Public Services International Research Unit (PSIRU)
www.psiru.org

The 2006 Reviews of the Electricity and Gas Directives

by

Professor Steve Thomas

February 2007

Report commissioned by: European Federation of Public Service Unions:
Representing 215 unions - 8 million public service workers
Web-site: www.epsu.org/a/1465

PSIRU, Business School, University of Greenwich, Park Row, London SE10 9LS, U.K.
Website: www.psiru.org *Email:* psiru@psiru.org *Tel*: +44-(0)208-331-9933 *Fax*: +44 (0)208-331-8665
Researchers: Prof. Stephen Thomas, David Hall (Director), Jane Lethbridge, Emanuele Lobina, Vladimir Popov, Violeta Corral

Public Services International Research Unit (PSIRU) is part of the **Department of Economics and International Business** in the **Business School** at the **University of Greenwich** (www.gre.ac.uk). PSIRU's research includes the maintenance of an extensive database on the economic, political, social and technical effects of liberalisation, privatisation and restructuring of public services worldwide, on the multinational companies involved, and on the policies of international financial institutions and the European Union, especially in water, energy and healthcare. This core database is financed by **Public Services International** (**PSI** - www.world-psi.org), the worldwide confederation of public service trade unions. **PSI** and the **European Federation of Public Service Unions (EPSU** - www.epsu.org) commission many of the reports of PSIRU. PSIRU is a member of the PRESOM and GOVAGUA networks, and coordinated the WATERTIME project, all funded by the European Commission.
PSIRU is teaching a new Masters in Public Administration degree (MPA) at the University of Greenwich from September 2007.

1. Introduction

The Council of Ministers adopted a Directive concerning common rules for the internal market in electricity in December 1996 (96/92/EC) and on gas (98/30/EC) in June 1998. These were superseded by Directives 2003/54/EC (electricity) and 2003/55/EC (gas) of June 2003. The intention of these Directives was to allow the creation of single European markets in electricity and gas. In 2006, separate reviews were undertaken by the Directorate General for Transport and Energy (DG TREN) (Prospects for the internal gas and electricity market) and by the Directorate General for Competition (Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)) into the functioning of the European gas and electricity markets, with a view to making further amendments to the Directives.

This report examines the Directives and their intentions, and the evidence produced by DG TREN and DG Competition on the functioning of the European gas and electricity markets.[1] It examines the new changes to the Directives proposed. It builds on earlier reports produced for EPSU (see Box 1).[2]

DG TREN identified six areas for 'further action' (see Box): ensuring non-discriminatory access to networks through unbundling; improve regulation of network access at national and EU level; reducing the scope for unfair competition; co-ordination between transmission system operators; providing a clear framework for investment in generation plant/gas import and transmission infrastructure; and issues relating to households and smaller commercial customers. However, in January 2007, it did not specify precisely the steps it intended to take to deal with these issues[3]:

> The Commission has already initiated an impact assessment procedure to identify the most suitable methods for implementing these intentions in practice. It will conclude this exercise later in 2007. A further Communication including detailed formal proposals to the Council and the European Parliament will be produced.

DG Competition divided its 'remedies' into two parts: 'competition law enforcement' and 'structural issues and pro-competitive regulatory environment' (see Box).[4] Within competition law enforcement, it identified: market concentration; vertical foreclosure; and market integration. Within structural issues and pro-competitive regulatory environment, it identified: unbundling; the regulatory environment; chronic lack of liquidity; lack of transparency in market operations; and other important issues. The report states that: 'the findings support the conclusions of the Communication on "Prospects for the internal gas and electricity market"' and there are no separate plans for implementing DG Competitions findings.

[1] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels. http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2006&nu_doc=841 and European Commission (2007) 'Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)' {SEC(2006) 1724}, Brussels. http://ec.europa.eu/comm/competition/antitrust/others/sector_inquiries/energy/final_report.pdf

[2] S Thomas (2005) 'The European Union Gas and Electricity Directives', EPSU, Brussels. http://www.epsu.org/IMG/pdf/Report_EN_Directive_review_final.pdf and S Thomas (2006) 'Understanding European policy on the internal market for electricity and gas: Evaluation of the Electricity and Gas Directives', EPSU, Brussels http://www.epsu.org/IMG/pdf/EN_Review_follow-up_final.pdf

[3] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 22.

[4] European Commission (2007) 'Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)' {SEC(2006) 1724}, Brussels, pp 9-15.

Box 1 Recommendations for further action

DG TREN

DG TREN identifies six 'key outstanding issues'. These are:

1. Ensuring non-discriminatory access to networks through unbundling.
2. Improve regulation of network access at national and EU level.
3. Reducing the scope for unfair competition
4. Co-ordination between transmission system operators
5. Providing a clear framework for investment in generation plant / gas import and transmission infrastructure
6. Issues relating to households and smaller commercial customers

DG Competition

DG Competition divided its remedies into two categories:

1. Competition law enforcement, including:
   - Market Concentration;
   - Vertical foreclosure;
   - Market integration.

2. Structural issues and pro-competitive regulatory environment, including:
   - Unbundling;
   - The regulatory environment;
   - Chronic lack of liquidity;
   - Lack of transparency in market operations; and
   - Other important issues.

Box 2 Selected previous EPSU publications on the Directives

S Thomas (2005) 'The European Union Gas and Electricity Directives', EPSU, Brussels. http://www.epsu.org/IMG/pdf/Report_EN_Directive_review_final.pdf

D Hall (2006)' Evaluating network services in Europe - a critique of the EC Evaluation of the Performance of Network Industries', EPSU, Brussels. http://www.epsu.org/a/1994

S Thomas (2006) 'Recent evidence on the impact of electricity liberalisation on consumer prices' EPSU, Brussels. http://www.epsu.org/IMG/pdf/EN_PSIRU_paper_Elec_prices.pdf

S Thomas (2006) 'Understanding European policy on the internal market for electricity and gas: Evaluation of the Electricity and Gas Directives', EPSU, Brussels http://www.epsu.org/IMG/pdf/EN_Review_follow-up_final.pdf

2. The Current Situation

The Commission acknowledges that the objectives of creating single markets in electricity and gas are far from being achieved. In September 2006, the Competition Commissioner, Neelie Kroes stated[5]:

> 'It is clear that no-one in their right mind could say that a competitive single European energy market is already in place today.'

While the President of the Commission, Manuel Barroso said in September 2006[6]:

> 'In energy terms I can tell you that I am more convinced than ever that we need new legislation concerning regulation. What we know is that the status quo isn't working. What we have to do is decide how we can most effectively reform the system to the benefit of business and consumers'

On energy prices, the Commission is also acknowledging, for the first time, that the Directives are not producing the desired results[7]:

> 'Liberalisation has clearly led to some efficiency improvements in energy supply and delivered savings to customers, particularly in the initial phase. However, recent increases in wholesale electricity and gas prices have, to a greater or lesser extent, fed through into the bills of end-users and now offset some of the earlier reductions, particularly for the very largest industrial energy users. It would therefore appear that efficiency improvements are not being passed on to consumers quickly enough. It is highly questionable that gas and electricity prices are the result of a truly competitive process rather than being the direct result of decision of companies with market power.'

The view that markets are not working is widely held, and backs up the conclusions reached in the EPSU studies. However, profound differences exist on the measures needed to deal with this market failure. The Commission and other supporters of energy markets advocate that pro-competition measures, such as greater unbundling, breaking up companies with dominant market positions and forcing liquidity of wholesale markets be applied until the markets do work. Those that are sceptical that energy markets can be made to work believe that such measures would be counterproductive and would jeopardise security of supply.

[5] N Kroes (2006) 'The need for a renewed European energy policy' Speech to OFGEM seminar on Powering the Energy Debate: Europe - Competition and Regulation. 28 September 2006 http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/06/541&format=HTML&aged=1&language=EN&guiLanguage=en

[6] Financial Times, 12 September 2006, p 12.

[7] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels,

3. The Model

The Model that the Directives were aiming to achieve in both electricity and gas is clear and is based on the model that the 1990 reforms to the UK electricity industry were meant to achieve. The sectors would be divided into four separate activities:

- **Wholesale:** Generation (electricity) or production/import (gas);
- **Retail:** Retail to final consumers;
- **Transmission:** The national (or regional) transmission networks that take gas and electricity at high pressure/voltage from point of production (import) to centres of demand; and
- **Distribution:** The local distribution networks that take gas and electricity from the transmission networks to final consumers.

The rationale for this split was that the first two activities, wholesale and retail, could be made competitive and the prices set by markets. It was assumed that sectors run on competitive lines are invariably more efficient than those run as monopolies and as a result, consumers would benefit through lower prices. Transmission and distribution were natural monopolies and prices would be set by an independent regulatory body.

For this model to work, the following conditions are generally seen as necessary:

- A hourly or half hourly wholesale market should exist that would be an important location for the buying and selling of electricity/gas and would provide reliable price signals for purchases made outside this market and for investment decisions in new sources of electricity and gas;
- A retail market would exist, in which all consumers were able to switch readily between retailers. This would place competitive pressure on suppliers and inefficient or high-priced suppliers would be squeezed out of the market;
- Access to the networks should be available to all wholesalers and retailers on equal terms; and
- A regulatory body should exist to ensure that competition is fair, access to networks is impartial, competitive fields exist in both wholesale and retail activities and consumers are protected from exploitation by companies.

The Directives, the revisions to them and the results of the investigations by DG TREN and DG Competition can be seen as efforts to achieve this ideal model. The previous EPSU reports argued that:

- ‘Efficient’ retail and wholesale markets might not be achievable (see Annex 3); and
- The Commission had failed to demonstrate the costs of implementing a competitive system were less than the benefits (see Annex 4).

In this report, we examine the measures proposed and how far they will move the existing markets towards the ideal embodied in the model.

4. Access to the networks

4.1. Implementation

The Benchmarking report of 2005 on implementation of the Directives on unbundling is summarised in Table 1[8]. This information was published in January 2005 and in a number of countries, compliance with the Directive is likely to have improved since then. The general picture this shows is that;

- Implementation was more complete in electricity than gas;
- Implementation was more complete in TSOs than DSOs; and
- Implementation was more complete in mainland Western Europe than the new Member States of 2004 and 2007;

Table 1. Implementation of the Directives' unbundling provisions in 2005

	Electricity TSO	Electricity DSO	Gas TSO	Gas DSO
Original '16'				
Austria	Legal	Legal	Legal	Legal
Belgium	Legal	Legal	Legal	Legal
Denmark	Ownership	Legal	Ownership	Legal
Finland	Ownership	Accounting	n/a	n/a
France	Legal	Management	Legal	Accounting
Germany	Legal	Accounting	Accounting	Accounting
Greece	Legal	None	n/a	n/a
Ireland	Legal	Management	Management	Management
Italy	Ownership	Legal	Legal	Legal
Luxembourg	Management	Management	Management	Management
Netherlands	Ownership	Legal	Legal	Legal
Portugal	Ownership	Accounting	n/a	n/a
Spain	Ownership	Legal	Legal	Legal
Sweden	Ownership	Legal	Accounting	Accounting
UK	Ownership	Legal	Ownership	Ownership
Norway	Ownership	Legal/accounting	n/a	n/a
E Europe 2004				
Estonia	Legal	Legal	Accounting	Accounting
Latvia	Accounting	Accounting	Accounting	Accounting
Lithuania	Legal	Legal	Accounting	Accounting
Poland	Legal	Accounting	Legal	Accounting
Czech Rep	Ownership	Legal	None	None
Slovakia	Legal	Management	Management	Management
Hungary	Legal	Accounting	Legal	Accounting
Slovenia	Legal	Accounting	Legal	Accounting
Island states 2004				
Cyprus	Management	None	n/a	n/a
Malta	Single buyer	Single buyer	n/a	n/a
E Europe 2007				
Bulgaria	Accounting	Accounting	Accounting	Accounting
Romania	Accounting	Accounting	Accounting	Accounting

Source: European Commission (2005) 'Technical Annexes to the Report from the Commission on the Implementation of the Gas and Electricity Internal Market' {COM(2004)863 final}, Brussels.
http://ec.europa.eu/energy/electricity/benchmarking/doc/4/sec_2004_1720_en.pdf

Notes

1. n/a = Not applicable

[8] European Commission (2005) 'Annual Report on the Implementation of the Gas and Electricity Internal Market' {SEC(2004) 1720}, Brussels http://ec.europa.eu/energy/electricity/benchmarking/doc/4/com_2004_0863_en.pdf

We can divide Europe up into the 16 countries (including Norway) that were Member States in 1996 when the first Directive was passed, and the 2004 and 2007 accession states from Eastern Europe. For the purposes of establishing Single Markets in energy, the Island states of Cyprus and Malta are not relevant as they are small markets that are unlikely to be connected to the mainland market, Luxembourg is also a small market and the gas industries of Norway, Finland, Portugal and Greece are too small and immature to be worth considering in this context. Northern Ireland is part of the UK, but the connections to the rest of the UK are limited and it is more logically included with the Republic of Ireland in terms of the emergence of markets.

The provisions on DSOs are not mandatory before July 2007 so Member States that have not legally unbundled their DSOs are not in violation of European law until then but the Member States that had not unbundled their TSOs and did not have derogations were.

4.1.1. The '16'

It might be expected that implementation would be most advanced in the '16' as these countries were party to the original Directives and have had more than a decade to implement the provisions.

For electricity TSOs, by January 2005, the Commission Benchmarking Report showed that all had complied with the current Directive and eight had already implemented ownership unbundling. However, if we look at the DG TREN report of 2007 in the detailed country reviews, we find that only four out of seven of the TSOs in Germany were 'unbundled in legal terms and met the main requirements in terms of functional unbundling.'[9] For electricity DSOs, only eight had complied with the 2003 Directive and none had ownership unbundling although in the UK, half the DSOs have voluntarily unbundled at an ownership level. Neither France nor Germany had met the requirement yet.
For gas, of the 11 relevant member states (excluding Luxembourg, Finland, Portugal, Greece and Norway), three had not complied, including Germany, and only Denmark and UK had ownership unbundling. For the DSOs, four Member States had not complied and only the UK had implemented ownership unbundling.

4.1.2. Eastern Europe

For Eastern Europe, Latvia, Bulgaria and Romania had only unbundled the electricity TSOs to an accounting level, while only Estonia and Lithuania had unbundled their electricity DSOs to a legal level. For gas, only Poland, Hungary and Slovenia had implemented legal unbundling of their gas TSOs and no country had implemented legal unbundling at a gas DSO level.

4.2. Development of the legislation

If a competitive market is achievable and if it is to be effective, there is a clear need for equal access to the networks for all retailers and wholesalers. If the companies that own the networks also own competitive activities, there is a risk that they will give unfair advantages to their competing activities by discriminating either on price or on access. If a competitive market is feasible, an ideal solution, from a narrow theoretical point of view, would be that the networks were owned and operated by companies with no commercial interest in competitive activities. Such a company would see no advantage in giving access to competing companies on anything other than equal terms. This would require integrated companies, i.e., those with interests in network and competing activities to 'unbundle' their businesses.

The original Directives did not require this 'ideal' solution but specified that companies that owned and operated the network as well as carrying out competitive activities whether wholesale or retail - integrated companies - should submit separate accounts for their network businesses and that they should offer access on either negotiated third party access (TPA) or regulated TPA. Under the former, as implied by the name, companies wanting access to the network would have to negotiate access to the network. The company controlling the network would be required to publish indicative tariffs and would not be able to deny access to the network except for specific grounds such as security of supply (e.g., if allowing access to a company would jeopardize the security of the network). Under regulated TPA, as above, network controllers would not be able to deny access to the network except for specific grounds such as security of supply and the tariff would be published and the methodology for calculating it approved by an independent body. The independent body could be a regulatory body, or a disputes settlement body. The original Directives did not require Member States to set up a regulatory body, only a body for resolving disputes.

[9] European Commission (2007) 'Accompanying document to the Communication from the Commission to the Council and the European Parliament: Prospects for the internal gas and electricity market' SEC(2006) 1709, European Commission, Brussels, p 30. http://ec.europa.eu/energy/energy_policy/doc/10_internal_market_country_reviews_en.pdf

In the event, most countries opted for the more assured option on access, regulated TPA. However, while some countries 'unbundled' network companies more completely than was required, for example, by requiring that the networks be owned and operated by separate companies not just an accounting separation, many countries did no more than the minimum. In general, unbundling was more complete for electricity than for gas and more complete for transmission than for distribution.

The Commission was dissatisfied that unbundling at an accounting level was providing fair access to networks, although it did not pursue any companies for abuse of the regulations, nor did it provide any evidence for this belief. In the 2003 amendments, integrated companies were required to make a full 'legal' separation between their network and competitive activities. This meant that the networks had to be owned by a legally separate company, although it could be owned by a parent company that also owned companies active in wholesale or retail. For the DSOs, countries did not need to enforce full legal separation before July 1 2007. The Commission also withdrew the negotiated TPA option so that only regulated TPA was allowed. The revised Directives did require sector regulators to be set up and tariffs for use of the network should be set by the regulator.

The Commission (DGs TREN and Competition) is still dissatisfied with the extent of unbundling, although again, it has provided little backing for its belief that fair access is not being provided. This is partly because few countries have yet complied with the Directive, particularly in gas and for the distribution activity. However, this is a matter of enforcement, not principle and it is surely premature to judge that the previous requirements have failed before they have even been implemented. Even where full legal unbundling has been implemented, the Commission believes that network companies that are subsidiaries of companies with wholesale or retail energy activities are continuing to favour their sister companies. Full ownership unbundling is required to prevent this occurring and to ensure there is free and fair access to networks for all competitors.

In practice, the objective of ensuring fair access might be achievable through effective regulation or unbundling just the operation of the networks, the TSOs and DSOs, not the ownership of the assets (see below). These avenues are likely to be cheaper than full ownership unbundling and should be explored before ownership unbundling, which is likely to be more expensive and may have other undesirable consequences such as triggering a wave of corporate concentration in the distribution sector, is enforced.

4.3. Evaluation

4.3.1. Costs

The Commission in its promotion of markets seldom acknowledges that there are costs as well as benefits of introducing competition and a decision to introduce competition, particularly for a standard product where offering consumer choice cannot produce a 'better' product - consumers do not receive better electricity from a competitive market - must be based on a cost benefit analysis. In the previous EPSU reports, we have argued that the costs of competition, ranging from increased risk premium on investment, cost of creating and operating markets, companies' marketing costs etc, are very large and there is no evidence that any benefits of competition would be large enough to pay these additional costs.

Unbundling also has costs. Creating new companies, including new management teams, is costly and the continual changes in the Commission's requirements mean these costs are repeated. For example, in 2002, when the UK enforced a change from accounting unbundling to legal unbundling of electricity distribution companies, several million Euro of additional costs were passed on to consumers. From a regulatory point of view, the distribution sector should not be too concentrated. There needs to be a range of companies involved so there can be 'yardstick' comparisons between companies to put pressure on companies to operate to the highest standards. However, smaller companies, may have a higher cost of capital. In addition, the more fragmented the sector, the less likely it is that the overall requirements for the sector in terms of training and R&D will be met. Again, the Commission seldom acknowledges that energy sector reforms raise issues of training and R&D.

There are also social costs such as the effects on employment and working conditions and a forthcoming report of EcoTec on behalf of the European Commission will demonstrate that 250,000 jobs have disappeared from the electricity and gas sector and that extensive outsourcing has taken place leading to pressure on pay and conditions. It has increased the risk of vulnerable users being exposed to fuel poverty and aggressive sales tactics.

The Commission does not determine what the impact of its proposals are on employment and working conditions even though it is required by the Treaty to ensure its proposals bring about an improvement of living and working conditions. Unions have argued that full ownership unbundling will have negative job implications, and could lead to fragmentation of existing information and consultation structures.

The Commission further dismisses without much evidence that integrated companies could have scale advantages, which might be more important in some situations (for example depending on the state of economic development or size of a country) than in others. Again, the criterion should be that the benefits have to outweigh the costs, not just for a single case, or even the EU as a whole, but for each country. Otherwise compensation should be provided to those countries that lose out in such a 'one-size-fits-all' approach.

4.3.2. Differences between transmission and distribution

The Commission does not distinguish between the transmission and distribution systems in terms of unbundling and does not recognise that differences might lead to changes in the way they are treated. The transmission systems are highly strategic and require important decisions to be taken on the siting of power plants, the use of gas import facilities (pipelines and LNG terminals). The integrity of national transmission systems is also vital. If the national transmission system is not capable of meeting the requirements imposed upon it, the national consequences will be extremely serious.

In terms of its contribution to the overall cost of electricity, transmission is a relatively small element, accounting for perhaps 5 per cent of the price of electricity for small consumers, less for larger consumers. This compares to perhaps 30 per cent for the distribution charge. Transmission also employs relatively few people, for example, in Britain, a couple of thousand people are employed to operate and maintain the transmission system, while the distribution system employs perhaps ten times as many. The distribution network is the vital link for final consumers but while a weakness in a local distribution network is not acceptable, it will have limited national consequences. The distribution network also has limited strategic considerations. For gas, where the network is incomplete, there are decisions to be taken on which consumers to connect and when. For electricity, effectively all consumers are connected and the only strategic decisions are on small-scale generation sources, which are usually 'embedded' in the distribution network rather than feeding in to the transmission network. However, this requires only that new sources can feed into the network at a fair price, not the need to choose between options.

As a result of these differences, transmission is often seen as a strategic national asset that should be under public ownership, even where the rest of the system is being privatised. For example, Denmark and the Netherlands have chosen to bring the electricity transmission network into public ownership.

The strategic nature of the transmission network also has consequences for regulation. Regulators do not have 'perfect' information and must strike a balance in setting network tariffs. The targets must be tough enough to force companies to be as efficient as possible and not so tough that there is a risk that the owner will not have the resources to operate the system reliably. It is probably no exaggeration to say that the only time a regulator will know that they have not been too lenient is when the system collapses or the owner files for bankruptcy. Clearly for transmission, the regulator needs to err in favour of the network owner to avoid any risk of compromising the security of the network. Excessive profits for the network owner (especially if publicly owned) or not maximising pressures for efficiency will be a small price to pay to reduce the risk of network failure.

Regulators, in an attempt to emulate large cost reduction achieved by their international counterparts or to demonstrate that liberalisation does work, may be tempted to force down network charges below their sustainable level. Networks can be neglected for a few years with little sign of the neglect in terms of system reliability, but while squeezing down network charges in this way may seem to produce benefits for consumers in the short-term, in the long-term, consumers will pay heavily for these short-term gains. A particular issue, especially if networks are fully unbundled is instability of ownership. In Britain, some of the distribution networks have passed through several changes of ownership in just a few years. Particular care needs to be taken with new owners with unproven track-records that these companies are not just 'sweating the assets', keeping the savings under incentive regulation schemes, for high short-term profits expecting to sell before their neglect becomes apparent.

4.3.3. System operation and ownership of assets

Even with the first Directive, the distinction between ownership of the network and operation of it was implicit. If the objective is to ensure equal and fair access to networks, it is who controls the network – the transmission system operator (TSO) and the distribution system operators (DSO) - that is relevant, not who owns it. However, the consequences of this distinction have never been properly investigated by the Commission.

The TSO function is quite a small one in terms of numbers of personnel (tens of employees) and unbundling the TSO function from an integrated company would be a much less expensive job than unbundling the whole business. No stand-alone TSO exists in Europe, but in Sweden, the TSO, Svenska Kraftnät, is a management company that subcontracts maintenance, repair and new construction out. Svenska Kraftnät is an organisation employing about 300 people.

There is even less evidence on DSOs, but it seems likely that a stand-alone DSO would be small organisation and the avoided cost of not having to unbundle traditional distribution companies into distribution and retail companies would be significant. In Section 9.5, we examine the DG TREN arguments on unbundling in more detail.

4.3.4. Conclusions on unbundling networks

The apparent determination of the Commission to enforce ownership of unbundling of networks seems premature given that the existing rules were only supposed to be included in national laws from 2004 onwards. A significant number of member states have not enforced legal unbundling yet especially in the gas sector and for distribution networks. From a practical point of view, it would seem sensible to see if legal unbundling will allow fair access to networks, as well as allowing time to evaluate the possible downsides of ownership unbundling, such as extra costs, loss of scale economies and instability of ownership. It may be that such considerations were behind, the decision of the EU Energy Council not to explicitly advocate 'ownership unbundling'. This is a decision that has been widely interpreted as an indication of a lack of political support for ownership unbundling.[10]

Evidence from the UK, some of the Nordic markets, Spain and Netherlands, all of which have long had unbundled electricity transmission companies and the UK which has had an unbundled gas transmission company for more than a decade is that unbundled transmission companies can work. Evidence on distribution companies is not so strong. The UK has had unbundled electricity distribution companies for about 5 years, while the gas distribution sector has been unbundled for 10 years, but as part of an integrated transmission/distribution company until 2004. Since then a few regions have operated as stand-alone gas distribution companies. So the evidence so far is that unbundled transmission and distribution companies in both gas and electricity are viable.

For those countries that have not unbundled fully yet, the option of creating independent DSOs and TSOs is worth investigating. The strategic nature of the transmission networks and the imperative of ensuring they are well resourced, maintained and operating may also mean that public ownership should be considered, even where the rest of the system is privatised.

However, the key point that should not be lost sight of is that the overwhelming reason to unbundle networks is if there is strong evidence that competitive markets can be created. If they cannot, there is little advantage in unbundling and possible disadvantages in terms of loss of scale, loss of critical mass and costs.

There is also the issue of what happens to the other parts of the business of previously integrated companies. What sorts of companies will stand-alone generation and stand-alone retail companies be? This is explored in detail in the next two Sections.

[10] http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/trans/92802.pdf

5. Wholesale markets

The pay-off from the creation of efficient wholesale markets was the fundamental reason behind reform and liberalisation of gas and electricity industries of the type required under the Directives. The wholesale price of gas and electricity typically makes up more than half the final cost of energy so any cost reductions in this part of the value chain could produce significant benefits to consumers if passed on as price reductions.

For a wholesale market to be efficient, a significant amount of energy would have to be bought and sold at 'spot market' or spot market related prices (e.g. contracts indexed to spot markets). This requires that the spot market price is a reliable indicator of market conditions, increasing when marginal sources are expensive or capacity is short to give incentives for peak power sources to be available when needed and to stimulate investment in new capacity when appropriate.

There are two basic models of wholesale electricity market: the compulsory Pool and the optional spot market. In the compulsory Pool model (as used in the UK up to 2002 and in Spain (OMEL)), all power plants that want to operate must place a successful bid in the Pool. However, to give greater certainty to buyers and sellers, hedging contracts (contracts for differences) may exist that mean that buyers and sellers are not wholly exposed to variations in the Pool price. In the voluntary spot market model, such as NordPool and Powernext, power can be bought and sold under long-term contracts outside the spot market with marginal amounts of power bought and sold in a market clearing spot market. While there appear to be major differences between the two models and, for the TSO, there are major differences, in practice, the two models have produced rather similar results. In both, the vast majority of power (95 per cent or more) is generally bought and sold via long-term contracts, generally not indexed to the Pool or spot price and not using the prevailing spot price as a market setting mechanisms. The exception is NordPool, discussed below. The amount of power bought and sold at spot prices in other markets is so low that markets are easily manipulated and the price is not reliable. The DG Competition report acknowledged that 'generators have scope to exercise market power by raising prices.'[11] No buyer would trust such a price to buy their supplies under. Even more implausible is the idea that generators/wholesalers would use price signals from such an imperfect market as the basis for investment in new generation or gas supply contracts.

Only the NordPool amongst the European power exchanges reaches adequate levels of liquidity and the circumstances of NordPool are very special and not reproducible. The system is based on hydro-electricity, which, unlike other forms of power is storable (in storage dams); the system is dominated by publicly owned companies that do not have the same commercial motivations as private sector companies. Despite the reliability of the price signals, investment in new generation since liberalisation has been minimal and there is increasing evidence that the next dry winter will cause serious supply problems and will result in extremely high electricity prices damaging small consumers and electricity intensive industry in particular. Even in an apparently well-functioning market like NordPool, the risk of investing in new generating capacity that has to compete hourly to sell its output at an uncertain price appears to be too high.

The second EPSU report argued that if wholesale markets were liquid, prices would be much more volatile than for normal commodities markets. Mainly this was because electricity cannot be stored and gas is expensive to store and there are generally no substitutes for electricity and gas. This means the short-term price elasticities of both electricity and gas is very low. If demand is close to exceeding supply, consumers will not be able to change their demand readily and the price will have to rise very steeply to achieve a sufficient supply and demand response to ensure demand can be met. Similarly, if there is overcapacity, wholesalers may have a very low marginal cost (for example, if they are buying energy on a take-or-pay contract) and will be forced to drop prices well below the full economic level because it is preferable to cover marginal cost by selling a low prices than selling nothing. This price volatility will make it difficult for energy-intensive industry to survive and small (poor) consumers will find budgeting impossible if they cannot predict the prices they will have to pay. Similar problems of budget planning will also exist for some small- and medium-sized companies, especially new start up companies who could miscalculate the start costs due to rapidly changing electricity prices. For companies as well as individuals to profit to the maximum by getting the best price, requires procurements strategies and involves other transaction costs (employing specialists in energy procurement) which could outweigh any benefits.

[11] European Commission (2007) 'Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)' {SEC(2006) 1724}, Brussels, p 5.

This may mean that even if, over the long-term, a market will provide lower prices than a monopoly, if the service is intolerable to energy-intensive industry and small (poor) consumers, a market will not be politically acceptable.

The response of the Commission to these problems is to impose pro-competition measures such as breaking up dominant companies, requiring 'gas-release' schemes that force companies with long-term contracts for gas to release some of this to the market to increase liquidity in spot markets.

The earlier EPSU papers argued that there are fundamental reasons why efficient, sustainable markets cannot be created, in other words, markets that drive prices down to the minimum sustainable level and which stimulate sufficient investment to ensure there is always sufficient supply to meet demand (see Annex 3). This is because many of the features that exist in other commodities markets that allow them to work, for example the ability to store and the ability to use substitutes, do not apply to electricity and gas.

The fundamental problem is that investing in new gas or electricity supply sources may involve commitments of billions of Euro and unless there is some guarantee that there is a market for the power or gas at a price that covers costs, the risk involved in making such a commitment is intolerable or the risk premium on investment is prohibitively expensive.

The obvious way from a commercial point of view to mitigate this risk is to integrate retail and wholesale activities so that instead of selling into a spot market in which the volumes that can be sold and the prices achieved are not predictable, the company sells to its final consumers, by-passing the spot market. Final consumers are likely to be contracted for up to a year ahead for large consumers, while small consumers are unlikely to switch regularly (see below). This makes life more tolerable for wholesalers but defeats the point of the reforms because the main arena for competitive activity is being by-passed. Throughout Europe, the major companies are attempting to integrate wholesale and retail activities into one company to reduce business risk by reducing their exposure to markets and are reducing competition by mergers and takeovers of their competitors. The issue of integration of retail and wholesale is discussed in Section 7.

6. Retail markets

6.1. Implementation

Table 2. Implementation of the retail competition

% market open

	Electricity	Gas
Original '16'		
Austria	100	100
Belgium	90	90
Denmark	100	100
Finland	100	n/a
France	70	70
Germany	100	100
Greece	62	n/a
Ireland	56*	86*
Italy	79	100
Luxembourg	57*	72*
Netherlands	100	100
Portugal	100	n/a
Spain	100	100
Sweden	100	50*
UK	100	100
Norway	100	n/a
E Europe 2004		
Estonia	10*	95
Latvia	76	0*
Lithuania	n/k	70*
Poland	52*	34*
Czech Rep	47*	0
Slovakia	66	34*
Hungary	67	69
Slovenia	66	91
Island states 2004		
Cyprus	35*	n/a
Malta	0*	n/a
E Europe 2007		
Bulgaria	22	82
Romania	33	40

Source: European Commission (2005) 'Technical Annexes to the Report from the Commission on the Implementation of the Gas and Electricity Internal Market' {COM(2004)863 final}, Brussels.

http://ec.europa.eu/energy/electricity/benchmarking/doc/4/sec_2004_1720_en.pdf

Notes

1. Entries marked * are for countries that failed to open their markets for non-household consumers by the required date of 2004.
2. Sweden opened its gas market for all non-household consumers (95 per cent of the market) on January 1 2005.
3. For Belgium, there is full market opening in the Flanders region but only non-households in the Walloon and Brussels regions.

Table 2 shows the implementation of retail competition in gas and electricity by the beginning of 2005. DG TREN is clearly sceptical that the large number of countries that still had to implement full retail competition will be able to do so by the required date of July 2007. In January 2007, it stated[12]:

[12] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 19. http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2006&nu_doc=841

> There are a range of outstanding issues that need to be resolved in order for this final phase to be successfully realised. Country reviews suggest that there are several Member States where the preparation for full market opening in 2007 is not well advanced, while the sector inquiry has also confirmed significant obstacles at the distribution level.

This reflects experience in the UK reported in the earlier EPSU reports which showed that the systems that are needed to allow consumer switching are likely to be complex, expensive and problematic.

6.2. The benefits of retail competition

The previous EPSU reports argued that the allowing consumer competition should have little impact on prices. Typically, in a regulated market, the supplier's costs (reading meters, sending bills) should be no more than about 5 per cent of the bill for small consumers, less for larger consumers. Of the other costs, if the wholesale market is transparent and efficient, the cost of purchasing power will be essentially the same for all retailers, the transmission and distribution charges will be identical so competing retailers will be competing on only about 5 per cent of the price. The symbolic importance of retail competition for consumers is that if they are dissatisfied with the service they receive from their supplier, they can 'punish' the supplier by taking their business elsewhere.

If there are significant price differences between suppliers, this can only be because of market failure in the wholesale or retail market. In the wholesale market, this might happen if the market is dominated by confidential long-term contracts that are out of the market. This would mean that the market price is not reliable and may be significantly different to the contract price. In the retail market, the market will only be efficient if the threat of consumer switching is so strong that retailers are forced to match the lowest price available or risk losing their market. This suggests the Commission's reliance on switching rates as an indicator of the effectiveness of markets is misguided. If markets are efficient, consumers will know that the threat of switching will be sufficient to force companies to reduce their prices to those of the cheapest supplier, so there should be little need to switch.

The earlier EPSU reports argued that exposing all consumers to retail competition was irresponsible because, effectively, it was forcing small consumers to pit their buying skills against those of, say, an aluminium smelting company. This is an unequal contest that small consumers will never win and the result will be that prices will be higher for small consumers than if prices were set by a regulatory body that ensured a fair allocation of costs. The earlier reports also argued that Commission has never acknowledged the costs of allowing retail competition. These include:

- The costs of setting up and running the system to allow consumers to switch supplier. In the UK, these amount to about €250m per year; and
- The marketing costs for companies. Companies will not attract new consumers if they do not advertise and these costs will inevitably be borne ultimately by consumers;

If the benefits of competition do not exceed these costs, introducing retail competition is not justified.

As noted in the previous Section, a dominant trend throughout Europe is the corporate integration of retail and wholesale activities. For the wholesale and retail parts of the business, this reduces company exposure to an unpredictable market. For the retail part of the business, this means that if the wholesale price rises sharply and unexpectedly the company is not left with power purchase costs it cannot recover from its consumers because it would not be prudent to vary prices too frequently. The issue of integration of the wholesale and retail is discussed in the next Section.

7. Unbundling retail and wholesale

Even when the UK reforms to the electricity industry of 1990 were being designed, the corporate attraction of integrating retail and generation was recognised. The initial British model included strict limitations on how far generators could engage in retail activities and retailers could engage in generation. Indeed, in countries that introduced very close copies of the British reforms, such as Colombia and Brazil, it was made illegal for generators to retail and vice versa. It was recognised that if the market was dominated by generators supplying their own consumers, the wholesale market would be irrelevant and the main purpose of the reforms largely lost.

In the UK in 1996, when the generators tried to take over retailers, the UK government blocked the takeovers. However, two years later, the government reversed its position allowing this form of integration and within 2-3 years, the whole system had become dominated by integrated generator/retailers. The government was unclear about the rationale for its decisions of 1996 and 1998, but the result is that the British wholesale market has minimal liquidity and the market is dominated by six integrated companies. The two significant independent generators have both only narrowly survived insolvency and seem destined to make good profits when wholesale prices are high and struggle to survive when prices are low. From a competitive point of view, the lack of an efficient wholesale market is a poor outcome, with the onus now falling entirely on final consumers to force companies to operate competitively by switching regularly and ruthlessly to the cheapest supplier. As argued above, this is a task that small consumers do not have the skills and resources to do and generally do not have the incentive to do.

Large consumers have the skills, the incentive and the resources to switch regularly and will generally do well from competition provided there is a competitive field of suppliers. However, if supply is tight and wholesale prices rise, they will do badly because a higher proportion of their bill is from generation than it is for small consumers and their contracts are more likely to be indexed to spot prices. Small consumers will face an uncompetitive oligopoly.

The one possible advantage of integrated wholesale/retail companies is security of supply. An integrated company has a corporate advantage in ensuring that there is sufficient supply to meet demand, while, as argued below, an independent generator is likely to earn better profits from a shortage of supply, giving it a disincentive to invest to meet demand.

It is remarkable that the risk of integration of wholesale and retail has apparently not been recognised by the DG TREN. The Directives have never placed any restrictions on integration of wholesale and retail and it was only the DG Competition's report that mentioned the issue – 'foreclosure of markets' – in its 2006 preliminary report[13]. In DG Competition's final report, the issue of foreclosure of markets through integration of retail and wholesale is very much downplayed and the emphasis is on foreclosure of markets due to insufficient unbundling of networks (see Section 10).

While the problems of integration of wholesale and retail may be easy to see, the solutions are not. The obvious pro-competition solution would be to prevent or severely reduce the scope for integration of retail and wholesale. For example, in the original British reforms, there were strong restrictions on how much power a company that was primarily a retailer could source from plants owned by itself and, similarly, restrictions on the amount of power companies that were primarily generators could sell direct to final consumers through retail arms.

7.1. Impact of forcing creating non-integrated generators/wholesale purchasers

From a competition point of view, the case for enforcing a full separation between wholesale and retail is very strong. However, to judge the case, we need to look at what the consequences in terms of corporate priorities of enforcing a separation would be.

All electricity generators would become Independent Power Producers (IPPs) if separation was enforced. IPPs with long-term Power Purchase Agreements (PPAs) have long been used in developing countries. However, problems with rigidity of contracts and exploitation of the developing countries by multi-national IPPs mean they are now not generally seen as desirable. However, IPPs without PPAs, often known as merchant generators, would be required if a competitive wholesale market was being sought. These are not

[13] European Commission (2006) 'Sector Inquiry under Art 17 Regulation 1/2003 on the gas and electricity markets: Preliminary Report' European Commission, Brussels.
http://ec.europa.eu/comm/competition/antitrust/others/sector_inquiries/energy/execsum.pdf

well established. Like any private company, an IPP company's first obligation would be to maximise profits for its shareholders forcing prices as high as possible. In normal markets, this upward pressure on prices would be balanced by the risk to incumbents that if they forced prices higher than was required. New entrants would come in offering more competitive prices. The reality for power generation is that the barriers for entry will always be very high. Making a commitment to build an asset costing in the order €1bn with a fuel supply contract costing in the order of €100m per year is a huge requirement open only to strong companies with a long track record. With no guarantees on volume of sales and price achieved, such an investment would appear a massive gamble.

This means that merchant plant owners have an incentive not to invest because power shortages resulting from inadequate investment will raise the price of power and their profits. Merchant plant owners cannot be given any responsibilities in terms of security of supply without totally compromising the market. They will also have an incentive to 'game' the market. How far such games are illegal is seldom clear-cut. Is an owner of a storage dam hydro-electric plant gaming the market if they decide that their water stocks are low and they should preserve these stocks rather than bid the power? Does the owner of a fossil fuel plant have to keep that plant in readiness to operate even at times of year when demand is low and it is unlikely that the power will be needed? When is a company exercising its right to free entry and exit and when is it 'gaming' the market?

Experience in the UK in 2002, when 40 per cent of generating capacity was owned by failed companies - effectively all the IPPs (the rest of the capacity was owned by integrated generator/retailers) - suggests that such companies would also be unstable, hardly a good way to look after billion-Euro assets with an expected life of 30-40 years. When British Energy got into financial difficulties in 2002, the nuclear plants were not being adequately maintained. In its re-launch prospectus, British Energy stated 'We believe that the loss of output is indicative of a deterioration of the materiel condition of plant over time in part caused by inadequate investment over the last few years which has resulted in an increase in our maintenance backlog and failure to carry out required maintenance on a timely basis.'[14]

Forcing de-integration of generation and retail will tend to encourage the use of short-term markets but will risk creating the conditions that led to the California power crisis of 2001, where power was withdrawn, investment did not take place and the market was manipulated[15].

7.2. Impact of creating stand-alone retailers

While merchant plant owners would be potentially dangerous and unstable companies, a stand-alone retail company would be even more unstable. Consumers would be unlikely to have confidence in a system in which their supplier of energy was likely to go bankrupt even if the system did seem competitive. A retail-only company would have negligible physical assets and would rely on brand loyalty or always being competitive with the cheapest supplier in the market for their survival. There were attempts to set up multi-utility retail-only companies 5-10 years ago, exemplified by the UK company Centrica. However, the non-energy services (telecoms, financial services, cable services etc) did not seem to fit well with energy and such attempts were short-lived. Centrica has abandoned all except its energy activities and has moved 'upstream' into power generation and gas production, integrating into wholesale and retail.

Allowing integration of retail and distribution may produce some stability and would not defeat competition in the way that integrating retail and wholesale would. Stand-alone retailers would only be sustainable companies if their market share was so high and competition was so weak that the risk of loss of market share or of unprofitable prices was low.

It may be that the UK government's reversal of policy in 1998 on keeping separate retail and wholesale and the Commission's apparent retreat on de-integrating retail and wholesale (see Section 10) are because of their realisation of the consequences of forcing this form of separation.

[14] http://www.british-energy.co.uk/documents/Prospectus_-_Part_II.pdf

[15] For a fuller account of the California crisis, see S Weinstein & D Hall (2001) 'The California Electricity Crisis - overview and international lessons', PSIRU, Greenwich. http://www.psiru.org/publicationsindex.asp

8. Corporate concentration

Like integration of wholesale and retail, concentration amongst the integrated companies was predictable and while the Commission has often acknowledged the risks, it has done little concrete to prevent concentration. In February 2007, four major takeover/mergers were being completed all of which would remove one or more significant competitor from the field. After a long struggle, E.ON seems poised to take over the largest Spanish company, Endesa, and on February 6 2007, the Board of Endesa endorsed E.ON's bid. Iberdrola, the other large Spanish energy utility, is expected to take over Scottish Power, one of the six dominant companies in the UK.

The merger of French-listed company Suez, the parent company of the dominant Belgian energy companies, Electrabel and Distrigaz, is less advanced but might be completed in 2007. The merger of the two largest Dutch energy companies, Essent and Nuon, was agreed on February 1 2007 and will create a company ranked in the top ten energy utilities in Europe. What is uncertain is how the new group will comply with unbundling requirements and there have been reports it would create an independent system operator rather than divesting the assets. The deal still has to pass scrutiny of the Dutch anti-trust authorities.

An interesting angle on these deals is the attitudes of national governments and the Commission to the takeover of a nationally significant company by a foreign company. The Commission consistently opposes any restriction on the ownership of companies according to their country of origin. National governments are often reluctant to allow major companies to fall into foreign hands. This position is generally pejoratively seen as national chauvinism. The alternative view, that energy is a strategic resource that government might need to be able to influence to ensure reliable affordable supplies and a company in its home base is likely to be more responsive than the foreign subsidiary of a transnational company, is seldom articulated.

The Commission bitterly opposed attempts by the Spanish government to favour a bid by the largest Spanish gas company, Gas Natural, for the Spanish electricity company Endesa over the bid by E.ON of Germany. The Commission also questioned France when ENEL, the largest Italian electricity company, was considering bidding for the part-privatised French gas company, GDF. The French government appeared to favour the bid by the French registered company, Suez, to merge with GDF but the Commission was satisfied the French government had not intervened and ENEL did not place a bid. The British government has been notably sanguine about the takeovers of its privatised energy companies with the result that three out of the six remaining major companies are foreign owned (by EDF, E.ON and RWE). It has apparently no qualms about the takeover of one of the remaining British-based companies, Scottish Power, by the Spanish company, Iberdrola, and the two other British companies operating in competitive markets (Scottish & Southern Energy and Centrica) are both seen as likely short-term takeover candidates. Even the major network company, National Grid Transco (which owns the electricity and gas transmission networks) is seen as a takeover candidate now that the government has surrendered it Golden Share in the company. Controversially, the UK government appeared to indicate that a bid for Centrica by Gazprom would be problematic so the UK government's attitude to takeovers appears ambiguous.

A few years ago, the Dutch government appeared to favour the merger of all its generation companies into just one company, but this did not happen, but now the Dutch government appears to have little interest in the Essent-Nuon merger other than from opposing it from the antitrust point of view of creating too dominant a company.

In Eastern Europe, many of the main companies have been taken over by the largest W European companies, especially E.ON, RWE and GDF. Some countries have tried to nurture 'national champions', such as the Czech Republic with CEZ and Hungary with Mol and these companies have made some regional acquisitions, but it seems unlikely they have the strength to move into Western Europe.

The vision, long foreseen, that European electricity and gas markets would be soon be dominated by a handful of companies led by EDF, RWE and E.ON/Endesa with other companies, such as ENEL, Vattenfall, Iberdrola and a merged Suez-GDF manoeuvring to get large enough survive seems closer than ever. If the take-overs underway in February 2007 are completed, the 'Seven Brothers'[16] that dominate the European market will be in place.[17]

[16] S Thomas (2003) 'The seven brothers' Energy Policy, vol 31, 5, pp 393-403.
[17] For more details on the positions of the major international energy companies in Europe, see: S Thomas (2007) 'Corporate concentration in the EU energy sector', EPSU, Brussels.

9. DG TREN's position

In January 2007, DG TREN published its analysis of the prospects for the European single markets in electricity and gas[18]

9.1. Security of supply

As argued below, the Commission as a fall-back, assumes markets will solve everything, including ensuring security of supply. It says[19]:

> 'As well as improving efficiency, the internal market contributes strongly to the objectives of security of supply. The prospect of a large EU market for electricity and gas with common rules is a strong incentive for new investment.'

This is hard to justify. In a free market, there is free entry and exit and, with atomistic competition, no company has any responsibility for security of supply. Plant will be built and retired on the basis of forecasts, which may or may not be accurate, of whether or not it will be profitable. If the market underestimates the profitability of the sector, there will be a shortage of investment and perhaps security of supply issues. If the market overestimates profitability, there will be a surplus. A pattern of over-investment and under-investment is seen in most commodity markets ('hog cycles') but unlike other commodities, a shortage of electricity and gas is not tolerable. The earlier EPSU study argued that high price volatility was an inevitable consequence of attempts to make the short-term wholesale market the primary price-setting arena[20]. It argued that this volatility would inevitably be reflected in volatility of consumer prices if the retail market was truly competitive and this volatility would make life intolerable for consumers, especially energy intensive industry and poor household consumers. Even periods of low prices may be of no net benefit to consumers. In 2002, when wholesale electricity prices fell steeply in the UK, none of the reduction was passed on to small consumers, but all the independent power generators were driven to near bankruptcy. British tax payers had to spend billions of Euro to pay for the rescue of the nuclear company, British Energy, because the UK government was unwilling for it to fail.

DG TREN now acknowledges the volatility of wholesale prices[21]:

> 'Experience to date has demonstrated that wholesale energy prices exhibit considerable volatility.'

It does not make clear whether it believes this volatility is inevitable and, if it is, how consumers might be expected to be able to cope with it.'

The vision of companies being attracted to large, 'cut-throat' markets is also hard to justify. Companies' first responsibility is to maximise their profits for their shareholders and this means finding markets where competition is limited and they can protect their market share by factors such as brand loyalty. There is no brand loyalty in a wholesale electricity market.

However, it seems that DG TREN was not entirely convinced by its rhetoric on markets and introduced back-up measures with a Security of Supply' Directive (2004) and additions in the 2003 Directives. The Commission appears to have changed its position significantly in this area since then. The 2003 Electricity Directive required, under Article 4 (Security of Supply) that:

> 'Member States shall ensure the monitoring of security of supply issues. Where Member States consider it appropriate they may delegate this task to the regulatory authorities referred to in Article 23(1). This monitoring shall, in particular, cover the supply/demand balance on the national market, the level of expected future demand and envisaged additional capacity being planned or under construction, and the quality and level of maintenance of the networks, as well as measures to cover peak demand and to deal with shortfalls of one or more suppliers. The competent authorities shall publish every two years, by 31 July at the latest, a report outlining the findings resulting from the monitoring of these issues, as well as any measures taken or envisaged to address them and shall forward this report to the Commission forthwith.'

Yet DG TREN's report of 2007 states[22]:

[18] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 19.
[19] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 3.
[20] S Thomas (2006) 'Understanding European policy on the internal market for electricity and gas: Evaluation of the Electricity and Gas Directives', EPSU, Brussels http://www.epsu.org/IMG/pdf/EN_Review_follow-up_final.pdf
[21] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 19
[22] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 5

> 'Security of supply can no longer be considered to be only a national issue. The means of addressing such issues cut across national boundaries and will be beyond the powers of any individual country.'

The 2005 EPSU report was critical of the Article 4 of the Directive on the grounds that it imposed a responsibility on Member States that they could only fulfil if there was no effective market. It stated[23]:

> 'In a market where power plants are built by 'authorisation' procedures, it is impossible to forecast how much capacity will be built. In Britain, a total of about 40GW of projects have been announced all of which could be in service by 2010. Only a small fraction of these will actually be built. However, there is no way for a national authority to predict whether, say, 10 per cent of projects will be built (which might be too little) or 25 per cent will be built (which might be sufficient). Commissioning dates are commercially sensitive pieces of information as the commissioning of a significant size plant will affect the wholesale market price so an individual knowing a commissioning date could speculate on electricity futures markets very profitably;
>
> If there is this fall back position on security of supply, there will be no incentive to build speculative plants responding to market signals. The Commission recognises this risk in its notes on the Directive.[24] It states: 'launching a tendering procedure constitutes an intervention on the market from the part of the authorities; - such a procedure, as is the case with other interventions, distorts the investment signals that exist in the market and could lead to 'a wait for the tender to be launched' approach on the part of investors'. The Commission offers no ways to avoid this risk;
>
> Launching a tender would tend to alter the supply demand balance. Companies that were expecting to build a plant might decide not to proceed because the 'tendered plant' capacity would reduce the market price and hence profitability of new investment. Equally, owners of existing plants might decide to retire plant earlier than expected because the lower market price would reduce the profitability of existing plants; and
>
> A significant proportion of the winning bids will not be completed. When bids are submitted, the companies will only have some preliminary indications on finance, on whether planning permission will be granted and on the cost of equipment. When companies try to finalise these, there may be problems with planning and costs might be higher than anticipated, making it commercially difficult to proceed. These would be particularly likely for smaller, less experienced companies with fewer resources. Punitive conditions could be imposed on bidders to ensure they proceeded with their proposals but these would simply favour the large companies and would raise costs significantly.'

The new DG TREN report seems to shift the responsibility to a Union level. It states[25]:

> 'Taking into account the electricity Directive on security of supply, the Commission will also establish a working group to monitor the investments needed in electricity generation and examine the investment framework to have sufficient capacities being created in Member States.'

It is not clear what the Commission can do with the information from such a group. Is it intended that the Commission would instruct a Member State to commission the construction of new capacity? This reveals again the ambiguity of the Commission to markets. If there are restrictions on exit and provisions to over-ride the market to allow new entry, the market is seriously compromised.

The Commission also has a very selective view on the evidence on the ability of market signals to stimulate investment. DG TREN states (p 5):

> 'In this respect, new investment is clearly responding to the price signals in wholesale and balancing markets where these are allowed to function properly. However problems are emerging in Member States with tightly controlled prices, where there is dramatic annual growth in electricity demand such as Spain and Portugal.'

However, it does not mention that there is strong evidence that the Nordic market, widely acknowledged to be the best functioning wholesale electricity market in the EU, has also failed to stimulate investment in new capacity. The EPSU report showed that wholesale prices were going dangerously high in the autumn of 2006 (a time of year when prices should be low)[26]. Since then, very heavy rainfall has increased supply allowing prices to fall, but this good luck essentially only covers up the underlying capacity shortage, which will be exposed when there is a dry winter.

[23] S Thomas (2005) 'The European Union Gas and Electricity Directives', EPSU, Brussels, p 14.
[24] Note of DG Energy & Transport on Directives 2003/54/EC and 2003/55/EC on the internal market in electricity and natural gas: Measures to secure electricity supply. 16.1.2004.
[25] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 18
[26] S Thomas (2006) 'Understanding European policy on the internal market for electricity and gas: Evaluation of the Electricity and Gas Directives', EPSU, Brussels

9.2. Consumer demand for competition

One of the consistently puzzling aspects of DG TREN's policy towards competition is the repeatedly stated belief that retail competition in energy is a fundamental freedom that consumers are demanding. It is hard to explain this attitude given that electricity and gas are entirely standard products of uniform quality and that demands for electricity and gas are derived demands. Consumers do not want electricity and gas, they want the service (light, heat, cooking etc) that energy provides them with. Given that there is no aesthetic element to choosing an energy supplier, consumers are likely to be pragmatic about competition and be in favour of it only if competition provides them with a cheaper, more reliable and perhaps environmentally cleaner supply of energy than the alternatives.

The Commission makes some positive commitments on household consumer protection[27]:

> 'The Commission will also keep under constant review the retail markets to assess the effects of liberalisation on households, in view of increasing consumers' confidence in the energy market and limiting the risk of market manipulation.
>
> Finally, the Commission will launch a major information and awareness raising campaign in the run up to full market opening in July 2007, and intends to develop an Energy Customers' Charter to (i) tackle fuel poverty, (ii) improve the minimum level of information available to citizens to help them choose between suppliers and supply options (iii) reduce red tape when customers change supplier and (iv) protect customers from unfair selling practices in compliance with the relevant EC directives.'

No evidence is provided to support the assertion that consumers have increasing confidence in the energy market. The commitment on consumer protection is welcome, but it remains to be seen whether measures can be introduced that do not compromise the market.

9.3. Smart Meters

For retail competition for small consumers to be effective, one of the necessary (but not sufficient) conditions is the use of 'smart meters' so that consumers can receive price signals and retailers can be charged accurately for their purchases from the wholesale market. DG TREN argues[28]:

> 'The extended use of smart metering would enhance competition and other policy goals such as energy efficiency and security of supply, encouraging innovation in the provision of energy services. Smart meters are also good for consumers giving them more frequent readings and the opportunity to modify their consumption patterns.'

The previous EPSU report[29] argued that smart meters raised serious issues for small consumers. It concluded:

> 'Like liquid markets, smart meters are a logical step in narrow market terms but the social and industrial consequences they would generate if wholesale markets were liquid enough and if the resulting price volatility was passed through to consumers would probably be unacceptable. Smart meters may have a place in a regulated system, encouraging small shifts in demand patterns to smooth out peaks and troughs in demand but in a market system, they are dangerous.'

DG TREN must take a balanced view of smart meters. Giving consumers price signals not only gives consumers the opportunity to modify their consumption patterns, it also exposes them to the volatility of the markets and may make effective budgeting for poor consumers impossible.

9.4. Prices

For most consumers, as argued above, for electricity and gas, price and reliability are the dominant concerns. The Commission has therefore previously put great emphasis on the allegedly beneficial impact of the Directive on prices. However, the evidence was anecdotal and not rigorously argued.[30] It seemed that, for the Commission, when prices fell, the only possible explanation was the impact of liberalisation and when they increased, the explanation was increases in fossil fuel prices or market imperfections that had to be rectified.

An EPSU report of 2006, concluded[31]:

[27] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 21.
[28] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 21.
[29] S Thomas (2006) 'Understanding European policy on the internal market for electricity and gas: Evaluation of the Electricity and Gas Directives', EPSU, Brussels http://www.epsu.org/IMG/pdf/EN_Review_follow-up_final.pdf
[30] For a detailed analysis on the evidence on pricing, see S Thomas (2006) 'Recent evidence on the impact of electricity liberalisation on consumer prices' EPSU, Brussels. http://www.epsu.org/IMG/pdf/EN_PSIRU_paper_Elec_prices.pdf
[31]

> 'Despite assertions by the European Commission and EURELECTRIC that electricity liberalisation has resulted in significant price reductions for consumers, the evidence as produced, for example, by KEMA and the Commission itself does not support these assertions. The price reductions that have occurred in the past decade took place mostly in the period 1995-2000, before liberalization was effective in most of the European Union and since then, prices have risen steeply, in many cases wiping out the gains of the earlier period. Other factors, not properly accounted for, such as fossil fuel price movements, technological innovations and changes to regulatory practices are more likely to have led to the price reductions that occurred in the period 1995-200 than reforms that had not then taken effect.

We can break down the impacts on prices into two separate areas: the industry's own internal efficiency; and the price of fossil fuels. There is some overlap, for example, an efficient company may be better at choosing the fuel that turns out to be the cheapest but in general, world fuel prices are not under the control of energy companies. As a first approximation, gas and electricity prices are about equally divided into internal costs (under the control of the companies) and external costs (mainly fossil fuels).

On internal efficiency, the Commission never acknowledges that efficiency improvements existed before the Directives were implemented. Over the 10 years since the first Electricity Directive, it might be expected that internal efficiency would have improved by about 2 per cent per year. This alone would reduce prices over which the industry has control by about 18 per cent and overall prices by about 9 per cent. If we look at the Commission's evidence on prices[32], the Commissions graph shows falling prices for both electricity and gas from 1997-2002 and 1997-1999 respectively. Gas is now about 45 per cent more expensive than it was in 1997 and electricity is no cheaper. No evidence is presented on the wholesale price of gas (relevant directly for retail gas prices and for electricity because of the significant role of gas in power generation) from which a judgement might be made on how far movements in retail energy prices are due to movements in wholesale gas prices.

Paradoxically, the Commission appears to now be arguing that prices have increased in the past few years, a period during which there has clearly been progress in implementing the provisions of the Directives. It states[33]:

> 'Liberalisation has clearly led to some efficiency improvements in energy supply and delivered savings to customers, particularly in the initial phase. However, recent increases in wholesale electricity and gas prices have, to a greater or lesser extent, fed through into the bills of end-users and now offset some of the earlier reductions, particularly for the very largest industrial energy users. It would therefore appear that efficiency improvements are not being passed on to consumers quickly enough. It is highly questionable that gas and electricity prices are the result of a truly competitive process rather than being the direct result of decision of companies with market power.'

The failure to reduce electricity prices at all and the huge increase in gas prices (45 per cent) seems somewhat worse 'offsetting some of the earlier reductions'. It seems an extraordinary policy to redouble efforts to implement a competitive market when the result of the last five years' efforts to implement the provisions of the Directive has been unjustifiable price increases. The Commission does not appear able to conceive that the new structure is not actually producing efficiency improvements. It asserts, with no support for the existence of efficiency improvements: 'efficiency improvements are not being passed on to consumers quickly enough.'

9.5. Unbundling

Much of the DG TREN report is taken up with analysis of the failings of the unbundling measures. It lists six deficiencies in the implementation of the Directive, including: 'Insufficient unbundling of transmission and distribution system operators which cannot guarantee their independence' and 'Discriminatory third party access to the network, in particular as regards preferential access being granted to incumbents for historical long term contracts'.[34] Under obstacles to competition, it lists ten shortcomings, including:

- Large and/or vertically integrated companies are at a considerable advantage in terms of the information which they are able to use to formulate their trading strategy. By contrast, smaller companies find out too late about, for example, generation outages, to be able to adjust their positions.
- In some cases there remains confusion within the vertically integrated group about responsibility for the basic functions of the transmission system operator (TSO), for example dispatch and balancing services.

[32] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 4.
[33] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 3.
[34] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 6.

- TSOs have often, especially when vertically integrated, failed to create conditions conducive to liquid competitive markets – for example by maintaining localised separate balancing zones rather than facilitating the integration at national and cross border level. This may be a result of a lack of trust between TSOs that are fully unbundled and those that are not.
- TSOs appear to have been slow to act to increase cross border capacity, either through investment or other means. This is often the result of inadequate incentives provided through the regulatory framework.
- There is evidence that both TSOs and regulators tend to be over-oriented to short term national concerns rather than pro-actively trying to develop integrated markets. For example, congestion has been in some countries shifted to national borders and cross border capacity is the first to be constrained. Some regulators have been slow to agree how to implement the basic provisions already contained in the legislation – for example, market based capacity allocation.

The DG TREN report implicitly favours ownership unbundling of DSOs and TSOs. It believes legal unbundling is inadequate because[35]

> Inherently, legal unbundling does not suppress the conflict of interest that stems from vertical integration, with the risk that networks are seen as strategic assets serving the commercial interest of the integrated entity, not the overall interest of network customers.'

Partly, this is because the network owner still has an incentive to discriminate, but DG TREN claims[36]:

> '.. investment incentives are distorted. The vertically integrated network operators have no incentive to develop the network in the overall interest of the market with the consequence of facilitating new entry at generation or supply levels. There is considerable evidence that investment decisions of vertically integrated companies are biased to the needs of supply affiliates.'

It is not clear why the regulatory system cannot deal with such problems. If companies are being discriminated against, any good Regulator should be able to intervene to prevent the discrimination. Similarly, if the network company of an integrated group is not investing sufficiently in the network or not in the right places, the Regulator should have the powers to force them to carry out the investment – or they risk losing their right to own and operate the network.

On the option of separating the DSO/TSO function from the ownership of assets, DG TREN has two main arguments[37]:

> 'Economic evidence shows that ownership unbundling is the most effective means to ensure choice for energy users and encourage investment. This is because separate network companies are not influenced by overlapping supply/generation interests as regards investment decisions. It also avoids overly detailed and complex regulation and disproportionate administrative burdens. The independent system operator approach would improve the status quo but would require more detailed, prescriptive and costly regulation and would be less effective in addressing the disincentives to invest in networks.'

It is not apparent what this economic evidence is, nor, as argued above, why proper regulation should not be able to deal with these issues in a 'non-burdensome' way. This statement also begs the question, if the case for ownership unbundling is so strong, why did the first Directives require only accounting unbundling and the second Directives only legal unbundling?

For DSOs, the Commission proposes to review the provisions that allow integrated retailer/distributors with fewer than 100,000 customers not to legally unbundled their networks. This seems hard to justify. Companies with less than 100,000 customers are small and often publicly-owned, and the suggestion that they are able to use their muscle to keep competitors (likely to be large companies such as EDF, RWE etc) out of the market seems far-fetched. Splitting such small companies into two parts would probably make the constituent parts sub-critical in size and likely to be taken over by larger predators. As argued above, a retail-only company with no network and no generation would be an extremely risky business and public authorities would be unlikely to believe that owning such a risky business would be an acceptable way to use public money. Equally a network only company would be closely regulated, its prices and investment policies agreed by the regulator so what benefit would public authorities see in owning such a business?

Small companies like this are likely to be publicly owned and such companies often have a good record of supplying power cheaply and reliably. The cheapest power in Europe is supplied by such companies in Norway and forcing them out of the market, as such a measure would be likely to do would seem to have no

[35] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 10
[36] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 11
[37] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 12.

net benefit. A marginal theoretical improvement in access to small distribution networks would have to be set against the costs of splitting the companies and the further concentration of the market. It would also tend to erode local public ownership for no good reason, a form of ownership that has a generally excellent record in this sector in, for example, the Nordic region, Germany and Belgium.

9.6. Regulation

The EPSU studies were critical of the representativeness of regulatory bodies, arguing that they were not representative. For example they seldom include representatives of consumers, trade unions or environmentalists and that while they should have some autonomy, democratic accountability and the wider societal perspective meant that there are times where it is essential that government should be able to over-ride their decisions.

DG TREN is highly critical of the extent of regulators' powers in some countries citing 'insufficient competences of the regulators[38]' as a major deficiency in the transposition of the Directives into national law. It suggests three possible ways to move forward on regulation:

- Gradually evolving the current approach [national regulators];
- A European network of independent regulators [ERGEG+]; and
- A new single body at Community level.

It dismisses the first option (not sufficient) and it describes the second option as a 'minimum approach', with the implicit suggestion that the third is its preferred approach, albeit that the Commission does not feel able to articulate its conclusion explicitly. A single regulatory body raises huge issues of representativeness, subsidiarity, accountability and sovereignty that are beyond the scope of this paper. Already, consumers are remote from national regulatory bodies leaving little real scope for the ordinary citizen to make their voice known and regulators are often not subject to Parliamentary scrutiny.

From a practical point of view, a single body would appear likely to be a massive and unwieldy body if it is to have the resources and skills to be able to understand market conditions in all countries. For example, in 2006, the British regulatory body for gas and electricity had a staff of about 275 and an annual budget of €75m. Logically, to deal with 27 Member States, a single European body would need a staff and a budget of at least ten times as larger than this.

DG TREN is also muddled in its arguments on the size of regulatory bodies. It states that[39]:

> 'There is a relation between unbundling and regulation. Markets in which there is less than ownership unbundling require more detailed, complex and prescriptive regulation.'

This is hard to square with the evidence from existing regulatory bodies. The UK is by far the most advanced country in terms of unbundling of networks. The gas TSO and DSOs and the electricity TSO are all unbundled at an ownership level and half of the electricity DSOs are also unbundled at an ownership level. However, the Commission's 2003 Benchmarking Report showed that the UK regulator then employed over 300 people and had an annual budget €57m (in fact, this excludes the staff and budget of the Regulator for Northern Ireland). In terms of staffing, the Polish regulatory body was nearest with a staff of about 250, but an annual budget of less than €7m and in terms of budget, the Spanish regulatory body was closest with €21m (37 per cent of the UK budget) and with a staff of 187. Unbundling of the Spanish system is also more complete than in most countries.

9.7. Foreclosure of markets

One of the main conclusions of the DG Competition preliminary report of February 2006 was that a major barrier to a fully functioning internal energy market was 'vertical foreclosure.' This is an unusual use of the word 'foreclosure', which is normally relates to repossession of the collateral for a loan that is in default. However, in the less usual sense of 'to prevent from happening', it would appear to relate most logically to wholesale markets being bypassed. In the gas sector, this was due to the existence of long-term import/supply contracts that allowed no space for new entrants to come into the market. For electricity, this was due to integration of retail and generation that gave integrated companies a positive incentive not only not to use markets, but to buy and sell marginal amounts of power in such a way as to destabilise the market.

[38] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 6.
[39] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 12.

While the DG TREN takes up the issue of long-term gas contracts (p 16), it is entirely silent on integration of generation and retail in the electricity sector. For gas, it is ambivalent. It states that: 'These long-term contracts reflect the need for upfront investments to be undertaken and have an important role to play as regards access to cost-effective energy inputs.' In short, if there is no reasonably assured market, no gas producer is going to risk investing billions of Euro in new supply. It continues: 'However, such agreements are often extended downstream and serve to foreclose the downstream market via priority transmission contracts and disproportionately long term supply contracts with either local suppliers or directly with final customers. This often results in market foreclosure within the European Union.'

This reasoning is hard to understand. Risk exists and has to be paid for, ultimately, at least in part by final consumers. If gas producers cannot be expected to bear the investment risk of new supply, how can gas importers (downstream) be expected to bear this risk and what sense would it make contracting gas and not having any guarantee there will be transmission capacity to deliver the gas? Some of the risk is bound to fall on final consumers and provided there are competent regulatory authorities to ensure that if poor supply decisions are taken, the companies bear at least some of the risk not just final consumers, this is a reasonable situation for consumers to be in.

DG TREN needs to clarify its thinking in this area and also examine the electricity sector.

9.8. The function of markets

DG TREN attributes a remarkable range of benefits to the introduction of competitive markets not supported by the theory of competition. Wikipedia states[40]:

> 'According to the standard economical definition of efficiency (Pareto efficiency), perfect competition would lead to a completely efficient outcome.
>
> Perfect competition requires that the following five parameters be fulfilled. In such a market, prices would normally move instantaneously to economic equilibrium.
>
> - Atomicity. An atomistic market is one in which there are a large number of small producers and consumers on a given market, each so small that its actions have no significant impact on others. Firms are *price takers*, meaning that the market sets the price that they must choose;
> - Homogeneity;
> - Goods and services are perfect substitutes; that is, there is no product differentiation;
> - Perfect and complete information;
> - All firms and consumers know the prices set by all firms;
> - Equal access;
> - All firms have access to production technologies, and resources are perfectly mobile;
> - Free entry;
> - Any firm may enter or exit the market as it wishes.'

A perfect market is perfectly efficient. In practice, no perfect market has ever existed, nor is it likely that the conditions for a perfect market can ever be fulfilled, least of all in electricity and gas. For many products, it is assumed that the markets that can be achieved are a close enough approximation to a perfect market that a market can be assumed to be an efficient way of delivering a product or service. It is clear that the gas and electricity markets, both wholesale and retail do not even remotely approximate to these conditions at present. Goudriaan summarised the problem succinctly (see Annex 3)[41]:

> 'John Maynard Keynes identified in the 1920s cost and demand conditions under which competition doesn't emerge. This seems largely forgotten. Keynes goes further, to explain how economists move from simplifying assumptions to abandonment of the actual facts, and to conclude that reality is what their model says it is.'

DG TREN implicitly believes that further amendments to the Directives can bring the electricity and gas sectors to a form that is close enough to the ideal to assume that there will be benefits.

However, while this might be an arguable position, DG TREN attributes a range of other benefits to markets that are not valid, often because it confuses the operation of an efficient market with the use of profit incentives and market mechanisms. The most important way in which DG TREN places reliance on the market is for new investment. It states[42]:

[40] http://en.wikipedia.org/wiki/Perfect_competition
[41] http://www.iea.org/Textbase/work/2002/forum/GOUD.PDF
[42] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 4-5.

> 'The prospect of a large EU market for electricity and gas with common rules is a strong incentive for new investment.' And 'In this respect, new investment is clearly responding to the price signals in wholesale and balancing markets where these are allowed to function properly.'

It provides no evidence to back up its assertion that investment is the result of price signals. The DG TREN and DG Competition reports both amply demonstrate that wholesale markets are not reliable and it is unlikely that companies would use such unreliable markets as investment signals. If there were liquid wholesale markets with reliable price signals and if wholesale and retail were separate, the assertion might be plausible.

In the one European wholesale market with liquidity, NordPool, the biggest question mark against it is its failure to stimulate investment. The one major investment in the Nordic market is the Olkiluoto nuclear plant on which construction started in 2005. However, this had been planned since 1989, the owner of the plant is also the main consumer of its power and the output of the plant is contracted to the consumer for the life of the plant at prices that guarantee recovery of all costs. The plant is therefore almost entirely insulated from the market indicating that its owners and customers have a distrust of the market, rather than confidence.

Apart from NordPool, the wholesale markets are not credible price-setting arenas and most markets are dominated by integrated wholesaler/retailers producing power or buying gas for their own final consumers. In this situation, a much more plausible explanation is that companies are forecasting the demands their consumers are expected to make, examining their existing supply arrangements (e.g., when their existing power plants are expected to be retired) and then making a judgement on whether to invest in new generating capacity or long-term contracts for gas (or power) supply. The suggestion that companies make investment decisions that might cost billions of Euro, might take 5-6 years to come to fruition and might produce an asset with an expected life in excess of 30 years on the basis of volatile short-term price movements is not plausible.

On investment in gas infrastructure, DG TREN asserts[43]

> 'A considerable amount of investment in a diverse range of gas import infrastructure is either underway or being planned. This has all been delivered as a result of the liberalisation process and further improvement to security of supply would result from a more competitive framework.'

The implication seems to be that the market has done something remarkable that would not have been possible in the old system. This is blatantly not true. Gas industries under the old model continually made such decisions and the Commission presents no evidence that this was not done efficiently.

On the environment, it states[44]:

> 'A competitive market also allows fair access to customers for renewable producers and an efficient application of policy instruments such as the emission trading scheme and energy taxation in order to improve pricing of fossil energy.'

This is hard to justify. Few would argue that in a free market, renewable power sources would be chosen by generators on market grounds. So to encourage renewables, they have to be insulated from the market for example, by feed-in tariffs or renewable obligations imposed on retailers. Competitive processes may be useful in selecting which projects are built, for example, calls for tender for new renewable capacity but this could be done regardless of how the electricity industry is organised. For example, in the 1980s in the USA, there was a major surge in renewable and clean generation sources because of the implementation of the PURPA Act that required utilities to buy the output of new 'qualifying sources' at the price the utilities would have to have paid to obtain the power from their own sources. Electricity remained essentially a regulated monopoly but market mechanisms were used to efficiently meet a policy objective.

The Commission argues that markets encourage diversity[45]:

> 'Competitive markets also encourage diversification since flexibility to react to market conditions is encouraged.'

This has an intuitive plausibility but all experience since liberalisation suggests it is not true. In the UK, since liberalisation in 1990, all the plant built by companies building for the market (i.e., without subsidies or long-term contracts) have been combined cycle gas turbines (CCGTs). Nuclear power would seem attractive as a counterpoint to fossil fuelled plants when fossil fuel prices are high. The experience in UK is that nuclear

[43] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 5.
[44] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 5.
[45] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, p 5.

power plants make profits when electricity prices are high but loses money when prices are low. Is it really plausible that a company will keep a nuclear plant in service, losing money, in the hope that in a few years, it will be profitable? The evidence suggests the 'herd' strategy is more attractive. If all companies own just CCGTs, companies never risk being at a major competitive disadvantage if gas prices go high. Making money in a few good years only to go bust in the bad years is not a sustainable corporate strategy.

The Commission appears to believe measures to reduce consumer exposure are compatible with a free market[46]:

> 'Experience to date has demonstrated that wholesale energy prices exhibit considerable volatility. This raises the question of whether and how end-user customers, including vulnerable customers, should be exposed to such fluctuations. The gas and electricity Directives require safeguards to be put in place in order to protect consumers as well as includes the concept of universal service for electricity.'

This reasoning is hard to understand. If wholesale prices are volatile and do reflect the prices retailers are paying for their energy, how will energy retailers be able to deal with having to pay high prices for energy that they cannot recover from consumers? The Commission appears to favour the introduction of 'smart meters' for household consumers (see Section 9.3), but what function would smart meters serve if they could not pass on price signals to consumers?

As argued in Section 9.1, its views on the contribution of the market to security of supply and as a stimulus to new investment are also hard to justify.

9.9. Retention of regulated prices

DG TREN reserves particular criticism for Member States that have retained regulated prices. In principle, regulated prices are not compatible with a free market, but DG TREN fails to ask why regulated prices are being retained. In Spain, for example, regulated tariffs remain. However, the Spanish market is blatantly a duopoly. If we make the assumption that a sustainable market is feasible, the issue is: should consumers be exposed to the market before the structure is competitive or should the structure be changed (not to mention that there should be some assurance that a free market is feasible) before the safety net for consumers is taken away? It would seem irresponsible to knowingly expose consumers to an unregulated duopoly and the retention of regulated tariffs seems entirely sensible.

9.10. Assessment of the DG TREN position

DG TREN identifies five areas where it expects to take action.

1. Ensuring non-discriminatory access to well developed networks,
2. Improving regulation of network access at national and EU level,
3. Reducing the scope for unfair competition,
4. Providing a clear framework for investment,
5. Resolving issues relating to households and smaller commercial customers.

The first two issues are the ones it spends most time with.

It is hard to avoid the conclusion that because perfect markets are perfectly efficient, DG TREN sees all desirable outcomes as the inevitable result of the introduction of markets and any undesirable outcomes as the result of inadequacies in the implementation of markets that can be remedied by the standard pro-competition 'tool-kit'.

With such a blinkered and prejudiced view of the electricity sector and the potential role of competition, DG TREN cannot expect to make well-informed decisions on the future of such a vital sector. The previous EPSU report concluded[47]:

> 'The fundamental questions that must be asked in evaluating the Directives are: Can efficient, sustainable markets be created for the electricity and gas industries? And even if markets can be created, are the costs of running the industries on competitive lines less than the benefits of operating them in this way? Neither the DG TREN, nor the DG Competition is prepared even to acknowledge that these are legitimate questions and they both totally fail to

[46] European Commission (2007) 'Prospects for the internal gas and electricity market' {SEC(2007) 12}, Brussels, pp 19-20.
[47] S Thomas (2006) 'Understanding European policy on the internal market for electricity and gas: Evaluation of the Electricity and Gas Directives', EPSU, Brussels, p 27. http://www.epsu.org/IMG/pdf/EN_Review_follow-up_final.pdf

address them. This report identifies a number of reasons why markets in electricity and gas might not be sustainable and why the costs of creating and running the markets might be higher than any conceivable benefits.'

DG TREN continues to fail to even discern that the issues noted above exist, much less actually address them.

Its reliance on unbundling as the way to solve problems of competition is hard to understand other than it is probably an achievable objective. Commission policy has changed twice now from accounting unbundling to legal unbundling and now from legal unbundling to ownership unbundling, each time with costs borne by consumers. What is the next step if competition still does not emerge: ownership separation of the networks into the pure TSO/DSO function, and ownership and maintenance of the assets?

10. DG Competition's position

Not surprisingly, the DG Competition Report has a lot in common with the DG TREN report, so this Section will concentrate on areas of difference or different emphasis.

10.1. Areas of agreement

The major areas where there is no significant difference between DG TREN and DG Competition are;

- The retention of regulated tariffs;
- That prices are now rising faster than is justified by costs;
- Competitive markets will provide investment price signals and ensure security of supply;
- Market concentration levels are too high;
- Unbundling is a major and perhaps the major cause of the failure of competition to emerge (the sentence 'Economic evidence shows that ownership unbundling is the most effective means to ensure choice for energy users and encourage investment' is reproduced verbatim).

10.2. Vertical foreclosure of markets

One of the major findings in the DG Competition Preliminary Report of February 2006[48] was the problems created by what it termed 'vertical foreclosure' of markets. For gas, the report concluded on vertical foreclosure:

> **'Lack of liquidity and limited access to infrastructure prevent new entrant suppliers from offering their services to the consumer.** The network of long term supply contracts between gas producers and incumbent importers, makes it very difficult for new entrants to access gas on the upstream markets. Additionally, certain features of these contracts limit incentives for incumbents to provide liquidity on traded markets. Gas infrastructure (networks and storage) is to a large extent owned by the incumbent gas importers, and the insufficient separation of this infrastructure from supply functions results in insufficient market opening. Despite EU rules on third party access and legal/functional unbundling, new entrants often lack effective access to networks, the operators of which are alleged to favour their own affiliates.'

And for electricity:

> **'Vertical integration of generation, supply and network activities has remained a dominant feature in many electricity markets.** Vertical integration of generation and retail reduces the incentives to trade on wholesale markets. Low levels of liquidity are an entry barrier. The strong links between supply and network companies reduces the economic incentives for the network operators to grant access to third parties. Many respondents are highly critical of the efficiency of existing unbundling obligations, believing that discrimination in favour of affiliates continues, and calling for stricter measures.'

Particularly for electricity, the bypassing of the wholesale market seemed to be the main issue. However, in the final report, there seemed to have been a marked shift away from the integration (by contract or corporate integration) of wholesale and retail. On vertical foreclosure, the DG Competition report states[49]:

> 'The current level of unbundling of network and supply interests has negative repercussions on market functioning and on incentives to invest in networks. This constitutes a major obstacle to new entry and also threatens security of supply.
>
> New entrants often lack effective access to networks (in gas, also to storage and to liquefied natural gas terminals) despite the existing unbundling provisions. The operators of the network/infrastructure are suspected of favouring their own affiliates (discrimination). Vertical integration also leads to a situation where operational and investment decisions are not taken in the interest of network/infrastructure operations, but on the basis of the supply interests of the integrated company (including grid connection for competing power plants). This is highly damaging to security of supply.
>
> Another form of vertical foreclosure was found to exist by way of the integration of generation/imports and supply interests within the same group. This form of vertical integration reduces the incentives for incumbents to trade on wholesale markets and leads to sub-optimal levels of liquidity in these markets. In particular, the prevalence of long-term supply contracts between gas producers and incumbent importers makes it very difficult for new entrants to

[48] European Commission (2006) 'Sector Inquiry under Art 17 Regulation 1/2003 on the gas and electricity markets: Preliminary Report' European Commission, Brussels. http://ec.europa.eu/comm/competition/antitrust/others/sector_inquiries/energy/execsum.pdf

[49] European Commission (2007) 'Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)' {SEC(2006) 1724}, Brussels. p 6.

> access gas on the upstream markets. Similarly, electricity generation assets are in the hand of a few incumbent suppliers or are indirectly controlled by them on the basis of long-term power purchase agreements (PPAs) giving the incumbents control over the essential inputs into the wholesale markets. Low levels of liquidity are an entry barrier to both gas and electricity markets.'

This seems a surprising shift. From the point of view of competition, ensuring access to networks seems a relatively limited and solvable problem. Vertical foreclosure because markets are being bypassed seems a much more fundamental problem and one in which the trend is to increase integration, with electricity generators all seeking to match their generating capacity with final consumers. In short, the problem is getting worse.

It is not clear what is behind the change in focus in the DG Competition investigation. From a practical point of view, requiring integrated companies to unbundle their networks will be much easier than forcing them to split their retail and wholesale activities sufficiently that wholesale markets have to be used. From a corporate point of view, network activities have few technical or commercial synergies with energy wholesale and retail activities. Companies could use their ownership of networks to try to give advantages to their wholesale and retail businesses, but legal unbundling and regulatory oversight should be able to prevent this. Whether network unbundling will bring any net benefit to consumers is not clear. So, while businesses will not always willingly give up their network interests, they will do so. For example, in the UK, electricity distribution/retail companies were required to make a full legal separation between retail and distribution and half of the companies chose to make the separation a full ownership unbundling.

However, as discussed in Sections 5 and 6, the commercial synergies between wholesale and retail are huge and companies will never accept proposals to de-integrate at an ownership level wholesale and retail activities.

From a practical point of view, the Commission may have thought through the security of supply implications. As argued in Sections 5 and 6, allowing integration of wholesale and retail is a 'Faustian bargain'. It has penalties in terms of competition, but it has positive advantages in terms of security of supply.

10.3. Market design harmonisation

DG Competition raises the possibility of the implementation across the EU of a standard market design[50]:

> In order to achieve a single European network from the perspective of the network user, there is a need for appropriate harmonisation of **market design, especially regarding methods having an effect on cross border trade**.

It does not explore this idea in detail but if the suggestion is that the existing national market designs be replaced by a single design, this raises a number of issues. First, it implies there is a well-proven design that can be confidently adopted. Blatantly, this is not true and attempts by the US energy regulatory body, FERC, to impose a standard market design failed. Second, it would have huge cost implications for consumers. The UK spent more than €1bn on a new market design only five years ago and other countries, like France, Italy and Spain have only recently introduced new market designs, presumably also at high cost to consumers. There would need to be a clear indication of major benefits for consumers if this expenditure was all to be written off.

10.4. Retail competition

There is little significant discussion of retail competition particularly for small consumers.

10.5. Energy release programmes

DG Competition places great emphasis on energy release programmes as means of kick-starting wholesale markets, citing experience in Spain, France, Austria and Germany. Given that Spain and Germany remain, by all accounts, duopolies and in France, EDF is totally dominant, this is not self-evidently strong evidence. Energy release programmes are no more than kick-start mechanisms and if there are reasons why a market will not emerge, because of market concentration or more fundamentally because a sustainable market cannot be created, any beneficial effects will be temporary.

[50] European Commission (2007) 'Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (Final Report)' {SEC(2006) 1724}, Brussels. p 14.

10.6. Regulation

While DG TREN seems to favour a single regulatory body for the European Union, DG Competition favours 'enhanced powers for independent national energy regulators', dismissed as 'insufficient' by DG TREN and 'reinforced coordination between national energy regulators', ERGEG+ in DG TREN terminology and seen as a 'minimum approach'. DG Competition does not mention the possibility of 'a new single body at Community level'.

10.7. Assessment of the DG Competition position

Like DG TREN, DG Competition is unable to conceive that a competitive market for electricity and gas might not be achievable, let alone being desirable. Like DG TREN, its thinking is blinkered and is dominated by considerations of access to networks and regulation with no thought about market fundamentals. From a market point of view, the main impediment would appear to be 'foreclosure of markets' through the integration of retail and wholesale. However, DG Competition, which strongly emphasised this in its preliminary report, has retreated from its position and now talks mainly about access to networks (hardly market foreclosure) in this context. DG Competition needs to clarify why its position appears to have changed in this respect.

Like DG TREN, DG Competition is critical of the level of concentration in the sector. But when it comes to remedies, we find that it is thinking primarily in terms of unbundling networks, a measure that the industry will resist but will accede to, not breaking up the handful of integrated wholesaler/retailers that are increasing their dominance in Europe.

11. Progress to ideal model: Next best solution or Frankenstein's monster

While the form of the theoretically ideal model is well known, it is clear that nowhere in the world has this ideal model been reached and this report has identified strong factors that may mean the ideal model is neither achievable nor desirable. The successive strengthenings of the Directives can be seen as attempts to move the structures in the member states towards this ideal model (see Table 3). These new requirements, especially on network unbundling, are often being imposed before the previous provisions had been allowed to work.

Table 3. Progress towards the ideal network energy model

	1996/98 Directives	**2003 Directives**	**Proposed new rules**
Network unbundling	Accounts	Legal	Ownership
Retail competition	Progressive opening until 33 per cent is open by 2007	Progressive opening until all the market is open by 2007	Markets open
Wholesale markets	Implied	Implied	Implied
Integration of retail & wholesale	No provisions	No provisions	?
Regulation	Dispute settlement body required	Sector regulator with specific powers and competences	Stronger powers for regulators & internationalisation of regulation foreseen
Concentration in retail & wholesale	No specific measures	No specific measures	No specific measures

However, the 'ideal' model is not likely to be achievable. Unbundling networks is achievable but largely pointless if competition is not introduced, effective regulation can and should be implemented and retail competition is achievable, but expensive and unfair on small consumers. However, liquid wholesale markets will be too risky to allow investment in new generation and with integration of retail and generation, there might be security of supply but there will be no competition

This begs the question, if the ideal model cannot be achieved, for whatever reason, will the model actually achieved be a good 'second-best' solution or a 'Frankenstein's Monster' that is neither competitive enough to be efficient nor does it offer the security of supply, equity, public accountability etc of the previous planned model.

The evidence to date is that we are creating Frankenstein's monster. The model being introduced will have lost the security of supply and the assured investment in networks that the old model delivered consistently. It will also have lost the accountability that regulated monopolies allow. Equitable access for a vital service will be lost with those with greatest bargaining power doing best, at the expense of the poor and the weak. However, the dominance of the market by a handful of international companies will mean there will be little if any efficiency gain to compensate for these losses and any competition will be superficial.

Annex 1 Why free markets in gas and electricity might not be achievable

1. **Inability to store power and expense of storing gas.** Storing products allows consumers and producers to smooth out demand and price peaks by drawing down stores when prices are high and building stores when prices are low;
2. **Need for supply and demand to match at all times.** In an electricity system, supply and demand must always match if the whole system is not to collapse. Without control over producers, a system operator does not have the tools to ensure security of supply. A free market implies free entry and exit and does not oblige producers to offer their products to the market. For gas, the requirement for supply and demand to match is not quite so stringent but still strong;
3. **Lack of substitutes.** For most products, there are ready substitutes that can be used if supplies are scarce or prices are high. The threat of switching to substitutes acts as a discipline on producers on price and availability. For many uses, electricity has no ready substitutes and even where substitution is theoretically possible, consumers are generally locked in to electricity by the equipment they use. For gas, there are substitutes in some cases, albeit not so convenient but users are again often locked in to gas by the equipment they use;
4. **Vital role in modern society.** Modern society is now dependent on reliable supplies of electricity for it to function. A failure of the electricity system will lead to immediate and serious welfare and economic impacts, as the blackouts of 2003 amply demonstrated. For most products, a market failure can be mitigated by use of substitutes and stores but this is not possible for electricity. As a result, the demand for electricity cannot easily be influenced in the short-term by price changes. The furore caused by shortfall of Russian gas supplies;
5. **Electricity and gas are standard products.** In an interconnected network, electricity and gas are standard products. Switching to another supplier cannot produce ‘better’ electricity or gas, so markets are purely price driven and will be exploited by those who have most to gain by cheaper power (large users) as well as the skills and negotiating power to get the best deal. If the market is functioning well, prices will inevitably be driven down to the short-run marginal cost, too low a level to justify new investment; and
6. **Environmental impacts.** The environmental impact of electricity generation and gas use must be added to the traditional list of special features. Electricity generation and gas combustion play key roles in greenhouse gas emissions and attempts to deal with climate change have to focus on the electricity and gas sector (and transport). The market will not deliver the necessary emissions reductions and market mechanisms are no more than one of many tools that will have to be used, not the complete answer.

Annex 2 Do the benefits of competition outweigh the costs

The clearest cost of competition is the risk premium on investment. Building a power plant is a risky venture however the industry is structured:

- The equipment is technologically demanding and unless its construction and operation is well managed could be vulnerable to construction cost over-runs or unreliability;
- Power stations are capital intensive so if there is no market for its power, the owners still incur the financing charges, which could be up to two thirds of the cost of power in the case of renewables, large scale hydro-electric and nuclear power;
- Fossil fuel prices are unpredictable and unexpected rises or falls in fuel prices may make a power plant uneconomic, whether or not it is fossil-fuel fired. For example, a rise in gas prices relative, say, to coal, could make a gas-fired plant uneconomic, while a fall in fossil fuel prices could make a nuclear plant uneconomic.

Similar factors apply to natural gas.

In a monopoly market, even if the sector is well regulated, some risk falls on consumers who generally pay if the generator's costs are higher than forecast. As a result, investment in a power station was a low risk to the owners of the generating company and the real annual cost of capital was perhaps 6-8 per cent. Even in the imperfect markets created in Europe, investing in new generation is a large risk. Almost all the independent generators in Britain failed financially while the two large privatised generators there, National Power and Powergen, were so weakened by poor investment decisions that they were taken over. In Britain, even for a power plant with a long-term power purchase agreement, the real cost of capital is at least 15 per cent. So while shareholders pay if an investment fails, consumers always pay through the higher cost of capital. If we assume that repaying the capital accounts for about a third of the cost of power from a power plant, increasing the cost of capital by a factor of 2-2.5 will increase the overall generation cost of electricity by 33-50 per cent.

For gas, similar considerations apply. A company signing a long-term contract to buy gas faces a risk that it has over-estimated its market and a risk that the contract price will prove higher than the short-term market price. Both risks have been clearly demonstrated in Britain. The collapse of the North Sea gas price in the mid-1990s left British Gas over-contracted for gas bought on take-or-pay contracts that it could not sell or could only sell at a loss. It had to write-off about £1.5bn on these contracts. This resulted in the break-up of British Gas, but also meant that small consumers paid a high price for the gas as British Gas passed on some of these costs to them. The collapse of the gas price also left a number of retail/generators with expensive gas contracts. The power produced under these contracts was allocated to the residential market as discussed in Section 18.3.8.

There are also the costs of designing and operating the market. In Britain, in 2003, the National Audit Office found that the cost of development and of running NETA for the first five years totalled about £770m or about £30 per consumer.[51] Since then substantial additional funds, not publicly accounted for yet, have been spent dealing with the problems thrown up by NETA and by expanding the system to include Scotland under the BETTA arrangements.

It seems highly implausible that the operation of competition through improving efficiency and discipline on investment decisions could be so effective as to pay for these extra finance and transaction costs.

[51] National Audit Office (2003) 'The New Electricity Trading Arrangements in England and Wales' Report by the Comptroller and Auditor General HC 624 Session 2002-2003: 9 May 2003

Annex 3 Keynes views on why competition might not emerge

"The beauty and the simplicity of such a theory [competition producing economic efficiency] are so great that it is easy to forget that it follows not from the actual facts, but from an incomplete hypothesis introduced for the sake of simplicity. Apart from other objections to be mentioned later, the conclusion that individuals acting independently for their own advantage will produce the greatest aggregate of wealth, depends on a variety of unreal assumptions to the effect that the processes of production and consumption are in no way organic, that there exists a sufficient foreknowledge of conditions and requirements, and that there are adequate opportunities of obtaining this foreknowledge. For economists generally reserve for a later stage of their arguments the complications which arise -- (1) when the efficient units of production are large relatively to the units of consumption, (2) when overhead costs or joint costs are present, (3) when internal economies tend to the aggregation of production, (4) when the time required for adjustments is long, (5) when ignorance prevails over knowledge, and (6) when monopolies and combinations interfere with equality in bargaining -- they reserve, that is to say, for a later stage their analysis of the actual facts. Moreover, many of those who recognise that the simplified hypothesis does not accurately correspond to fact conclude nevertheless that it does represent what is 'natural' and therefore ideal. They regard the simplified hypothesis as health, and the further complications as disease." (Keynes, 1972)

Keynes, J. M. "The End of Laissez-faire" in The Collected Writings of John Maynard Keynes, Vol. 9, Essays in Persuasion, London, The Macmillan Press, 1972