority study of common European interest under the TEN-energy programme. In turn, the Russian electricity company RAO UES has stated its willingness to co-finance this project from the Russian side. UCTE submitted a corresponding request for co-funding of the study under TEN-E in 2004 and a final decision on this request will be made by the end of this year. The study is supposed to be finalised in 2007, at the latest. An earlier completion, for instance in 2006, is desirable and possible, provided all partners contribute in an efficient manner to it.

**ANNEX 10 End User Prices Tables and Graphs**

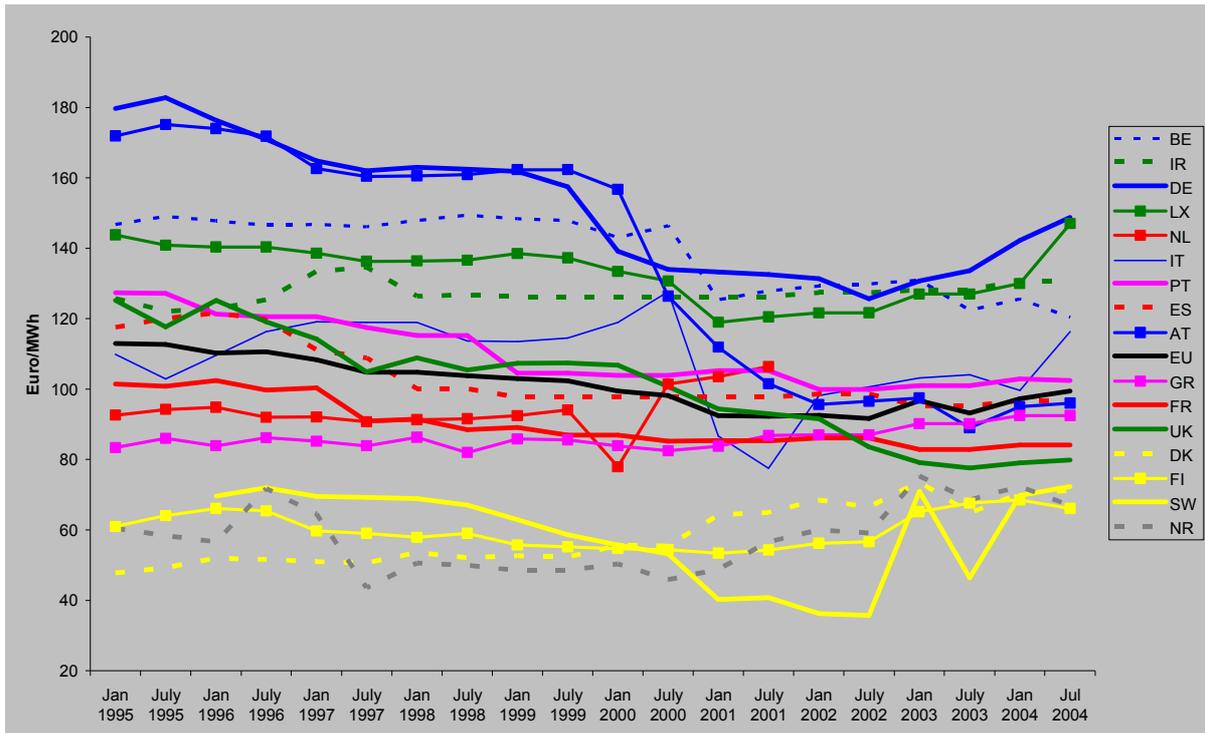
**Graph 10.1a Electricity prices to large industrial consumers 1997-2004: 24GWh/year**



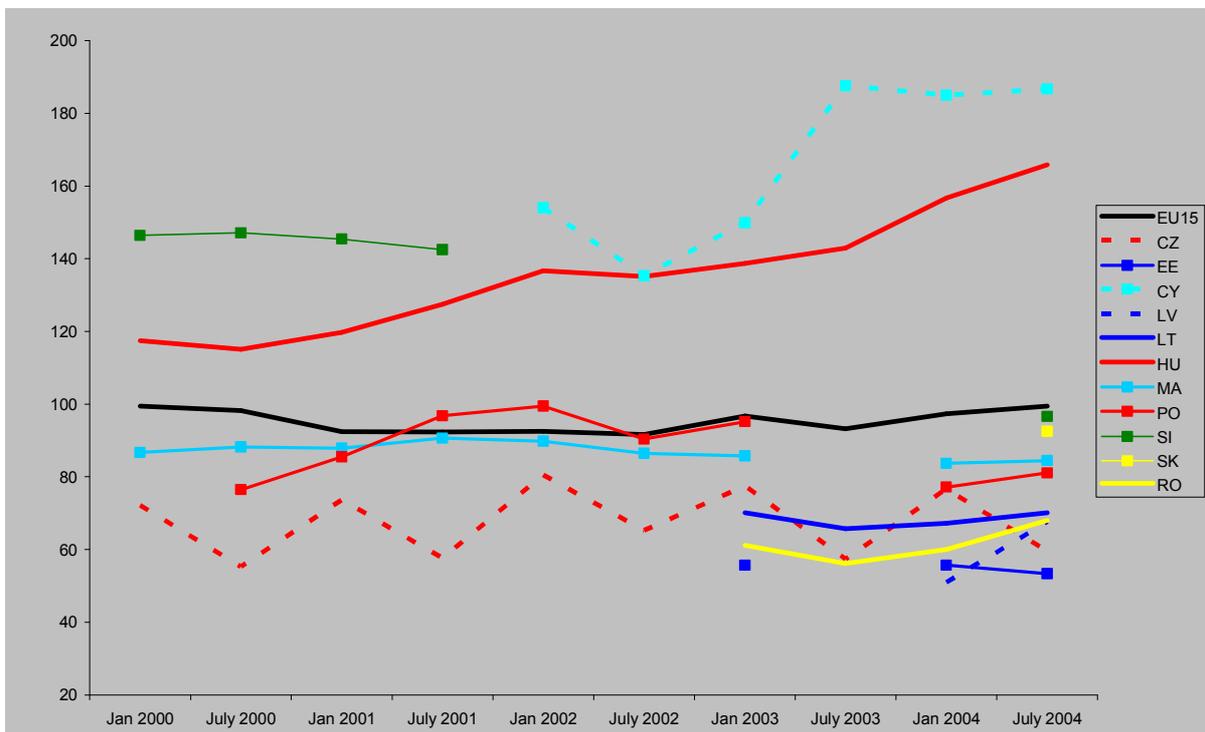
**Graph 10.1b Electricity prices to large industrial consumers 2000-2004: 24GWh/year**



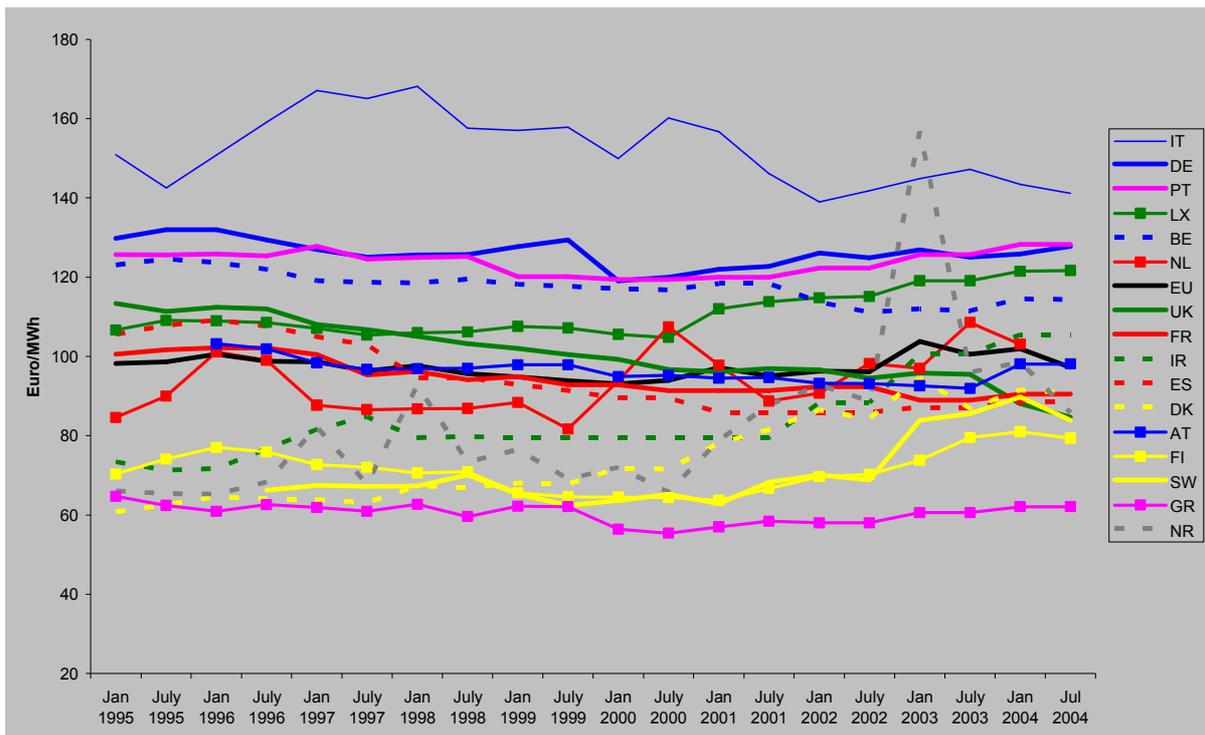
**Graph 10.2a Electricity prices to small commercial consumers 1997-2004: 50MWh/year**



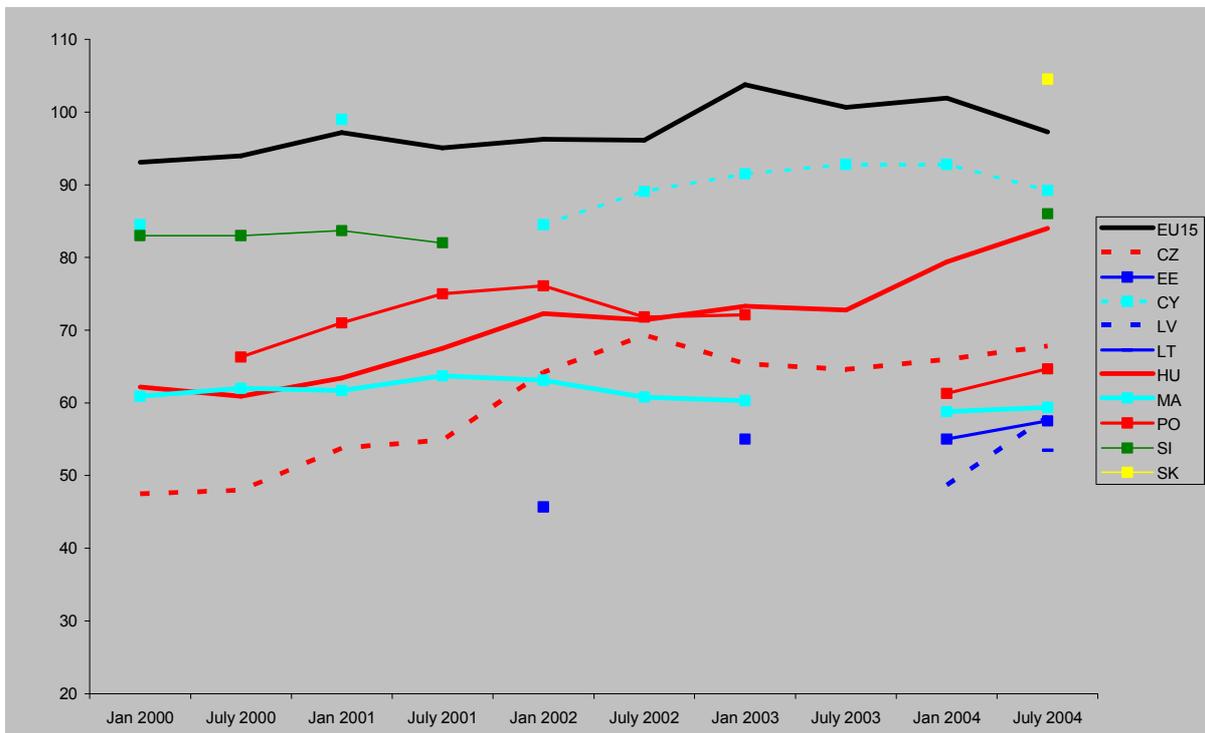
**Graph 10.2b Electricity prices to small commercial consumers 1997-2004: 50MWh/year**



**Graph 10.3a Electricity prices to household consumers 1997-2004: 3.5MWh/year**



**Graph 10.3b Electricity prices to household consumers 2000-2004: 3.5MWh/year**

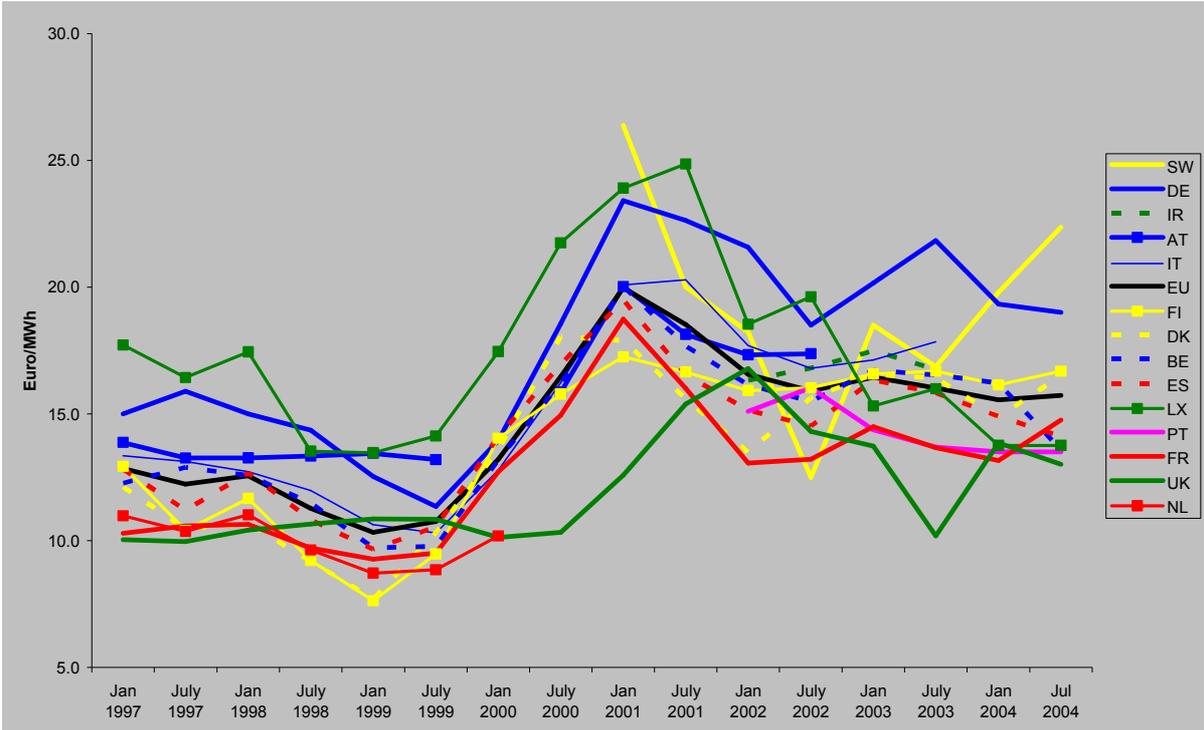


**Table 10.1 Eurostat Electricity Retail Prices (Current Prices, Before Taxes)**

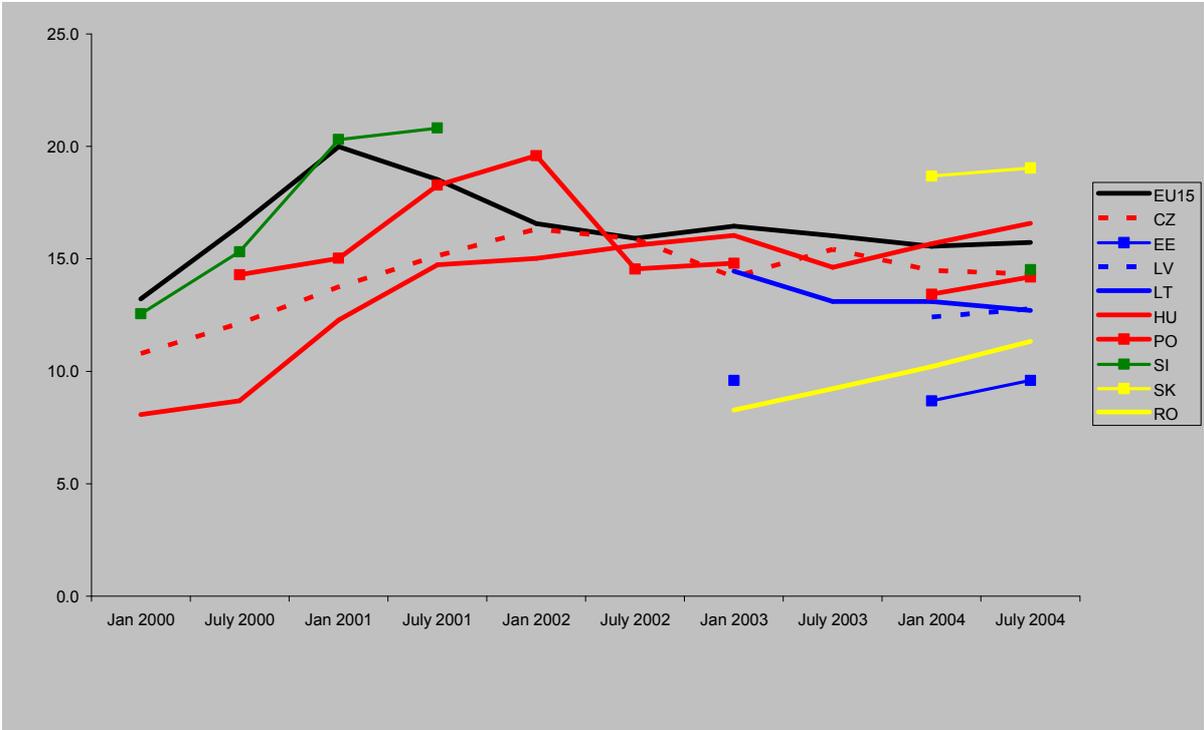
INDUSTRIAL IG														% change since 1/2000	% change since 7/2003
	Jan 2000	July 2000	Jan 2001	July 2001	Jan 2002	July 2002	Jan 2003	July 2003	Jan 2004	Jul 2004					
AT								37	41	42	AT			14%	
BE	55	58	57	59	58	58	58	56	58	57	BE			3%	
DE	50	52	53	53	53	53	52	56	60	62	DE			5%	
DK											DK				
ES	54	54	49	49	47	47	48	48	49	49	ES			-10%	
FI	34	34	33	34	36	37	52	50	51	49	FI			44%	
FR	49	47	48	48	49	49	45	45	46	45	FR			-8%	
GR	48	47	48	50	50	50	52	52	53	53	GR			10%	
IR	53	53	53	53	65	65	64	64	67	67	IR			26%	
IT	60	69	79	71	71	74	76	77	71	73	IT			22%	
LX	45	43	38	38	39	38	40	40	42	42	LX			-7%	
NL											NL				
PT	53	53	53	53	56	56	56	56	61	61	PT			16%	
SW	28	30	24	31	26	26	62	37	45	47	SW			67%	
UK	54	54	51	48	47	46	44	43	40	41	UK			-24%	
NR	25	22	24	30	31	32	41	36	39	35	NR			41%	
BU										37	BU				
CZ	41	34	39	33	43	38	42	38	40	41	CZ			-1%	
EE					35	41	41	39	41	39	EE			6%	
CY	82		99		84	86	91	78	76	76	CY			-7%	
LV									36	35	LV			-3%	
LT							48	50	48	45	LT			-10%	
HU	39	39	40	43	46	46	46	46	52	55	HU			40%	
MA	59	60	59	61	61	58	58	57	57	57	MA			-3%	
PO		40	42	50	52	46	50		39	42	PO				
SI	51	52	51	50						45	SI			-11%	
SK										67	SK				
RO							33	39	41	47	RO			22%	
TU											TU				
INDUSTRIAL IB														% change since 1/2000	% change since 7/2003
	Jan 2000	July 2000	Jan 2001	July 2001	Jan 2002	July 2002	Jan 2003	July 2003	Jan 2004	Jul 2004					
AT	157	126	112	102	96	97	98	89	95	96	AT			-39%	
BE	143	146	125	128	129	130	131	122	126	120	BE			-16%	
DE	139	134	133	133	131	126	131	134	142	149	DE			7%	
DK	56	55	64	65	69	67	74	65	70	71	DK			28%	
ES	98	98	98	98	99	99	95	95	97	97	ES			-1%	
FI	55	54	53	54	56	57	65	68	69	66	FI			21%	
FR	87	85	85	85	86	86	83	83	84	84	FR			-3%	
GR	84	83	84	87	87	87	90	90	93	93	GR			10%	
IR	126	126	126	126	127	127	128	128	131	131	IR			4%	
IT	119	128	87	78	98	101	103	104	100	116	IT			-2%	
LX	133	131	119	121	122	122	127	127	130	147	LX			10%	
NL	78	101	104	106							NL				
PT	104	104	105	105	100	100	101	101	103	103	PT			-1%	
SW	56	53	40	41	36	36	71	46	70	72	SW			30%	
UK	107	101	94	93	92	84	79	78	79	80	UK			-25%	
NR	50	46	49	57	60	59	75	69	72	67	NR			33%	
BU										49	BU				
CZ	72	55	74	58	81	65	78	57	77	60	CZ			-17%	
EE							56	56	56	53	EE				
CY					154	135	150	188	185	187	CY			0%	
LV									51	68	LV				
LT							70	66	67	70	LT			7%	
HU	118	115	120	127	137	135	139	143	157	166	HU			41%	
MA	87	88	88	91	90	87	86	84	84	85	MA			-3%	
PO	0	77	86	97	100	90	95		77	81	PO				
SI	146	147	145	143						97	SI			-34%	
SK										93	SK				
RO								61	56	60	RO			21%	
TU										68	TU				
DOMESTIC DC														% change since 1/2000	% change since 7/2003
	Jan 2000	July 2000	Jan 2001	July 2001	Jan 2002	July 2002	Jan 2003	July 2003	Jan 2004	Jul 2004					
AT	95	95	95	95	93	93	93	92	98	98	AT			3%	
BE	117	117	118	118	114	111	112	112	115	114	BE			-2%	
DE	119	120	122	123	126	125	127	125	126	128	DE			7%	
DK	72	72	78	82	87	84	95	87	92	91	DK			26%	
ES	90	90	86	86	86	86	87	87	89	89	ES			-1%	
FI	65	64	64	67	70	70	74	80	81	79	FI			23%	
FR	93	91	91	91	92	92	89	89	91	91	FR			-2%	
GR	56	55	57	58	58	58	61	61	62	62	GR			10%	
IR	80	80	80	80	88	88	101	101	106	106	IR			33%	
IT	150	160	157	146	139	142	145	147	143	141	IT			-6%	
LX	106	105	112	114	115	115	119	119	122	122	LX			15%	
NL	94	108	98	89	91	98	97	109	103		NL				
PT	119	119	120	120	122	122	126	126	128	128	PT			7%	
SW	64	65	63	68	70	69	84	86	90	84	SW			32%	
UK	99	97	96	97	97	95	96	95	88	85	UK			-15%	
NR	72	66	79	88	93	89	157	96	99	86	NR			19%	
BU										51	BU				
CZ	48	48	54	55	64	69	65	65	66	68	CZ			43%	
EE					46	55	55	55	55	58	EE				
CY	85		99		85	89	92	93	93	89	CY			6%	
LV									49	58	LV			-4%	
LT										54	LT				
HU	62	61	63	68	72	71	73	73	79	84	HU			35%	
MA	61	62	62	64	63	61	60	59	59	59	MA			-2%	
PO	0	86	71	75	76	72	72		61	65	PO				
SI	83	83	84	82						86	SI			4%	
SK										105	SK				
RO											RO				
TU											TU				

Prices in the tables and graphs above exclude VAT and other energy taxes.

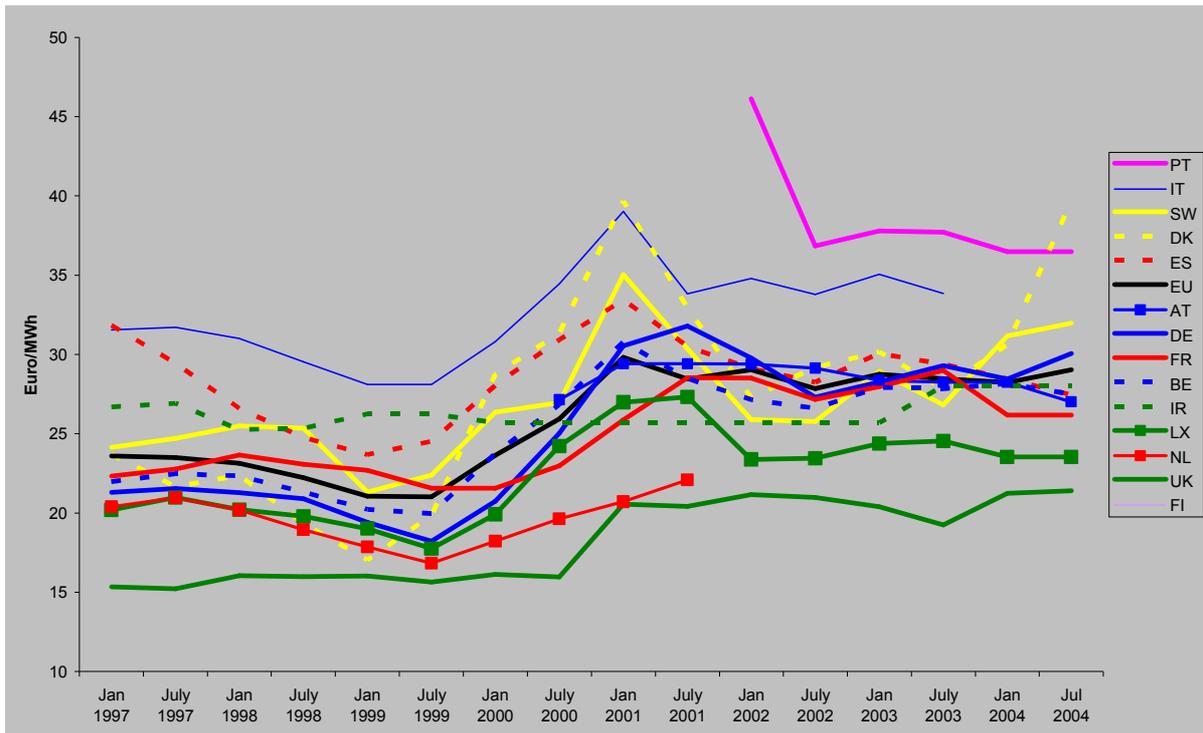
**Graph 10.4a Gas prices large commercial consumers 1997-2004: 420 TJ/year (approx. 120GWh)**



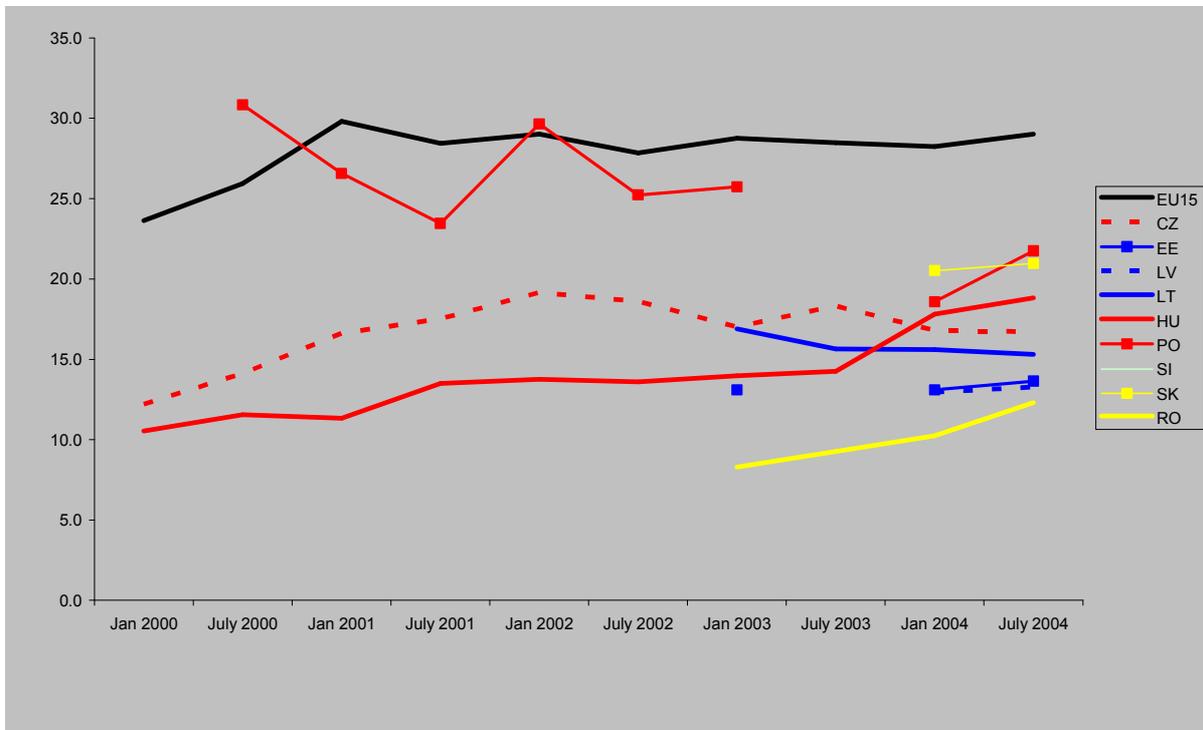
**Graph 10.4b Gas prices large commercial consumers 1997-2004: 420 000GJ/year (approx. 120GWh)**



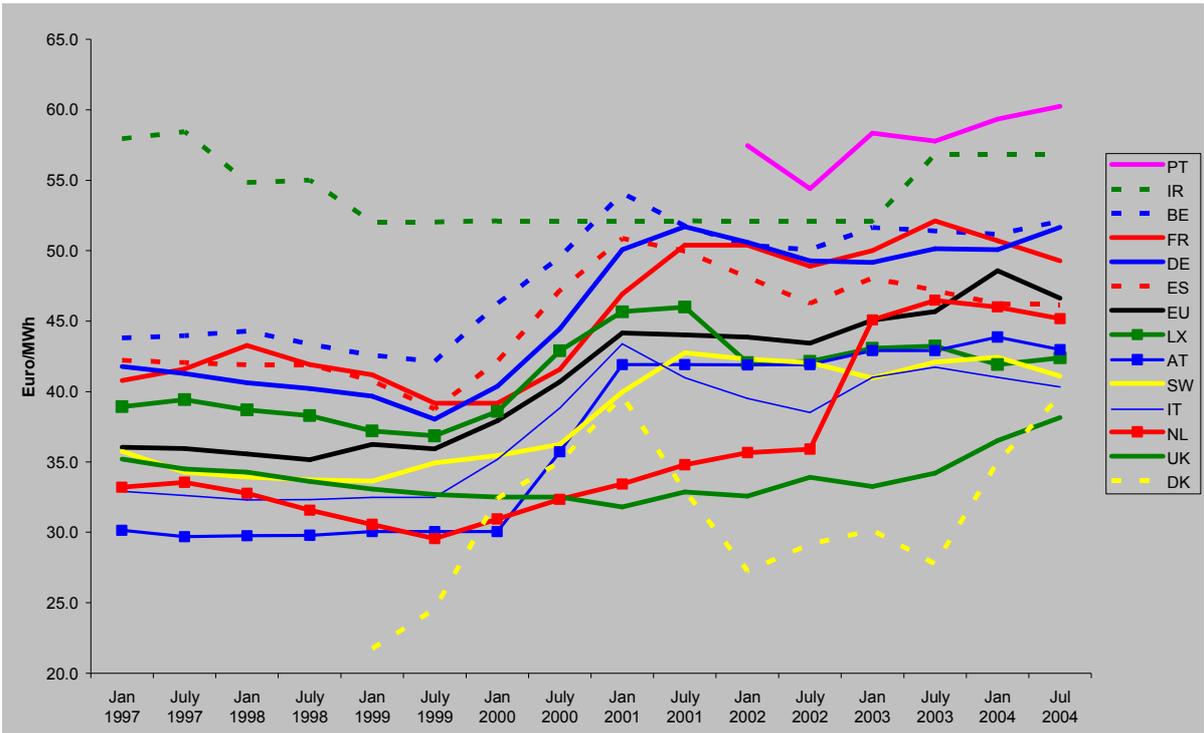
**Graph 10.5a Gas prices small commercial consumers 1997-2004: 420GJ/year (approx. 120MWh)**



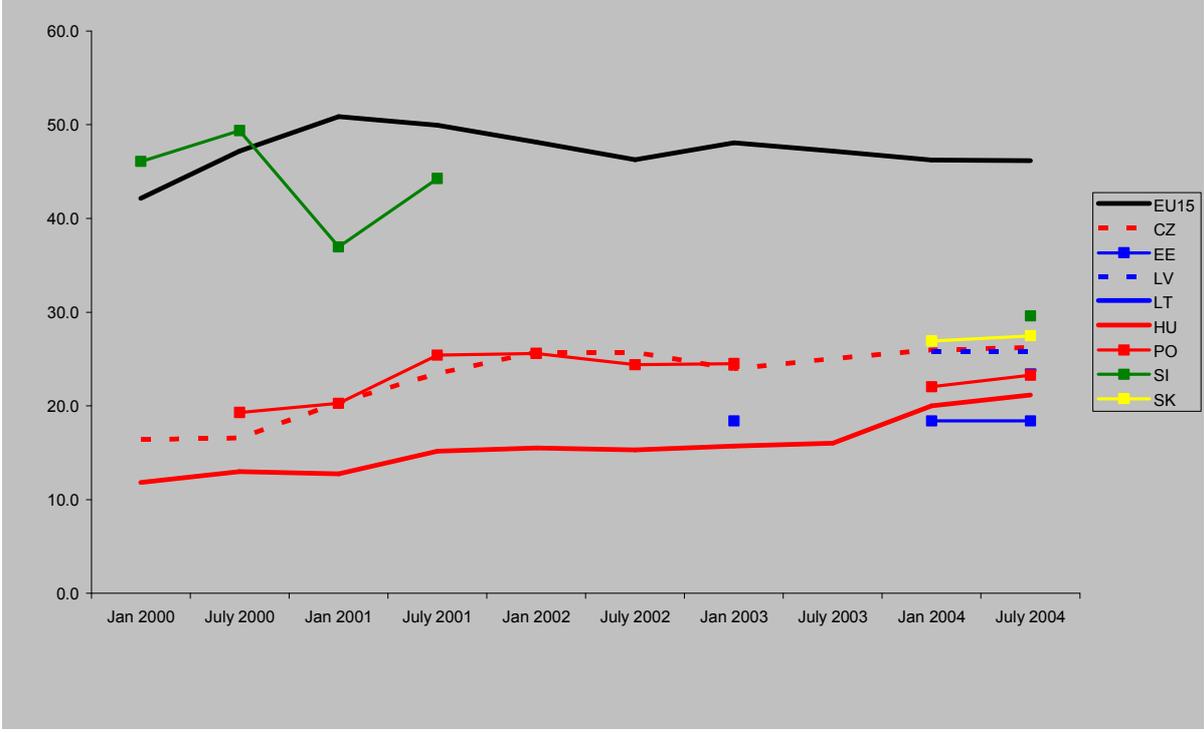
**Graph 10.5b Gas prices small commercial consumers 1997-2004: 420GJ/year (approx. 120MWh)**



**Graph 10.6a Gas Prices to household consumers 1997-2004: 16GJ/year (approx. 4.5MWh)**



**Graph 10.6b Gas Prices to household consumers 1997-2004: 16GJ/year (approx. 4.5MWh)**



**Table 10.2 Eurostat Gas Retail Prices (Current Prices, Before Taxes)**

INDUSTRIAL I4													% change since 1/2000	% change since 7/2003
	Jan 2000	July 2000	Jan 2001	July 2001	Jan 2002	July 2002	Jan 2003	July 2003	Jan 2004	Jul 2004				
AT		16	20	18	17	17					AT			
BE	13	16	20	18	16	15	17	17	16	14	BE	3%	-18%	
DE	14	19	23	23	22	18	20	22	19	19	DE	36%	-13%	
DK	14	18	18	16	13	16	17	16	15	17	DK	22%	1%	
ES	14	17	19	17	15	15	16	16	15	14	ES	0%	-11%	
FI	14	16	17	17	16	16	17	17	16	17	FI	19%	0%	
FR	13	15	19	16	13	13	14	14	13	15	FR	16%	8%	
IR					16	17	17	17			IR			
IT	13	16	20	20	18	17	17	18			IT			
LX	17	22	24	25	19	20	15	16	14	14	LX	-21%	-14%	
NL	10										NL			
PT					15	16	14	14	14	14	PT		-1%	
SW			26	20	18	12	18	17	20	22	SW		33%	
UK	10	10	13	15	17	14	14	10	14	13	UK	28%	28%	
BU										12	BU			
CZ	11	12	14	15	16	16	14	15	14	14	CZ	33%	-7%	
EE							10		9	10	EE			
LV									12	13	LV			
LT							14	13	13	13	LT		-3%	
HU	8	9	12	15	15	16	16	15	16	17	HU	105%	13%	
PO		14	15	18	20	15	15		13	14	PO			
SI	13	15	20	21						15	SI	16%		
SK									19	19	SK			
RO							8	9	10	11	RO		23%	
TU														
INDUSTRIAL I1													% change since 1/2000	% change since 7/2003
	Jan 2000	July 2000	Jan 2001	July 2001	Jan 2002	July 2002	Jan 2003	July 2003	Jan 2004	Jul 2004				
AT		27	29	29	29	29	28	28	28	27	AT		-4%	
BE	24	27	31	28	27	27	28	28	28	27	BE	16%	-1%	
DE	21	25	31	32	30	27	28	29	28	30	DE	45%	3%	
DK	29	31	40	33	27	29	30	28	31	40	DK	38%	43%	
ES	28	31	33	31	29	28	30	29	28	27	ES	-2%	-7%	
FR	22	23	26	29	29	27	28	29	26	26	FR	21%	-10%	
IR	26	26	26	26	26	26	26	28	28	28	IR	9%	0%	
IT	31	34	39	34	35	34	35	34			IT			
LX	20	24	27	27	23	23	24	25	24	24	LX	18%	-4%	
NL	18	20	21	22							NL			
PT					46	37	38	38	36	36	PT		-3%	
SW	26	27	35	30	26	26	29	27	31	32	SW	21%	19%	
UK	16	16	21	20	21	21	20	19	21	21	UK	33%	11%	
FI											FI			
BU										15	BU			
CZ	12	14	17	18	19	19	17	18	17	17	CZ	37%	-9%	
EE							13		13	14	EE			
LV									13	13	LV			
LT							17	16	16	15	LT		-2%	
HU	11	12	11	14	14	14	14	14	18	19	HU	79%	32%	
PO	0	31	27	23	30	25	26		19	22	PO			
SI											SI			
SK									21	21	SK			
RO							8	9	10	12	RO		33%	
TU											TU			
DOMESTIC D3													% change since 1/2000	% change since 7/2003
	Jan 2000	July 2000	Jan 2001	July 2001	Jan 2002	July 2002	Jan 2003	July 2003	Jan 2004	Jul 2004				
AT	28	29	32	32	32	32	32	32	33	32	AT	14%	1%	
BE	27	30	34	32	30	30	31	31	30	31	BE	13%	-2%	
DE	25	29	35	36	33	32	32	33	33	35	DE	38%	4%	
DK	32	35	40	33	27	29	30	28	33	40	DK	22%	43%	
ES	33	37	40	39	38	36	38	37	36	35	ES	7%	-4%	
FI											FI			
FR	25	27	31	34	34	32	33	34	33	33	FR	32%	-3%	
IR	26	26	26	26	26	26	26	29	29	29	IR	9%	0%	
IT	32	35	40	38	36	35	36	37	35	35	IT	11%	-5%	
LX	21	25	28	28	24	24	25	25	24	25	LX	20%	-2%	
NL	20	22	23	24	25	26	30	31	31	30	NL	48%	-3%	
PT	0	0	50	48	48	46	46	46	42	42	PT		-7%	
SW	28	28	33	36	35	35	36	36	36	35	SW	28%	-2%	
UK	22	22	23	23	23	24	23	24	25	27	UK	21%	14%	
BU											BU			
CZ	13	13	16	19	21	21	19	20	19	19	CZ	51%	-3%	
EE							14		14	14	EE			
LV									13	14	LV			
LT										16	LT			
HU	11	12	12	11	14	14	14	15	18	19	HU	79%	32%	
PO	0	18	19	24	24	21	21		19	20	PO			
SI	20	22	30	31						27	SI	36%		
SK									22	23	SK			
RO											RO			
TU											TU			

Prices in the tables and graphs above exclude VAT and other energy taxes.