

# Liberalisation of the EU's Energy Markets

Antony Froggatt

<http://www.eu-energy.com>

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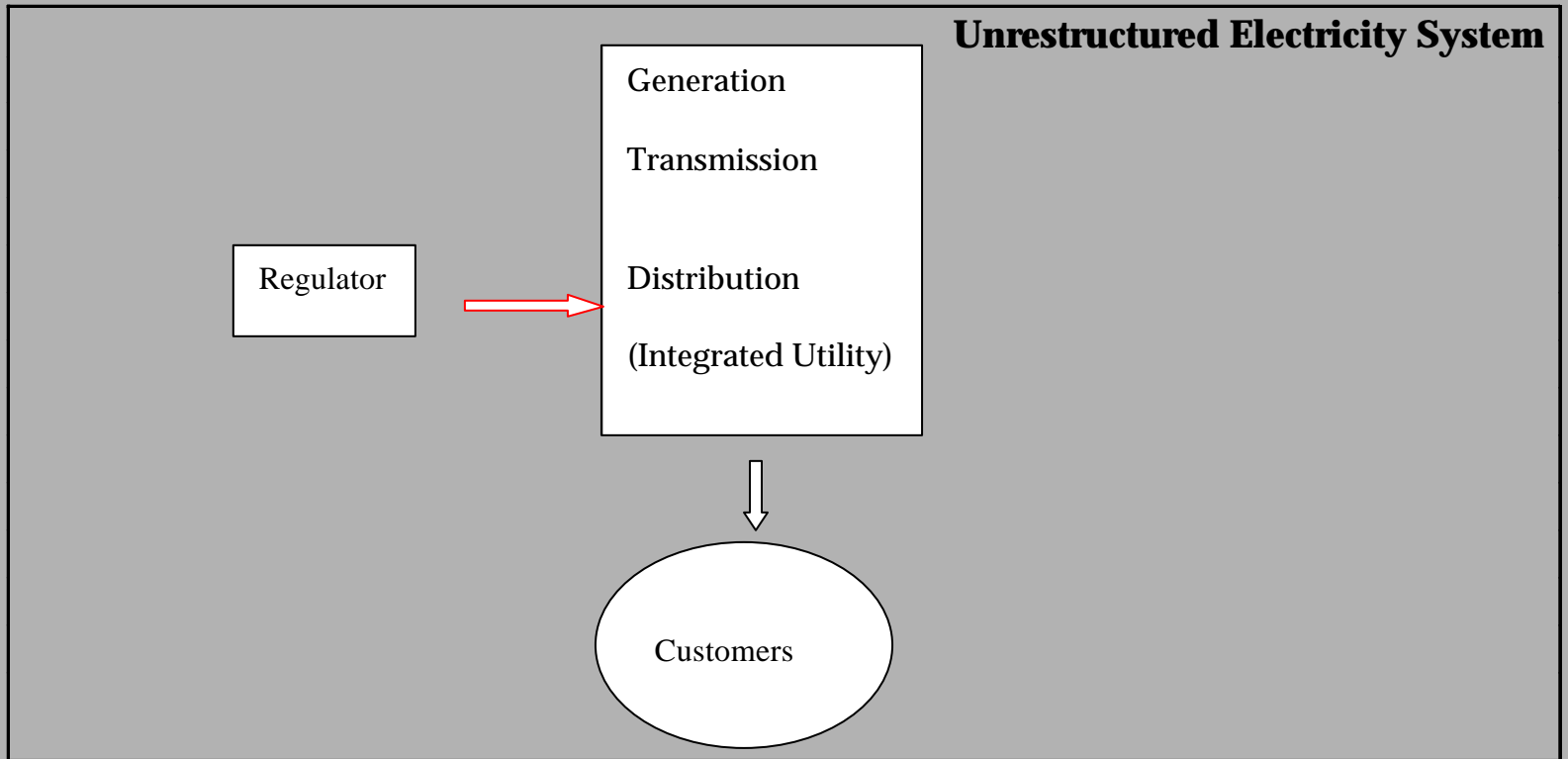
# Summary

- What is Liberalisation
- Requirements of 1996 Directive
- Requirements of 2003 Directive
- Impacts of Liberalisation
- Fuel Choices

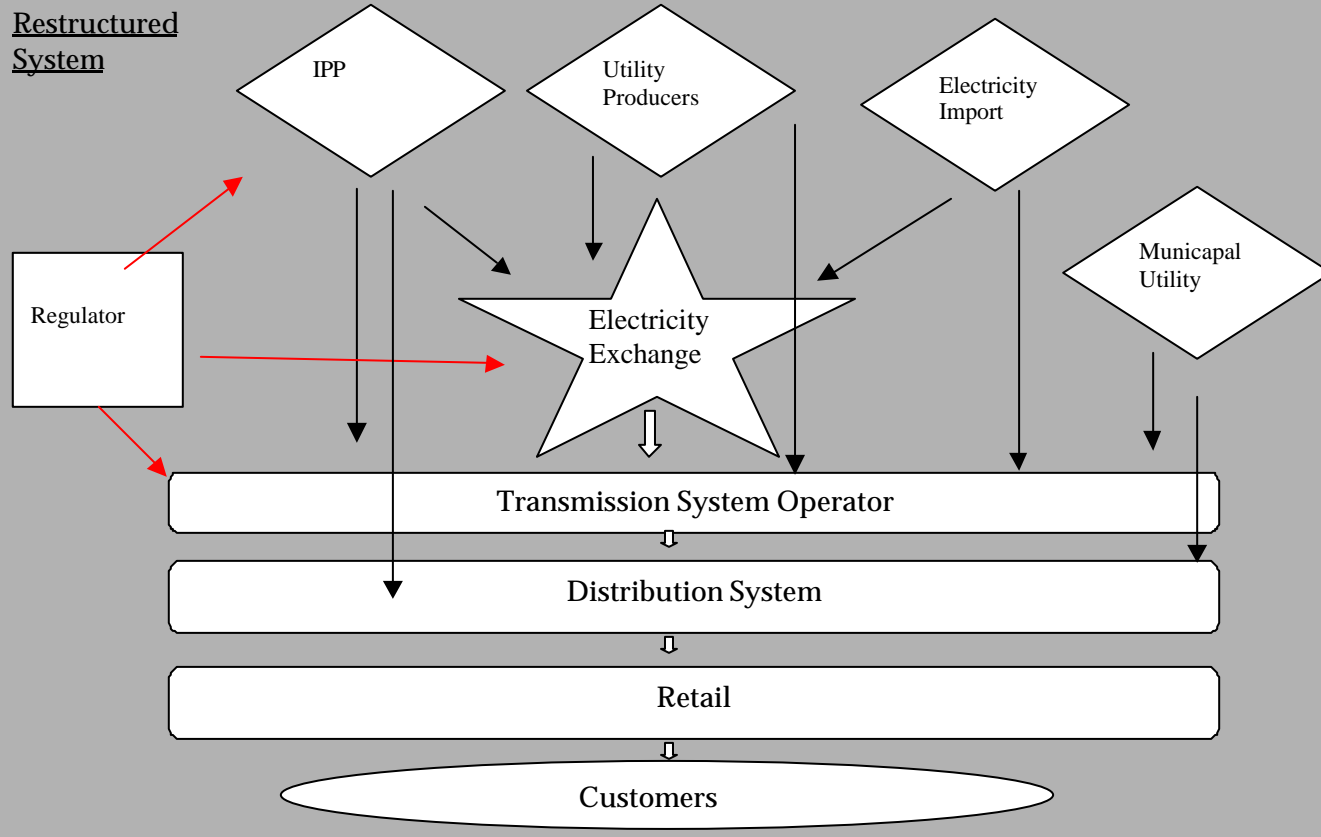
# Liberalisation

- Requirements
  - increase competition within the energy industry, by breaking up existing companies into smaller parts, removal of monopolies
  - allow new market actors
  - level playing field for generators
  - increase transparency

- Desired results
  - lower prices.
  - increase innovation
  - greater consumer choice
  - less government intervention/subsidies?



Restructured System



# Privatisation

- Selling State owned companies to private companies.
- Privatisation often occurs after liberalisation, but does not have to, the directives do NOT require it
- Privatisation can occur of
  - whole electricity industry - nearly Czech model
  - Or different parts of sector sold.

# Current EU Legislation

- Directive 96/92/EC concerning common Rules for the internal market in electricity.
  - Transposition by February 1999
- Directive 98/30/EC concerning common rules for the internal market for natural gas
  - Transposition by August 2000



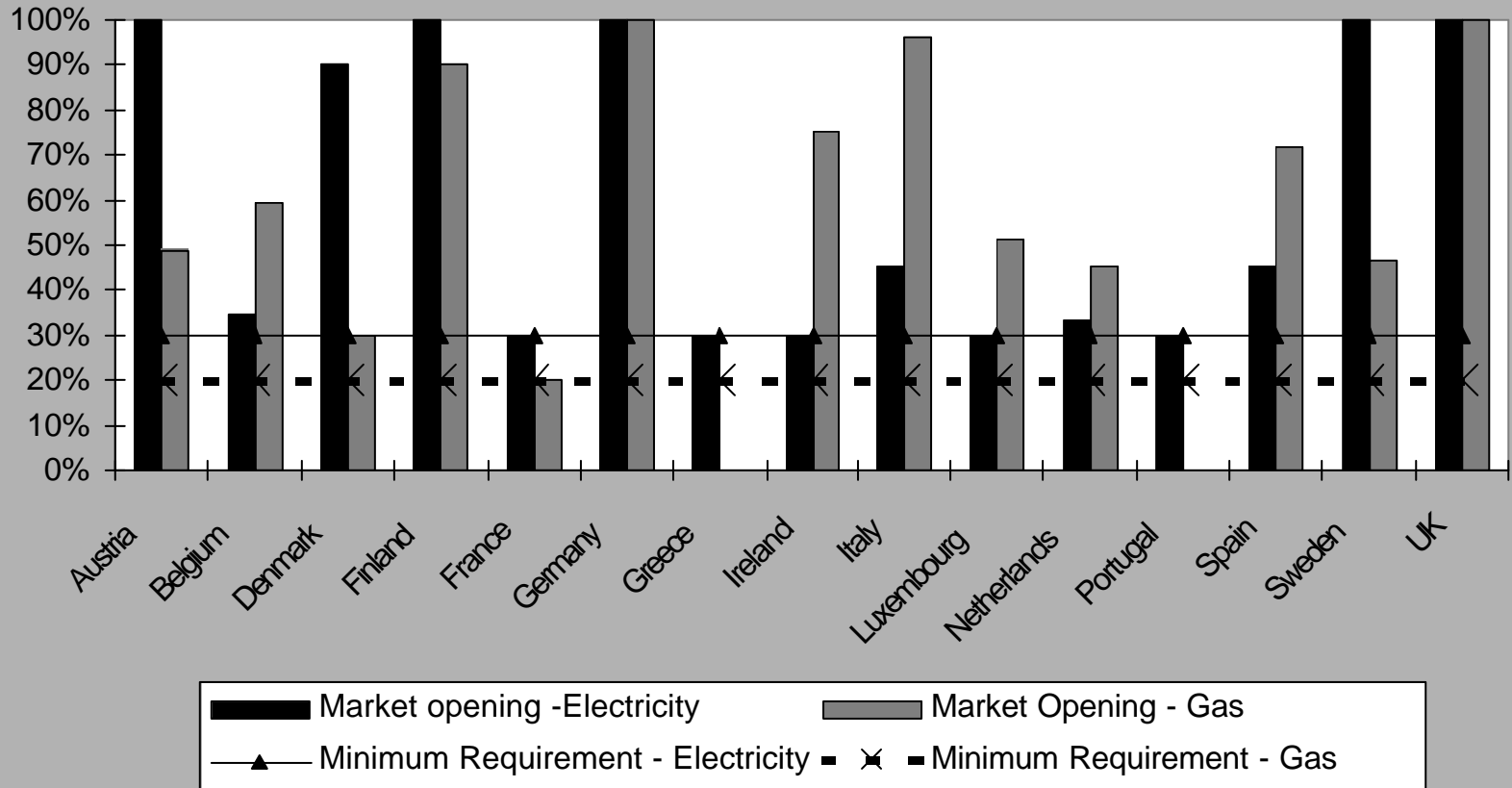
# Main Points of 1990s Directives

- Long negotiations resulted in far weaker legislation than originally envisaged.
- French Government in particular not want market liberalisation, other powerful countries oppose key parts (e.g. Germany on regulation).
- Electricity Market Directive transposed by February 1999,

# Market Opening

Electricity Market Directive			Gas Market Directive		
Year	Threshold	Market Opening %	Year	Threshold	Market Opening %
1999	40 GWh	26	2000	25 million m <sup>3</sup>	20
2000	20 GWh	28	2005	15	28
2003	9 GWh	33	2010	5	33

## Opening of Energy Markets in EU



# Why is Market Opening Important?

- One of few measurables in directive
- Some MS went far faster than directive requirements and may have been lost competitive advantage.
- Introduction of reciprocity requirement.

# New Generating Capacity

- Tender: TSO or Government, puts out to tender new capacity.
- Authorisation: Apply for license to build new capacity - market decision.

# Grid Access

- Negotiated Third Party Access: direct negotiation between generators and TSO/DSOs
- Regulated TPA: published or regulated prices used in network.
- Single Buyer: TSO or agent buys all electricity consumed - at least for captive customers (no choice)

# Unbundling

- Directive does not require separate ownership for different parts of electricity industry, rather separation of functions ‘chinese walls’. Main unbundling requirements
  - Account unbundling between different actors, generation, transmission, distribution and retail.
  - TSO must also have management unbundling, from retail and generation

# Unbundling

- Account Unbundling: Income streams separated. Same company, same management.
- Management Unbundling: Separate management structures
- Legal Unbundling: Separate legal entity.
- Ownership Unbundling: Companies cannot be owned by same parent company



# Regulation

- Establishment of independent regulator or regulatory bodies.
- 14 MS have regulator only Germany insists on regulatory bodies
- Role of regulator fundamental to functioning of market - obvious but not apparent.

# Public Service Obligations

- ‘catch-all’ exception to market rules

*"Having full regard to the relevant provisions of the Treaty, in particular Article 90, Member States may impose on undertakings operating in the electricity sector, in the general economic interest, public service obligations which may relate to security of supply, regularity, quality and price of supplies and to environmental protection".*

# Revised Directives

- 16th June 2003, revised electricity and gas markets Directives finally adopted, along with Directives on:
  - Regulation on cross-border exchange in electricity
  - Decision on TENs-Energy
  - Intelligent-Energy - Europe programme
- This concluded 2 year review of revision of energy market directives.
- MS must comply with Directive July 2004

# Reason for Revision

- Unify requirements of Gas and Electricity Directives
- Quantitative reasons
  - creation of single energy market, not 15 or 25 separate liberalised markets
  - accelerate market opening timetables.
- Qualitative reasons
  - Universalise Benefits
  - Public Service Obligations
  - Consumer rights

# Changing Market Opening - Electricity Directive

1996 Directive		Commission Proposal 2001		Adopted 2003	
Year	Threshold	Year	Threshold	Year	Threshold
1999	40 GWh				
2000	20 GWh				
2003	9 GWh				
		2003	Non-domestic		
				July 2004	Non-domestic
		2005	All consumers		
				July 2007	All consumers

# New Generation Capacity

- Little Change, requirement for level playing field.
  - Emphasis on Authorisation (market decides)
  - But tendering on the basis of;
    - Security of supply - can include price?
    - Environmental protection
    - Promotion of infant technologies
    - Use of energy efficiency

# Access to Network

- Regulated Third Party Access.
- *‘the regulatory authorities shall be responsible for fixing or approving, prior to their entry into force, at least the methodologies used to calculate or establish the terms and conditions for connection and access to the national networks... and provision of balancing services’*
- Much weaker than desirable

## Unbundling/Competition Requirements of 2004 Directive

### **Generation**

Transparent and non-discrimination:  
Separate Accounts

### **Transmission**

Legal independence from integrated  
utility



Combined Operator Possible

### **Distribution**

Legal independence from integrated  
utility

### **Supply**

1<sup>st</sup> July 2004 – all non-domestic  
competition

1<sup>st</sup> July 2007 – all competition  
(probably)

Separate accounts for captive and non-  
captive clients



# Regulation

- Still have Regulator or Regulatory bodies
  - Access to accounts
  - Monitoring Market Concentration
  - Mechanisms for market abuse
- Reporting to Commission
  - Market Concentration
  - unbundling requirements
  - measures to cover peak demand
  - PSOs

# Increase Control?

- No single regulator
- Little requirement to increase disclosure of price information
- Rejection of European Parliamentary amendment on Parliamentary and Public scrutiny of regulatory activities

# Public Service Obligations

- Greater protection for individual consumers, disconnections, sales techniques etc.
- Same 'catch-all' clause
- Possibility for voluntary aggregation (consumer re-bundling) to increase buying power

# Disclosure

- Give Consumer information on generation mix of company supplying individual consumer.
- Data on type of power plants
- Environmental Impact

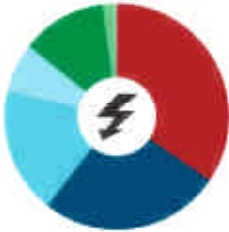

# Original Proposal

Annexed to Article 3:

(d) Member States shall ensure that electricity suppliers specify in the bills sent to each final consumer, the composition of the **fuel mix used to generate the electricity that is consumed** by the final consumers they supply. The **relative costs of the different fuels** used to generate a unit of electricity supplied to the final consumers shall be specified and the **relative importance of each energy source with respect to the production of greenhouse gases**.

# My electricity: dirty or clean?

377 million europeans have the right to know! **GREENPEACE**

<b>i</b>	<b>Your electricity</b>	Period: 01.01.2002 – 31.12.2002																
<b>1</b>	<b>Your utility</b>	Name Phone: xxx																
<b>2</b>	<b>Your electricity sources</b>	 <table border="0"> <tr> <td>● Nuclear</td> <td>34,2%</td> <td>● Hydro</td> <td>12,1%</td> </tr> <tr> <td>● Coal</td> <td>25,8%</td> <td>● Biomass</td> <td>1,5%</td> </tr> <tr> <td>● Gas</td> <td>17,9%</td> <td>● Wind</td> <td>0,6%</td> </tr> <tr> <td>● Oil</td> <td>7,9%</td> <td></td> <td></td> </tr> </table> <p>Country of origin _____ Country of origin _____</p>	● Nuclear	34,2%	● Hydro	12,1%	● Coal	25,8%	● Biomass	1,5%	● Gas	17,9%	● Wind	0,6%	● Oil	7,9%		
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<b>3</b>	<b>Environmental impact</b>	 Radioactive waste: xxx Bq, CO <sub>2</sub> (Greenhouse gas): xxx kg																
<b>4</b>	<b>Your consumption</b>	You have to pay with 0,15 €/kWh <b>€ 535,20</b> <table border="1"> <tr> <td>Your total consumption</td> <td>kWh</td> <td>3500</td> </tr> <tr> <td>What you can achieve:</td> <td>1600</td> <td></td> </tr> </table>	Your total consumption	kWh	3500	What you can achieve:	1600											
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# What was Adopted

3.6 Member States shall ensure that electricity suppliers specify in or with the bills and in promotional materials made available to final customers:

- (a) the contribution of each energy source to the overall fuel mix of the supplier over the preceding year;
- (b) at least the reference to existing reference sources, such as web-pages, where information on the environmental impact, in terms of at least emissions of CO<sub>2</sub> and the radioactive waste resulting from the electricity produced by the overall fuel mix of the supplier over the preceding year is publicly available.

With respect to electricity obtained via an electricity exchange or imported from an undertaking situated outside the European Union, aggregate figures provided by the exchange or the undertaking in question over the preceding year may be used.

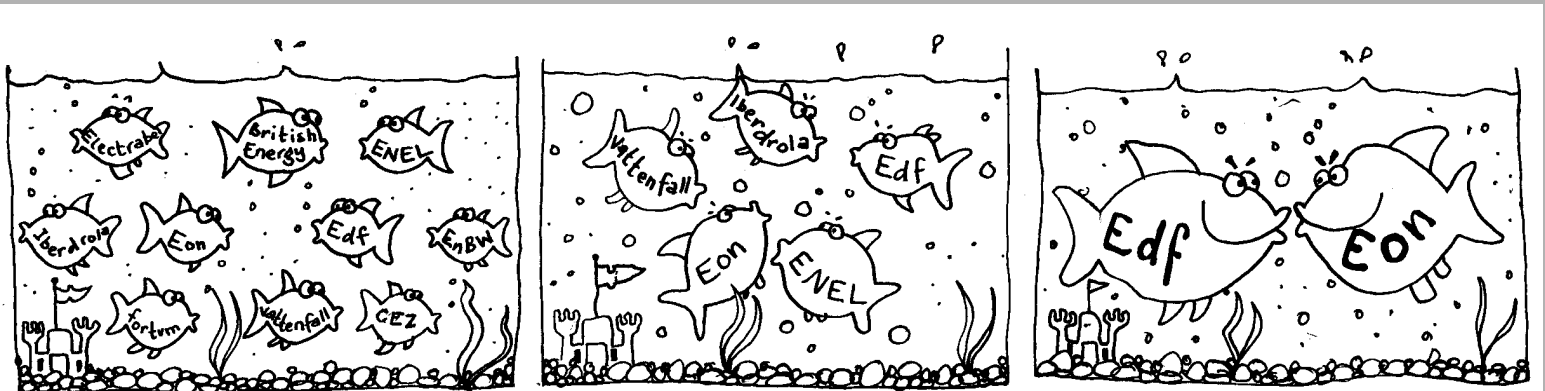
Member States shall take the necessary measures to ensure that the information provided by suppliers to their customers pursuant to this Article is reliable.

# Impacts of Liberalisation to date

- Ownership
- Prices
- Fuel choices



# Ownership-Market Concentration



Big fish, small pond

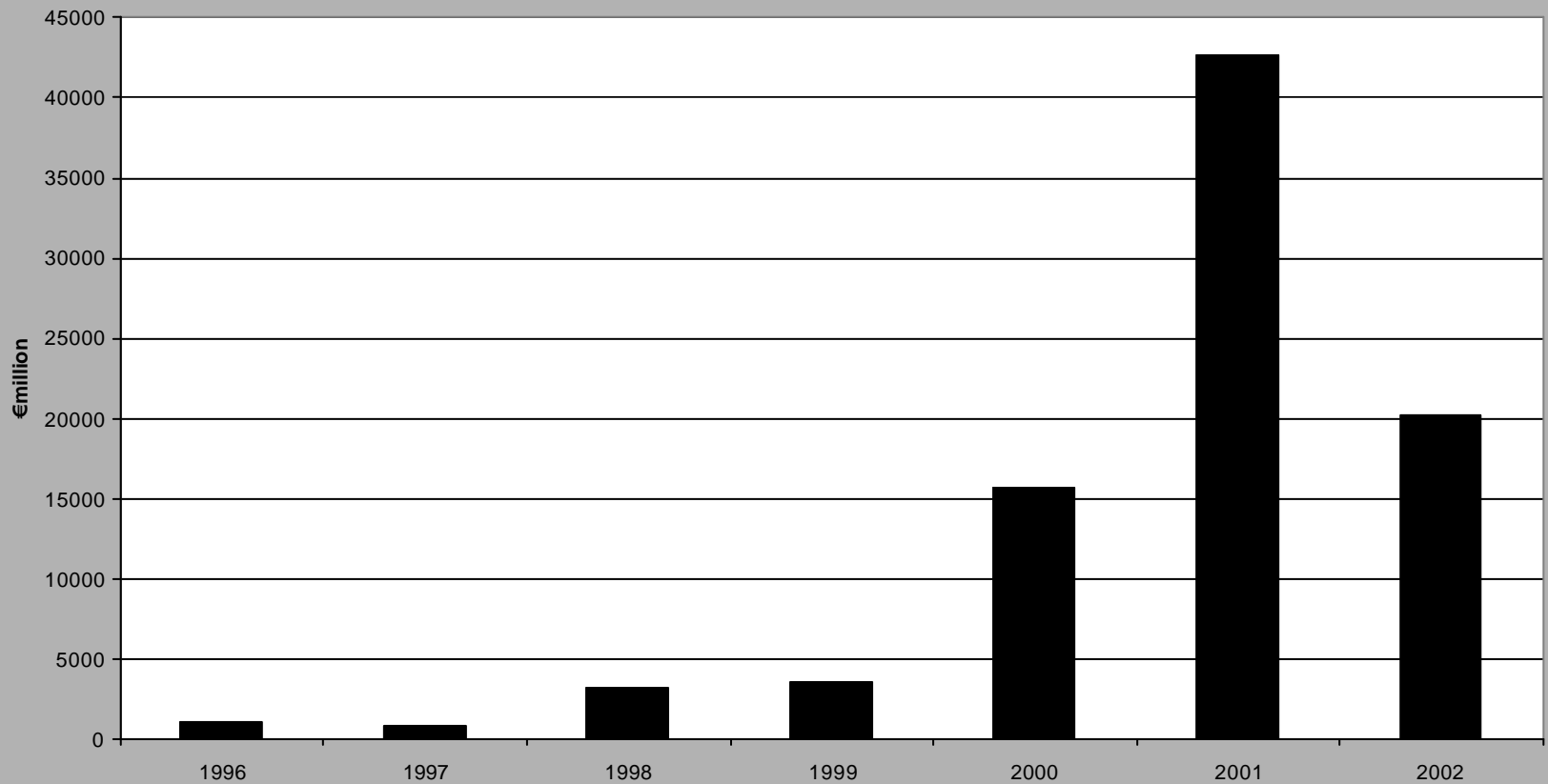
# Manifestation of Concentration

- **Internationalisation**
  - RWE, Eon, EdF spread into Scandinavia, Baltic, UK, Switzerland, Austria, Italy, central Europe
- **Vertical integration** – e.g. UK, Sweden
- **Multi-utilities** – Suez, RWE, Eon, Vivendi

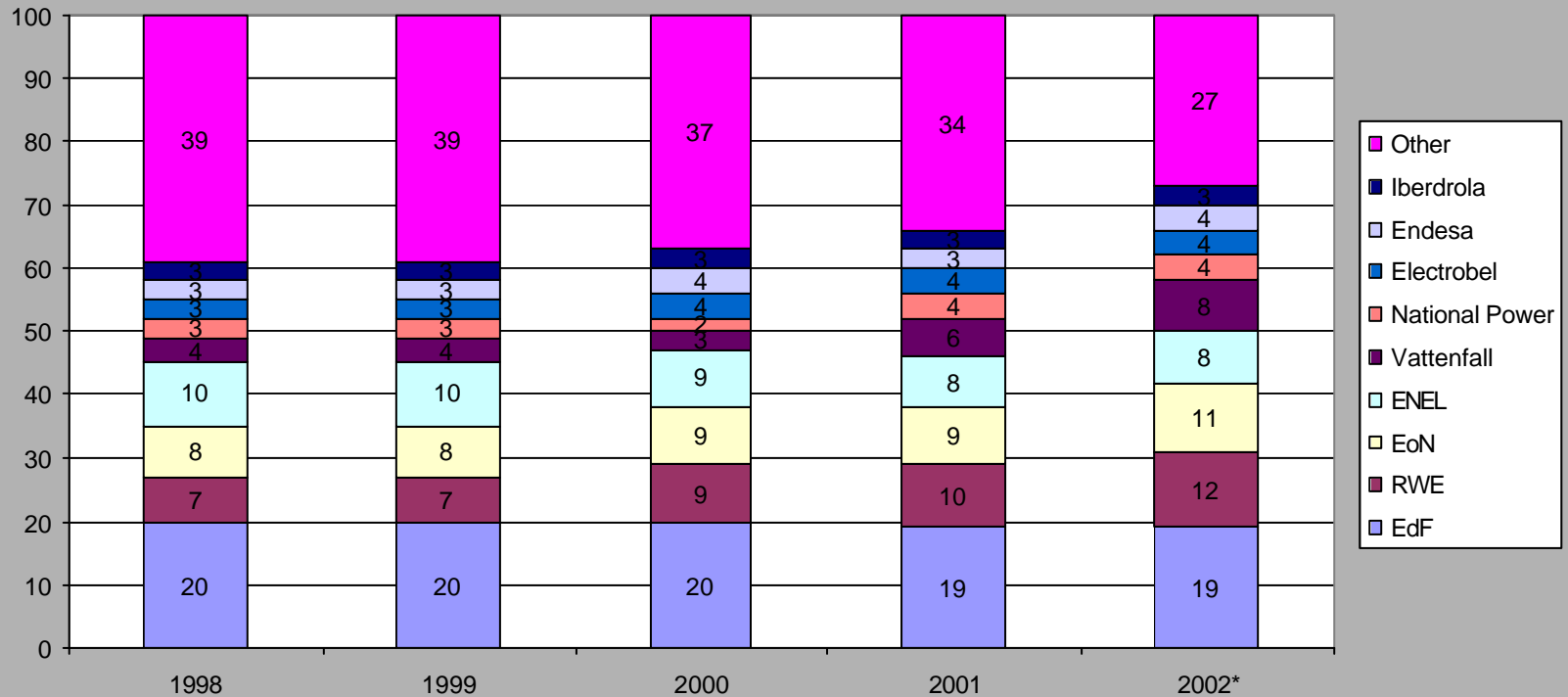
# Internationalism

- Main 7 electricity companies have expended around €100 billion in mergers since 1996.
- Their dominance in EU Market is increasing as is their involvement in CEE

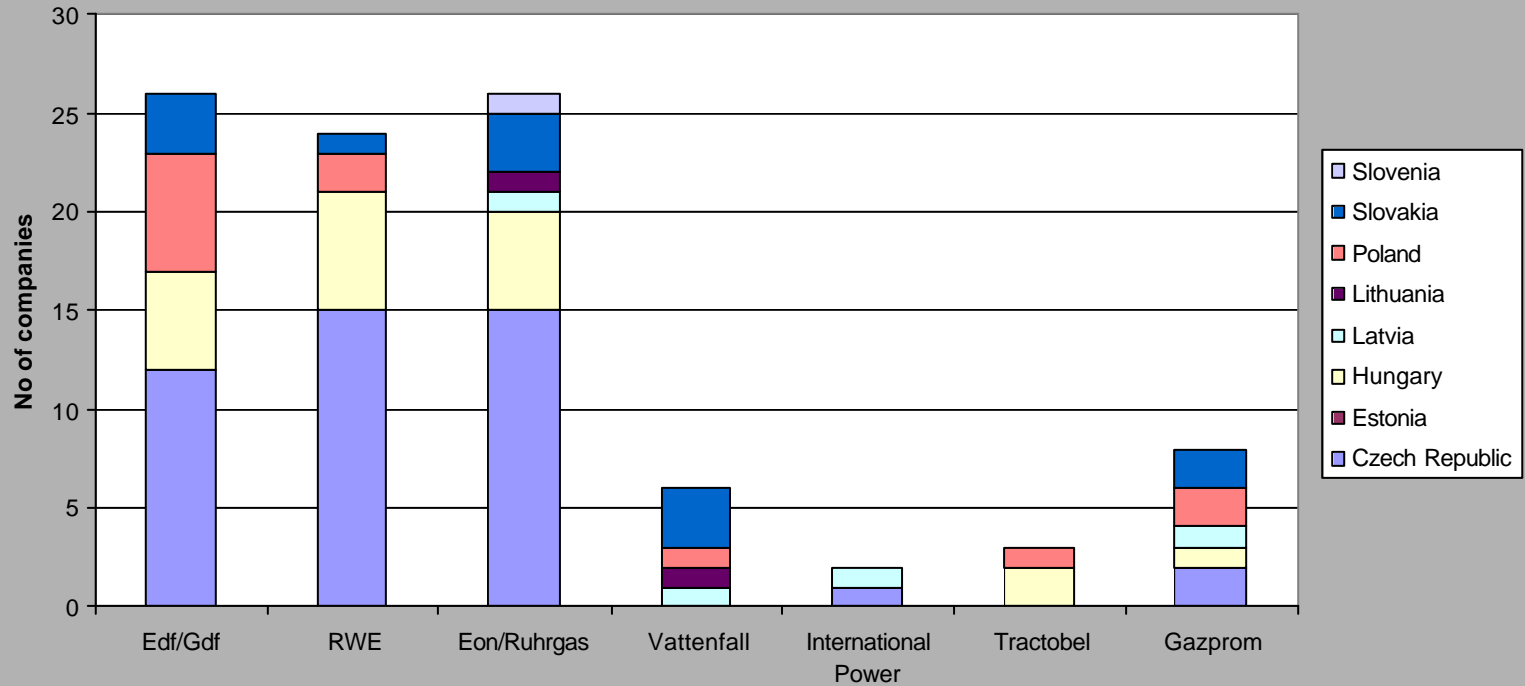
## Cost of Acquisitions of Main European Utilities 1996-2002



# Electricity Market Shares in Western Europe 1998-2002



## Investors into Energy Sector in Prospective EU Members



# Vertical (re)-integration

- **UK**
  - Vertical re-integration of generators and suppliers
  - British Energy, AES not vertically integrated, crisis
- **Scandinavia** (Norway, Sweden, Finland)
  - Vertical integration – Vattenfall, Fortum buy distributors
- **France**
  - Vertically integrated state monopoly (EdF)
- **Belgium**
  - Tractebel/Electrabel own stakes in distributors
- **Eon CEO says vertical integration ‘essential’**

# UK Generation Industry

1990		2002	
Company	GW	Company	%
National Power	30	Power Gen (Eon)	10.4 (-3.5)
Power Gen	20	Innogy (RWE)	8.0
Nuclear Electric	8	Scottish Power	5.0
		EdF	5.0
		Scottish and Southern	3.8
		British Gas	1.7
		British Energy (Bankrupt)	11.6
		BNFL (Losses)	2.7
		Edison (losses)	2.4
		Int. Power	1.5
		AEA (Bankrupt)	4.8
		AEP (for sale)	4.0

Own Retain Arm



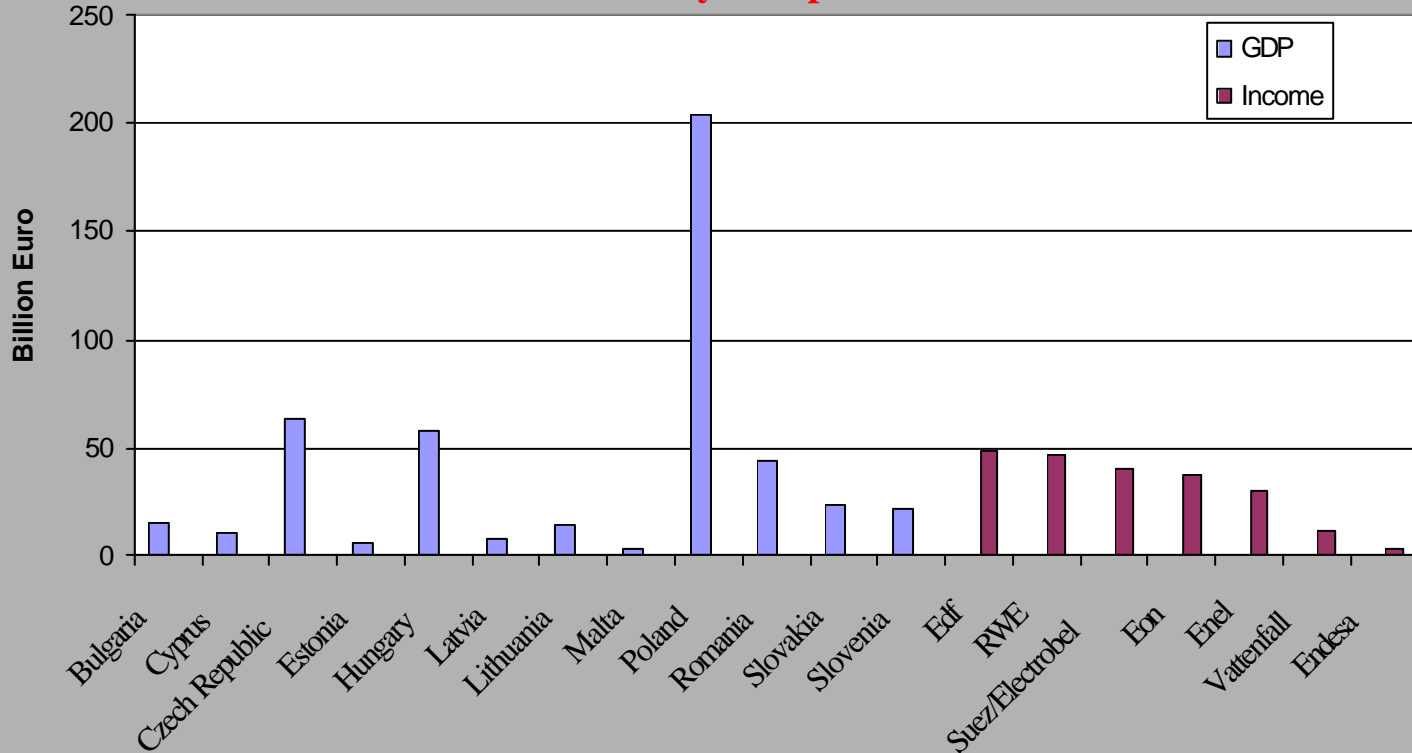
# Multi-Utilities

	<b>Electr- icity</b>	<b>Gas</b>	<b>Water</b>	<b>Waste</b>
<b>Suez</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>RWE</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Eon</b>	<b>X</b>	<b>X</b>		
<b>EDF/GdF</b>	<b>X</b>	<b>X</b>		
<b>Vivendi</b>	<b>(x)</b>		<b>X</b>	<b>X</b>

# Creation of Super Utilities

- Economic power of super utilities (oligopolies) endangers market
- Influence on regulator possible/likely
- Ability to hide from regulator
- Enron is key example
- Seven largest utilities total revenue was over €200 billion, greater than all accession countries, and seven of fifteen MS.

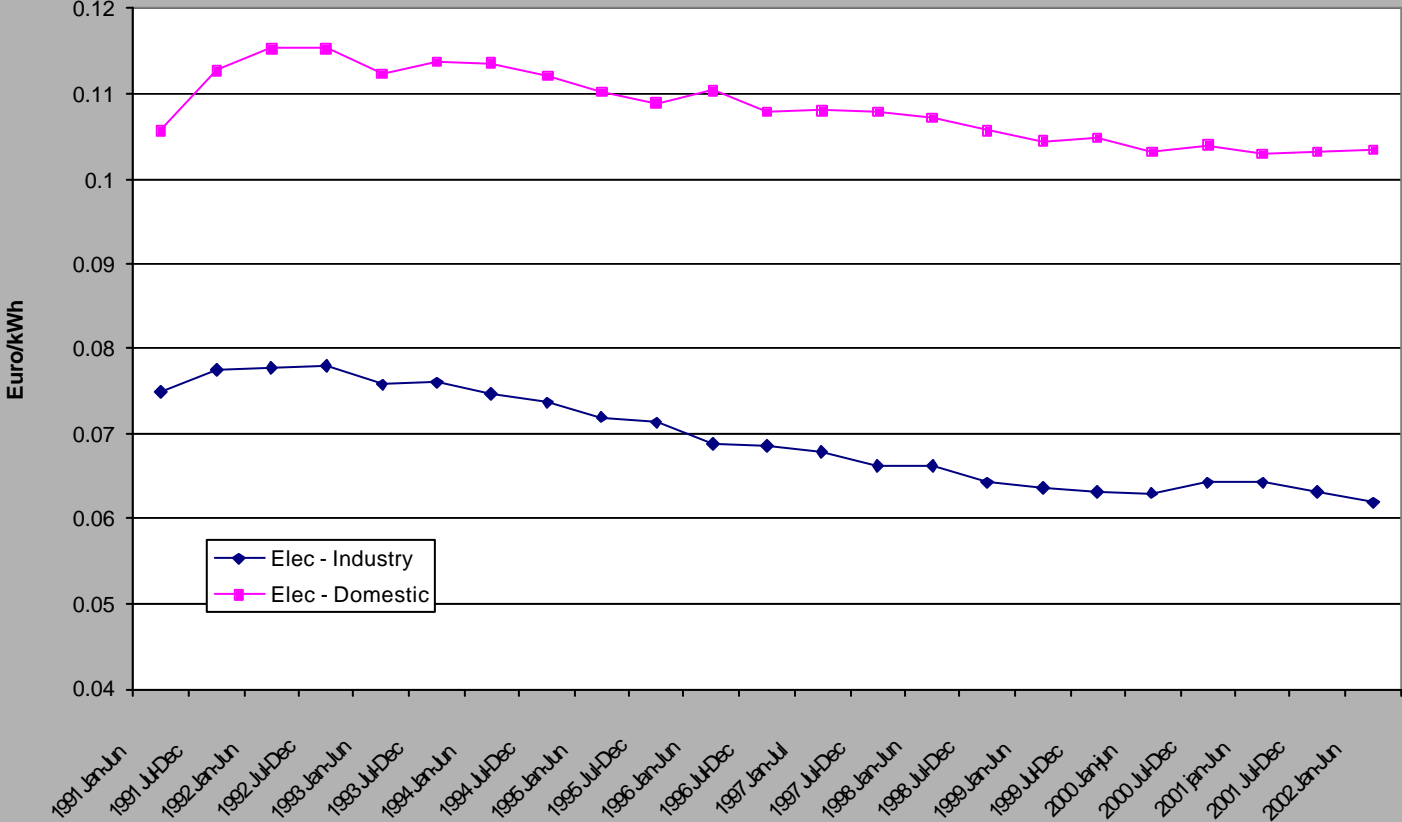
## Comparison of GDP of Accession Countries vs Gross Income of Large Utility Companies



# Prices

- Electricity prices for domestic consumers fallen 2% on average in last decade; but for commercial consumers by 12%
- In UK, wholesale price fell by 18% between 2000-1, but prices for domestic fell by 2.5%, giving retailers additional profit of €600 million

# Development of Electricity Prices in EU 1991-2002

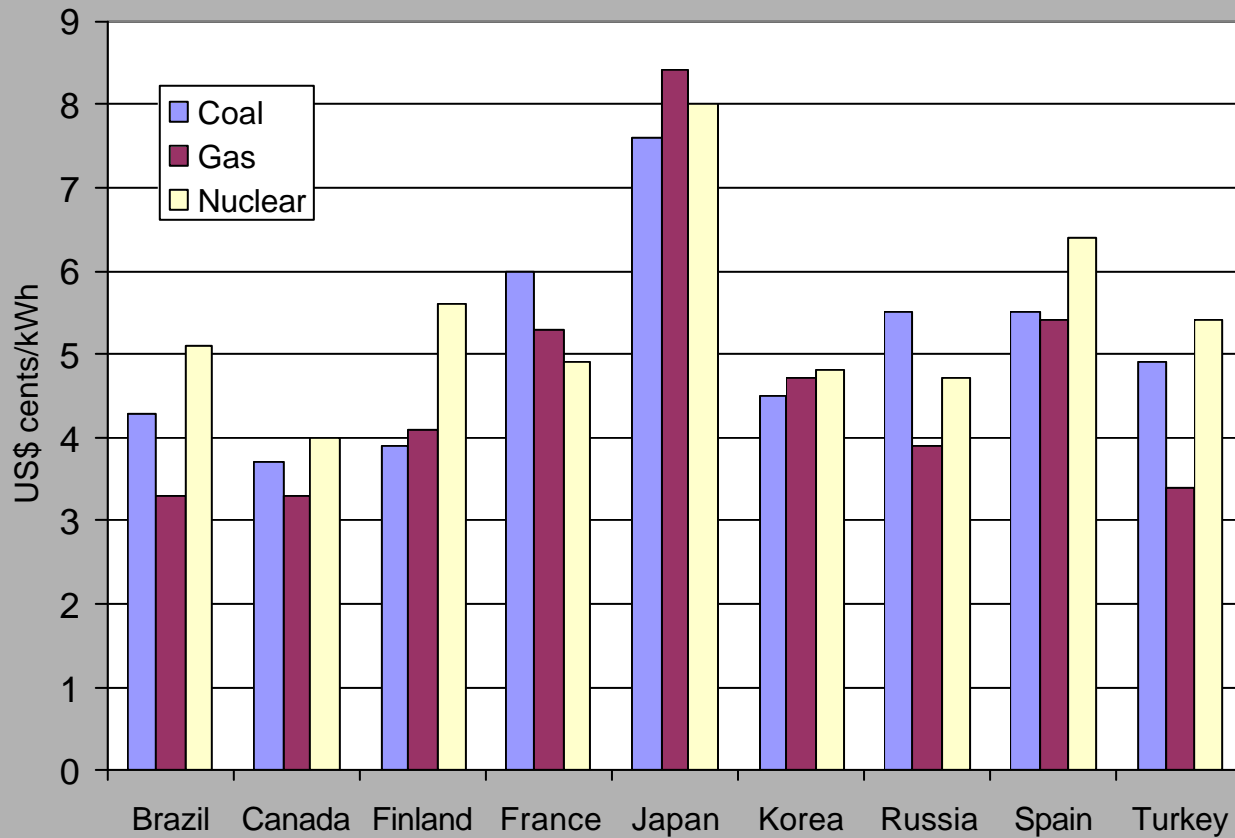


- Since the introduction of Directive, prices for household consumers have fallen.
- However, in fully liberalised markets (Austria, Finland, Germany, Sweden and UK) by 1%
- In non-liberalised markets by 4%

# Fuel Choice

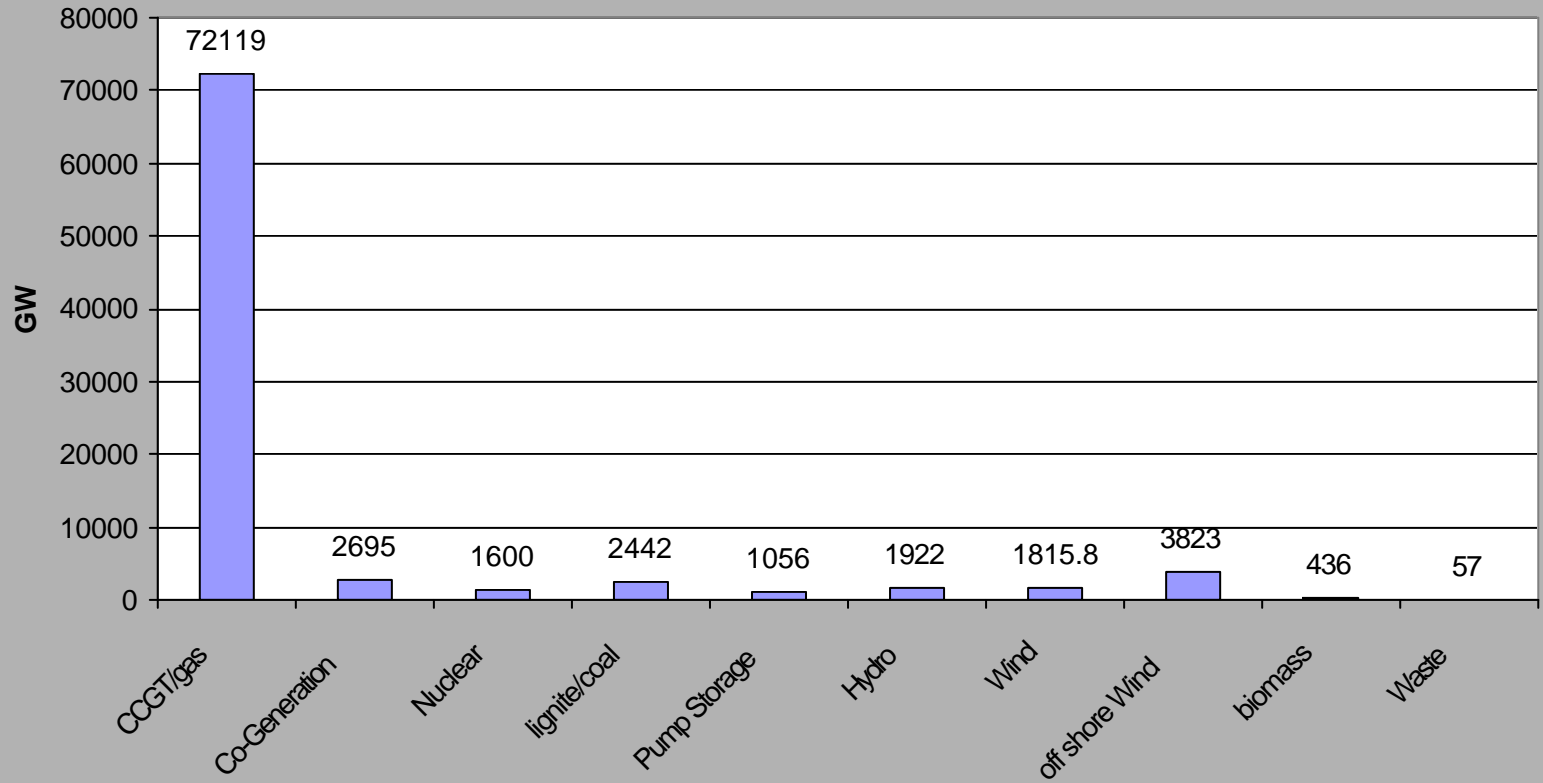
- The liberalisation of gas and electricity industry has resulted in dominance of gas in new build of electricity.
- This is because, gas and in particular Combined Cycle Gas Turbines, are quicker to build, producer cheaper electricity and cleaner than other conventional power stations.

## Comparative Generating Costs of Major Electricity Sources

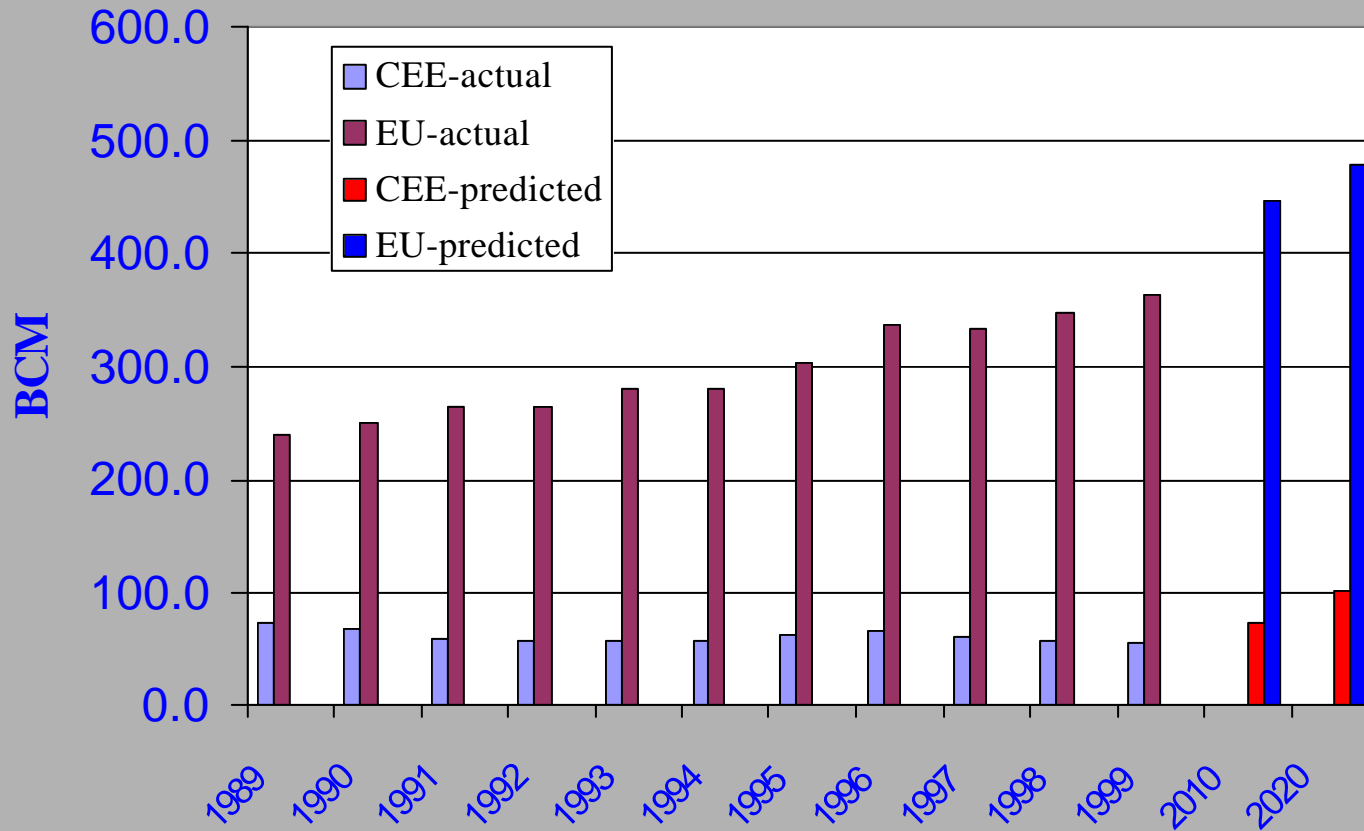




## New Capacity Planned or Under Construction in the EU, mid 2003



# Gas Use in CEE and EU

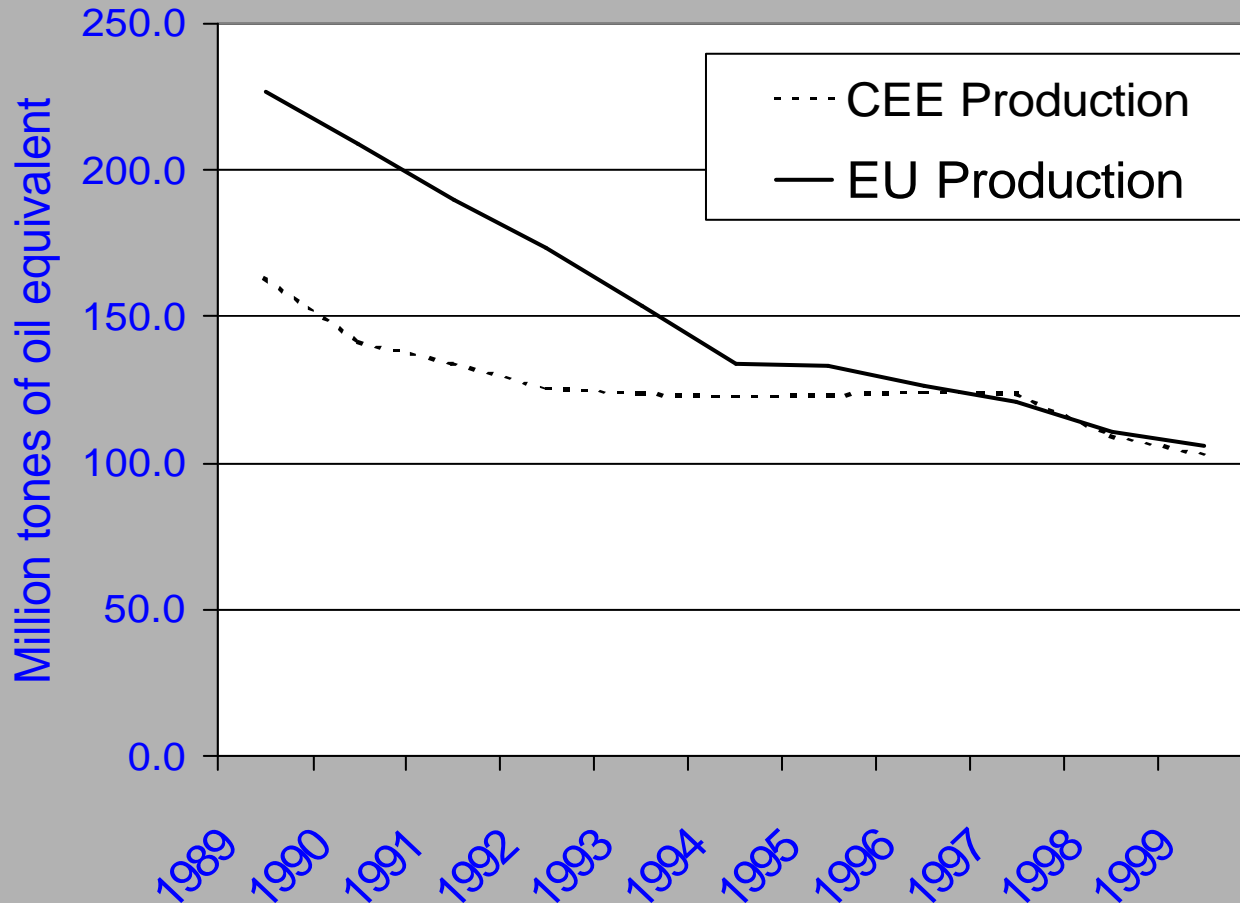


# Coal

- There has been a 20% decrease in EU hard coal and a 10% decrease in hard coke production between 1997-1999.
- There has been a less than 3% increase in imports, therefore coal use is declining
- Reductions in workforce are widespread, between 1998-99, there was a 7.5% decline

- Between 1985-95 role of coal in EU fell from 25% of EU's energy to just 17%.
- Despite decline Coal continues to receive significant subsidies. In Germany subsidies will halve between 1998-2005, but still remain approximately Euro 2.5 billion per year.
- European Commission sponsored analysis suggests that post 2010, coal use will increase at a rate of 2% per year, using cleaner coal technologies.

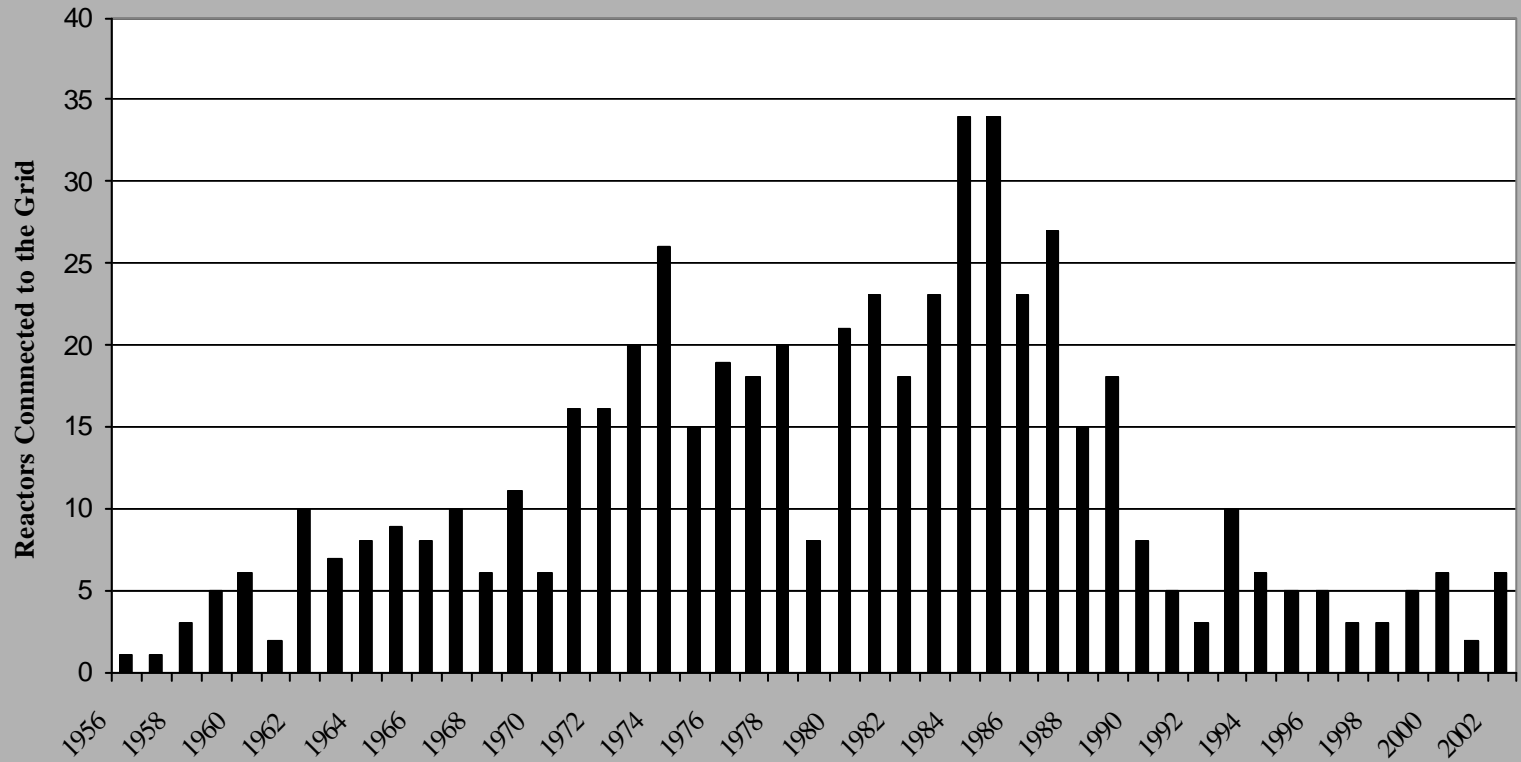
## Coal Production in EU and Accession Countries



# Impact on Nuclear

- Liberalisation killing nukes
- Companies less technologically biased
- Nuclear takes longer to build with far greater upfront costs and greater regulatory risk.
- Global average 15% more expensive than gas and 6% more than coal.

## Historical Development of Nuclear Power



- Globally 10 reactors must be completed each year to maintain current electricity production, not achieved for a decade
- In EU must be approximately 3 GW new capacity each year, to retain current installed capacity.
- During 1990s and 2000s, should have been 60 GW of new plants, probably only 10 GW.



# Conclusions

- Liberalisation is ongoing, next wave about to begin
- Increased strength of dominant market actors
- Regional oligopolies are likely
- Role of regulator increasingly important
- Little benefits for small/domestic consumers

- Natural Gas, fuel of choice
- Nuclear little chance
- Renewables have opportunity but need regulatory support