Critical Assessment of Europe's Energy Market 2008

A review of Central and Eastern Europe, Continental Trends and EU Legislation

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The liberalisation of Europe's electricity market has been underway for more than a decade since the introduction of the first Electricity Market (1996) and Gas Market (1998) Directives. A revision of both sectors took place in 2002 leading to the introduction of new rules to boost fair competition across the EU. However, the investigation launched in 2005 by the European Commission recognised that there were a number of shortcomings in the market. The 'next wave' of energy liberalisation has been introduced by internal and external EU energy policy proposals put forward in 2007. The EU Energy Council meeting scheduled in February 2008 is to adopt these proposals.
In the light of these developments our report aims to provide a critical assessment of the market - with a special focus on the Central and East European region – and policy trends across continental Europe.

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Contents

I. Executive summary

The report has been prepared by researchers and Non-Government Organisations from across the European Union and neighbouring countries. The main focus was to look at the impact of EU energy legislation and policy on developments in the newer and potential Member States of the EU. The energy sectors in these regions vary considerably and are often quite different from those of the "older" Member States of the Union. Therefore the existing and new legislation coming from Brussels presents different challenges and opportunities than for the more established countries of the Union.

The differences between the energy sectors of countries in Central and Eastern Europe (CEE) and those in the EU 15 are most significant in, but are by no means restricted to the energy mix. Most striking is the great use of – domestic – coal, in particular in Poland and Czech Republic, while nuclear power is also exploited to a much greater degree, in particular in Lithuania, Slovakia, Hungary and Bulgaria. With the exception of Hungary, natural gas is used to a lower degree, in part due to the reluctance to become too dependent on Russia. Another major difference is the energy intensity of the economy. Despite major improvements in energy efficiency, with some countries (Czech Republic, Slovakia) more than halving the energy intensities of their economies during the last quarter of a century, there is still a notable difference between the countries in CEE and in the EU 15. Another major difference is the use of renewable energy and in particular if hydro is excluded, with countries in CEE having much lower levels of exploitation.

Across Europe the energy sector, for environmental, economic and security of supply reasons is higher up the European political agenda than ever before. This has resulted in major proposed changes for the sector across Europe with: the introduction of a new energy policy; a new wave of market liberalisation including proposals for the unbundling of integrated utilities; and targets and objectives to reduce greenhouse gas (GHG) emissions, increase the use of renewable energy and increase energy efficiency.

The objectives and targets proposed over the last year would, if fully implemented, radically alter the European Union's energy sector. In particular achieving by 2020 a 20% increase in energy efficiency, leading to a 13% decrease in actual energy consumption, would be a remarkable achievement and could result in a significant lowering of energy bills. In addition, Europe is proposing that by 2020 20% of its energy will be met from renewable energy sources, significantly lowering harmful emissions and reducing dependency on imported energy. These objectives if fully achieved would result in the EU meeting its unilateral GHG reduction target of 20% by 2020. Although all these targets are important, their adoption into Community law remains uncertain, as does their subsequent application by Member States.

These three measures – the so-called 20-20-20 targets – represent just a part of all the legislative proposals in the field of energy and climate change. In particular the European Parliament and Council of Ministers are considering legislative proposals for the further liberalisation of the electricity and gas markets including new regulations for the trade in energy between countries.

The proposals for further energy market liberalisation are the third round of moves towards a single European energy market, following earlier legislation in the 1990s and again in 2003. The most recent proposals come on the back of reviews undertaken by both the Directorate General for Transport and Energy (DG TREN) and the Directorate General for Competition. The objective of the series of Directives is to transform the energy industries from regulated monopolies to a system of companies and customers that, as far as possible, operate as competitive markets. Both electricity and gas sectors are divided into their main activities: wholesale generation or production, long-distance transmission, local distribution and retail supply. The rationale for this separation is that wholesale and retail can be competitive with prices set usually by markets. Transmission and distribution however are natural monopolies and so need to be more closely regulated.

However, while the Commission has proposed new legislation, earlier experience from a number of Member States and in particular those from CEE on the application of existing energy sector legislation is not encouraging.

When we look at the problem of the full liberalisation of the CEE energy markets, we can see that the following major obstacles are in the way of a real market operation:

- High degree of State control of the energy sector
- High market concentration by the European energy giants
- Lack of effective unbundling, including full ownership unbundling
- Weakness and the non-independent functioning of the regulatory bodies
- The establishment of "national champions"
- Long term power purchase agreements

Progressively, during the evolution of the internal energy market, the degree of separation between the different parts of the sector has increased. The European Commission has proposed in its latest draft that there be full ownership separation (unbundling) between the transmission system operator and other parts of the industry, or to establish a so-called 'Independent System Operator'. However, ownership unbundling is not required for distribution.

It is argued that continuing to own networks gives vertically-integrated utilities a competitive advantage over their commercial rivals. This was one of the major shortfalls in the market identified by the Commission's energy sector inquiry, concluded in January 2007. In addition, this inquiry noted that market concentration (the dominance of a small number of utilities) was becoming a barrier to new market actors. Given that the purpose of liberalisation is to increase competition that in turn leads to lower prices and thus aids the economic competitiveness of the EU, it has been necessary for the Commission to act in this way.

As noted earlier, the introduction of a more integrated European market has not so far had a significant impact on the dominance of the large utilities in each Member State. In fact, since 1999, the dominance of major utilities in many Member States has stayed more or less the same, with an average decrease in market share of only 4%.

Furthermore, a few utilities are becoming dominant in the overall European market place. The large three utilities are now established in the electricity and gas markets in a number of Member States: Electricité de France is active in nine countries; E.ON in nine countries and RWE in eight.

Market concentration and the increasing dominance of the major three companies is also pronounced in CEE, for example they are all active in the distribution of both the electricity and gas sectors in Hungary. In general in the CEE region States still retain greater control over the energy sector than in the EU 15.

Furthermore, many CEE governments aim to create or build up their 'national champion'. To date though only the Czech CEZ and the Slovenian HSE seem to be successful in the regional field of electricity, whilst the Hungarian MOL in the regional hydrocarbon business.

It is also to be noted that the level of activity in the mergers and acquisitions market is increasing. Globally, $300 billion was spent in activities in the energy utility sector in 2006, which represented a 50% increase over the previous year. Europe had the largest share of these deals, with 58% of the target companies and 64% of the bidders. The two largest deals were European: the Suez merger with Gaz de France (€30 billion); and the Iberdrola takeover of Scottish Power ($22 billion [€15 billion]). As one market analyst said

> "A more integrated and fully liberalised EU power market is likely to ultimately feature a handful of players. Moves by existing 'super regional', [...] are part of the quest to be at the top of the select pack."

The EU energy sector is facing a number of complex and often competing concerns.

On the one hand it is clear that many of the existing EU market requirements are not fully being implemented and/or enforced by Member States. However, the existing rules, and in particular those relating to unbundling, are enabling utilities to develop and retain a competitive advantage. In some cases this is resulting in the formation of a few super utilities that have operations across Europe and whose development is to the detriment of new market actors. On the other hand, the EU is proposing new legislation that will require not only a significant shift in the energy policies of individual Member States but also in the industrial practices of utilities across the continent, through the requirement to meet targets on GHG emissions, energy efficiency and renewable energy. If achieved, these targets would have far greater impact on the day-to-day operation of the energy utilities than any of the EU legislation adopted to date. This is at a time when the economic and political strength of the utilities has never been stronger.

It is therefore a crucial time, not only for the long term future of the climate and energy security but for the EU to prove that it can instigate and enforce legislation in the energy sector.

II. Recommendations

The need for vision and determination

In the 1950's, what is now the European Union was born out of the need to solve together common challenges, particularly in the field of energy. Our peace and prosperity today is built on those political foundations and the integration that has been achieved since. While the EU itself has evolved and grown over time, similar common challenges such as energy security and climate change are still present. Responding to these issues, while enhancing the economic freedoms on which the EU is based, can only be done if we all find the determination to do so and demand that our political leaders organise to deliver it.

However, in the six new member states and two candidate states covered by this report, the application of European Union law on the internal energy market, promoting renewable energy sources and energy efficiency has - so far - only led to minimal and cosmetic impacts on improving competition, security of supply, and levels of environmental protection. The necessary de-concentration of incumbent monopolistic operators, the diversification of fuels and technologies employed, and reductions in environmental impacts are all largely still something waiting to happen. Therefore, if the region is to revitalise, build-up and sustain its energy systems, our political leaders at all levels must significantly and collectively increase their determination to pursue effective and principled reforms, which will in turn deliver real customer benefits from competition and deliver effective protection for the climate and environment in general.

Internal market & competition

The European Commission's current three-track strategy is the right one but it must be maintained.

Firstly, ensuring the full application of existing Community legislation through infringement procedures must continue on a comprehensive basis that does not exclude new member states. Such activity is the normal work of the Commission, which as 'guardian of the treaties' it has a legal duty to fulfil. Where member states do not comply with the initial Court of Justice judgements, the Commission must ask for fines to be imposed by way of further Court decisions.

Secondly, the Commission's pursuit of individual competition cases, concerning specific firms (e.g. excessive dominance, divestitures), groups of firms (e.g. in cartels) or specific states (e.g. state aid and/or stranded costs involved in long-term contracts), must continue also on a comprehensive basis. For example, while E.ON's recent fine for tampering with evidence is welcome, such a penalty must not detract from the substantive issues that the Commission has set out to investigate, either in this or in any other case. In new member states, for example, the many long-term power purchase contracts, often dating from before EU accession, must be ended.

Thirdly, as infringement actions and competition cases alone will not adequately meet the objectives set, further internal market legislation is essential. With the packages adopted in September

2007 and January 2008, such proposals have already been launched. However, it will be necessary during the passage of this legislation that Parliament and Council at least maintain the Commission's proposals and even consider how the proposals might be strengthened. Similarly, when adopted, the new legislation must be applied in full, without delay and in every member state.

Climate and energy security

The urgency of tackling climate change, based on the 2007 IPCC assessment report, places unprecedented demands on our political, economic and energy systems. Mitigation of climate change and our adaptation to it needs to occur more rapidly than any comparable industrial development that has gone before, except perhaps in times of war. Europe's international leadership on climate change hinges on its strong action domestically. The prospects of a new post-2012 global deal on climate change, based on the Bali mandate, improve considerably if Europe maintains its lead in cutting its own emissions.

Along with climate security, it is politically and economically imperative to prioritise energy security. Without any doubt, both issues will continue to grow in their strategic importance and their demands for private and public resources. Business-as-usual energy growth scenarios, when combined with declining domestic production, increasing demands and international price volatility, simply cannot be sustained let alone realised. Measures to curb demand by enabling energy services and maximising the potential of energy efficiency must be the top priorities.

Regarding the latest climate and renewable energy package, there are two specific concerns that need addressing. Firstly, the greenhouse gas emissions reduction target of -20% is too low and needs to be increased to -30% and met without the use of offsets under the Kyoto protocol. Secondly, as the ten percent target for renewables use in transport is intended to be met from the unsustainable exploitation of biofuels, often imported from other regions of the world, this particular objective must be reconsidered.

Efficiency and renewables

Energy efficiency has, often at the same time, the least appeal and the greatest potential. This habit amongst politicians, of not seeing efficiency as the central part of strategy, must end immediately. Efficiency being the fastest option to deliver, at least cost, means that it can help rapidly to ease all other issues: it can lower bills, lessen imports, lessen new capacity needs, improve the utilisation of energy networks, and so lessen impacts on the environment. Although efficiency cuts across many sectors and delivering it is not always simple, there is nevertheless no excuse for not making central to our actions. This is especially true in Central and Eastern Europe, where lower energy efficiency standards, compared to the EU-15, put the region at an economic disadvantage.

Renewable energy is also a win-win-win solution, reducing the need for imports, reducing environmental impacts and creating a growing market and many thousands of jobs in a sector that can only

grow. For policy makers the focus must be on the frameworks that enable renewables to grow, including financial support schemes and priority connection to networks, and by upholding high qualitative standards for example in connection with bio-energy sources. Successful support schemes such as that in the Czech Republic serve as a good example for the rest of the region. Commitments such a this can only yield most benefit if coupled with e.g. fair terms for network access, which in the Czech Republic is still not the case.

New and improved technologies

The scale of the challenges ahead of us cannot be met without big improvements in a variety of technologies and in the choices we make about how they are deployed. The recent European emphases on technology, for example in the Seventh Research Framework Programme and the Strategic Energy Technology Plan are important. But such plans could never be realised without sufficient resources to back then. In reviewing its Budget next year, Europe must re-allocate money to support energy and climate technology in amounts that are sufficient to match the scale of the challenges ahead. Some of the new large-scale EU industrial initiatives proposed should be located in the CEE region. Technologies based on fossil and nuclear fuels should not be given public support due the questionable environmental effects of these options have.

III. Climate & Energy Trends in Central and Eastern Europe New Member States in the Liberalised European Energy Market

Ada Ámon, Nathalie Francoeur | Energia Klub

This section examines developments in the energy sector in countries of the Central Eastern European (CEE) region from the perspective of European Union efforts in the energy and climate fields. After briefly presenting information on the historical changes and the figures of energy supply, we assess the results of market liberalisation in these new Member States. We then have a look at the "softer" energy directives concerned with environmental obligations. We aim to give a good picture of recent energy developments by highlighting typical examples and to point out the common features in the CEE governments' way of handling energy matters.

All together we assessed nine EU instruments: Electricity and Gas Directive, Renewables Directive, Combined Heat and Power (CHP) Directive, Energy Performance of Buildings Directive, Biofuel Directive, Energy End-use Efficiency and Energy Services Directive, Eco-Design Directives and the Completion of Energy Efficiency Action Plan. The results of the country assessments are summarised in a table which can be found at the end of the chapter. Our analysis is based on CEE country[1] reports prepared in the framework of an AGREE.NET project.

1. History of change

When the electricity industry was in its early days, right after the Second World War, the Central and Eastern European countries became part of the Socialist block. At that time, these countries operated a centrally-planned economy and built power stations as well as the backbone of the grid system to serve the socialist heavy industry. Most of these power plants are still running with only small modifications and at a similar level of efficiency. Even though Western countries experienced similar development, they encountered certain events and economic shocks which taught the industry and the economy to use energy more rationally, while in the COMECON[2] energy prices were deliberately kept low.

This resulted in energy-intensive industries, while household consumption remained very low compared to Western patterns. After the big political changes at the start of the last decade, the industry became more and more efficient, even as part of it collapsed, and at the same time household consumption increased. This convergence resulted in a decade of stagnation and then, after 2000, a slight increase in the overall energy consumption in most of the countries concerned. The energy intensity of these countries is still at least twice that of the EU average.

One can see that there is a drastic drop from 1987-89 onwards due to economic restructuring and the recognition of the shortcomings of centrally-planned economic development. This is visible in the

1 Bulgaria, Czech Republic, Hungary, Poland, Slovakia and Slovenia. Three other reports were commissioned on Croatia, Turkey and Ukraine. All can be found at www.agreenet.info

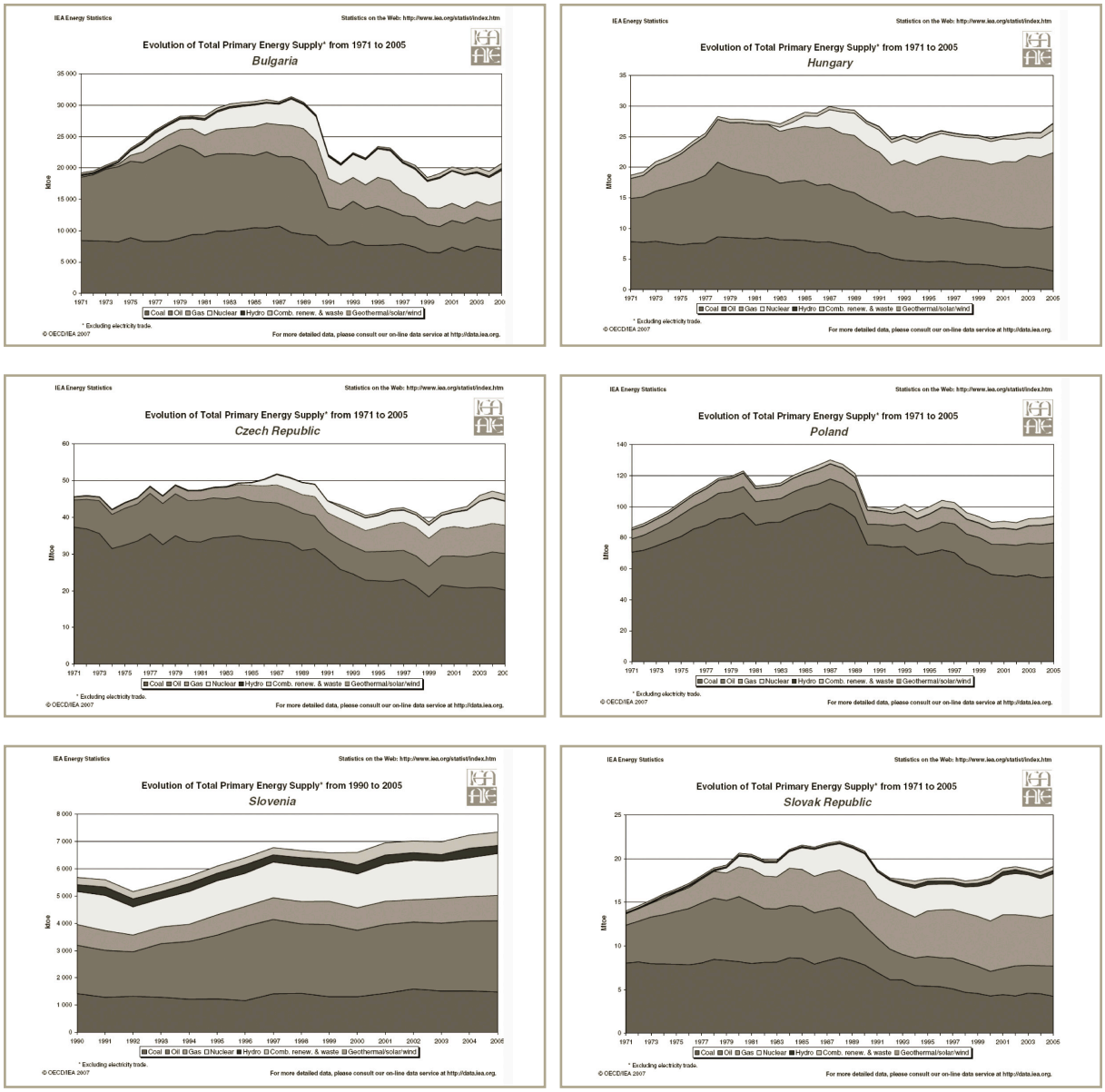
2 COMECON: Council for Mutual Economic Assistance, Economic organization from 1949 to 1991, linking the USSR with Bulgaria, Czechoslovakia, Hungary, Poland, Romania, East Germany (1950–90), Mongolia (from 1962), Cuba (from 1972), and Vietnam (from 1978), with Yugoslavia as an associated member. It was formally disbanded in June 1991.

following diagrams showing the evolution of total primary energy supply since the 1970s of countries surveyed in the region.

2. Primary energy sources, import dependence and security of supply

As can be seen in the following diagrams, coal was historically the dominant source of energy. Poland and the Czech Republic still obtain a large proportion of their primary energy source from domestic coal mines. While in the Czech Republic and Slovakia nuclear has seen its share significantly increase over the last decade, in the Hungarian Total Primary Energy Supply (TPES) natural gas became dominant.

Evolution of total primary energy supply from 1971 to 2005



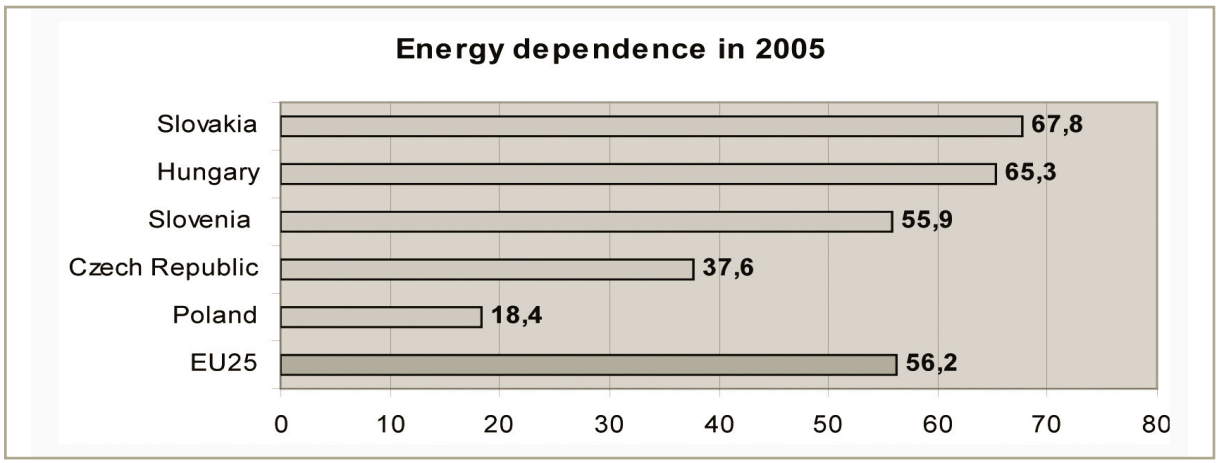
Coal Oil Gas Nuclear Hydro Comb. renew. & waste Geothermal/solar/wind

Note: the Slovenian statistics are for 1990-2005

Source: IEA Energy Statistics, www.iea.org/statis/index.htm; For more detailed data please consult the on-line data service at; http://data.iea.org; © OECD/IEA 2007

In terms of oil supply all countries in the region are very much dependent on Russia. With regard to natural gas the picture is more diverse: the level of dependence is directly connected to the importance of this particular resource within the country's TPES. For example, Hungary is the most dependent on natural gas as a result of heavy subsidies and the gas network development programme introduced during the 1980s and '90s throughout the country. The least dependent countries are Poland and the Czech Republic because of their own coal reserves. With regard to the consumption of gas all of the countries surveyed are dependent on Russia with the exception of Slovenia which is supplied by Algeria as well as Austria; and the Czech Republic which buys 20-25 per cent of its natural gas consumption from Norway. In the electricity production sector the use of natural gas in high efficiency CHPs and combined-cycle plants contributes to resource diversification and also to the reduction of CO_2 emissions.

With the exception of Poland all CEE member states have nuclear power plants. Nuclear fuel is also supplied by Russian companies for power plants built according to the Soviet design, whilst the fuel for Temelin Nuclear power plant (NPP) (CZR)[3] and Krsko NPP (Slovenia) comes from the United States. Despite this, nuclear fuel is not counted as an imported energy source, but as if uranium for NPP was a 'domestic resource'. Therefore, the official statistics on energy dependence are misleading and perhaps even biased. For instance, in the case of Slovenia dependency would go above 75 per cent if nuclear fuel was accounted for under primary energy imports.[4]



Source: EUROSTAT[5]

3. Market functioning

New legislation has been introduced in all the new EU member states conforming at least on paper to the respective directives. As a consequence by now – in theory – all the EU member states are part of a functioning internal energy market. There are market players: customers, private and state-owned companies in all segments and regulators. However, it would be exaggerated to say that there is real competition taking place in the markets of any of the countries surveyed.

3 From the end of the decade on Temelin will get its fuel from TVEL (Russia).

4 Calculated by Focus

5 The energy dependence rate is defined as net imports divided by gross consumption, expressed as a percentage.

In all of the countries assessed the usual market activities are not happening. Consumers are not changing their suppliers based on better and cheaper service offers, distribution companies are not competing for new consumers and the regulators are not bothering with the non-transparent functioning of the utilities. In many cases their decision-making practices are not transparent either.

The Slovenian example is not unique, where the market for electricity has been open for all non-domestic customers since July 2004, representing a degree of market opening in terms of volume of 75%. The electricity market has been fully open since 1 July 2007. To date, there has been little competition in the electricity retail sector, with only 2% of consumers changing suppliers in 2006. Cumulative shifting from the beginning of market opening up to 2005 was 10% by quantity supplied.[6]

3.1. State control

As we will see in the following paragraph in the CEE countries, the State kept a crucial part of the industry in its hands through direct or indirect control. The most blatant examples of these can be found in Poland, Hungary, Czech Republic and Slovenia.

An example of direct control is provided by Poland where public ownership is very high in all of the energy sectors. The following table shows the difference between the ownership share and the actual decision-making power of the State which is often higher than the State ownership within the sector. This is because the minority shareholders have practically no influence[7].

	The decision power multiple by market share	Ownership shares multiple by market share
Gas	99%	84,7%
Power generation	55%	47,9%
Power distribution	85%	72,2%
Hard coal	99%	99%
Brown coal	100%	89%
Oil wholesale	76,8%	26.8%
Oil distribution	40,0%	13,6%
Heat engineering	0%	0%

Source: Zmijewsky et al., 2007

In Hungary the State tried to keep its influence over the energy sector by creating the Magyar Villamos Művek (MVM) Group which controls a substantial part of the electricity sector. MVM owns the nuclear power plant and 25 per cent of the two other base-load power plants in Hungary. At the same time as having control over the grid, it also owns the Transmission System Operator (TSO). In the meantime, MVM has used the opportunity provided by the legislative changes necessary to comply with EU directives and influenced the new Electricity Act to its own advantage. It secured for

6 Tomsic, Mihael G., Critical Assessment of Europe's Energy Market – Country Report – Slovenia, p 7

7 Żmijewski, Krzysztof and Kassenberg, Andrzej, The Polish Energy MarketDeclarations vs. Reality, p 6-7

itself 70 per cent of the supply side of the market through long term purchase agreements valid for many years (although this is under investigation by the European Commission as a probable breach of European competition laws). On the other hand, the new legislation did not change the position of the TSO, which remained part of the MVM Group maintaining the possibility for the incumbent to abuse the market using its "dominant position"[8].

The Czech energy holding company CEZ is 67 per cent owned by the State, while almost all the rest is owned by financial institutions (24 per cent) and a smaller part by individual shareholders. The significance of the State ownership is great and will remain so even in the case of further privatization – which is being discussed in the Czech Republic – since the State would keep 50 per cent plus one vote, at least in the near future. CEZ also owns 5 of the 8 electricity distribution companies.

In Slovenia the electricity industry is dominated by State companies commanding 97% of the retail market. Five independent suppliers account for the remaining 3% of the market. The wholesale gas market is dominated by one company, Geoplin, which supplies 100% of the natural gas used in Slovenia. The Republic of Slovenia has the highest share (31.4%), but is not a majority owner: a major shareholder in Geoplin (share: 27.3%) is Petrol, an energy trading company also dominated by Slovenian state ownership. There are 30 minor shareholders. The State has not established a model for any further privatisation. This situation highlights clearly the issue of market concentration which is the other factor preventing the good performance of the market[9].

3.2. Market concentration

The major owners of the region's energy industry are EDF, GDF, E.ON, RWE, Electrabel and ENEL. These companies have different levels of ownership in different countries depending on the country's willingness to privatise and the need for cash in the budget from the privatization income. Generally, it is true that, whilst we see the same Western European companies buying up shares of the Eastern European energy industry, as we have seen above the State still has a huge influence over the sector. For instance, the Slovenian and Polish markets are mainly concentrated in the hands of the State instead of the trans-European energy giants.

In Hungary, private ownership is very high within electricity and gas distribution and also in the power generation sector. The major market players are E.ON, RWE and the French EDF and GDF[10]. There are other smaller ones like the German EnBW which has shares in distribution and power plants alongside RWE; ENI is active in gas distribution; Electrabel has shares in one of the major base load power stations and AES owns two middle-sized power plants. E.ON has full ownership of three electricity distribution utilities out of six, and two out of six gas distribution companies and also controls the gas wholesale company and the strategic gas storage facilities. E.ON thus controls the whole Trans-Danubian part of Hungary in terms of electricity distribution and a good part of gas distribution within the

8 Domina, K., Critical Assessment of Europe's Energy Market – A Case Study: Hungary, p 6

9 Tomsic, p 5-6

10 (i) EDF and GDF are separate companies;
(ii) EDF is 85% state-owned, so we cannot accurately or easily say "private ownership" in all cases

same territory. RWE together with EnBW have one of the major base load power stations (Matra). Also in conjunction with EnBW, RWE has control over two electricity distribution territories and has shares in gas distribution generally over the same territories. The same is true for the French ownership, since EDF and GDF have fairly overlapping distribution territories.[11]

The Slovak situation is an interesting combination of State and private ownership through a vertically integrated company. The joint-stock company Slovenské Elektrárne (SE) is a new entity (21st January, 2002). ENEL – itself around 20% state-owned back home in Italy – owns 66 per cent of the shares while the National Property Fund has 34 per cent. The company's business activities include electricity generation, imports, exports and to a smaller extent sales and distribution. SE is the operator of two nuclear power plants, two thermal power plants and 34 hydroelectric power plants. The distribution utilities have been fully or partially (around 50 per cent) privatised and bought by the "usual suspects": E.ON, EDF and RWE.

The market concentration is also high in the Czech Republic since the State controls a high proportion of the sector. However, privatisation could lead to a high concentration and would have a major impact on future development, taking into consideration the companies already in the country. As mentioned above, CEZ, which is basically controlled by the State, owns five of the eight electricity distribution companies. The remaining three were sold to E.ON and RWE. The South Bohemian and South Moravian distribution systems were bought by E.ON, while RWE has a quarter-share in the Prague utility together with the Municipality of Prague which keeps control over the company. Generation is dominated by CEZ with more than 60 per cent of electricity produced in its plants. RWE owns both main natural gas pipelines in the Czech Republic, practically controlling all imports from Russia and Western Europe and six out of eight natural gas distributors while E.ON has the shares of the remaining two.

The concentration is also very high in the Bulgarian market, where E.ON CEZ and EVN ownership represents 67 per cent of the generation capacity.

3.3. Unbundling

Unbundling of the Transmission System Operators can be done either through ownership unbundling or the introduction of a fully independent system operator. In the latter case ownership separation is not required but full functional separation is. The European Commission clearly favours the first option (full ownership unbundling) for valid reasons (see chapter Continental Themes and Trends and Environmental Issues). The unbundling issue is not resolved in most of the countries assessed; third party access and trans-boundary trading is still a problem. In many of the countries concerned, currently the State controls the TSO and the TSO is part of a major holding company having several power plants, in many cases the nuclear power plant(s).

For a short period of time (2003-2005) the Hungarian TSO (Mavir) was independent, but in 2005 an amendment of the Electricity Act subordinated it again to the MVM Group. The reasons as well as the results could provide an excellent case study for the European Commission since they present

11 Domina, Table I and II, p. 15-16

all the necessary justifications and an "example" of why unbundling is unavoidable if the European Union wants to have a competitive energy market at all. To mention two of the bad examples, the Hungarian Competition Authority assesses in its "Report of the Electricity Sector" that while the TSO remains an integral part of the vertically-integrated company "the market-neutral operation of the TSO cannot be guaranteed by any means."[12] This way the TSO could be used as an effective means against competitors and new entrants on the market. Another example is an occasion when the TSO itself puts barriers against the spread of renewable sources (i.e. wind energy), a move that was not against the interests of its owner. Despite all these problems the Government did not engage in the issue of unbundling during the creation of the new Electricity Act. Although the Minister responsible for the preparation of the new Act later stated that his ministry would guarantee the independent and fair functioning of the TSO, his pledge cannot be taken seriously.

As we can see, in such circumstances vertical integration goes against a competitive market. The TSO cannot serve the purpose of its function. There is high discrimination with regard to access to the grid, be it importing electricity, a new several hundred-MW gas turbine, a CHP plant or a wind farm. The overall operation of the sector becomes non-transparent and it seems that the regulatory bodies do not have sufficiently strong powers while their independence is also questionable.

3.4. Role and functioning of regulatory bodies

In all of the countries, energy regulators have been established by the relevant Acts. There is an "Office for Protection of Competition" in Slovenia or Hungarian Energy Office (HEO) and Hungarian Competition Authority (HCA) in Hungary or the Energy Regulatory Office in the Czech Republic. The anti-monopoly authority in the Czech Republic tries to oversee the main conflicts on the energy markets but has only limited prospects of being able to resolve them due to the ownership structure. Nevertheless, RWE was recently charged with an unusually high and unique fine (CZK 240 million, ca. Euro 9 million) for taking advantage of its dominant position on the Czech gas market[13]. At the same time, as concluded regarding the Slovenian situation, the Office for Protection of Competition exists to resolve complaints regarding the abuse of market power and even though there is a clear market dominance of the five state-controlled electricity distribution companies, a complaint regarding this dominance was rejected. An office within the government structure can only protect competition if there is clear political will for competition[14]. The problem is very similar in Hungary. "Thanks" to the deliberate amendments of the Members of Parliament neither the HEO nor the HCA has been given the necessary means to conduct supervision of the sector with regard to fair competition. The comment of the vice president of the Hungarian Competition Authority after the vote of the new Electricity Act in the summer of 2007 speaks for itself: "the result filled us with bitterness."[15]

12 Assessment of the Electricity Market, Hungarian Competition Authority, 2006, p. 8 in Domina, p 7

13 Hospodarske noviny, 14.3.2007 and 7.11.2007
[http://finweb.ihned.cz/c4-10083280-20658270-P02330_d-pokuta-za-drahy-plyn-240-milionu]
[http://ihned.cz//c4-10070850-22366990-P01100_d-rwe-stale-hrozi-ctvrtmiliardova-pokuta]

14 Tomsic, p 7

15 Statement of Márta Nagy, Deputy-Director of the Hungarian Competition Authority at a conference. Reported by Index.hu. [http://index.hu/gazdasag/magyar/gvhvet070517/] in Domina. p 10

3.5. "Made in CEE"

The Central Eastern European countries in many ways had very unique responses to the challenges of liberalisation and privatisation of the energy sector. The two major innovations are the long term electricity purchase agreements known as LTA and the constant efforts towards the establishment of a regionally strong "national champion". These two phenomena can be observed in most of the countries we are dealing with in this chapter.

Furthermore, if we want to understand the functioning of the energy markets in the region we cannot leave out such elements as the mentality of the main actors. Indeed perhaps it is one of the determining factors why, even though privatisation took place and much formal liberalisation has been introduced, the State has retained control over critical parts of the energy sector. Energy-related decision making in the CEE has been historically dominated by engineers with traditional "energy values". It is very difficult for them to understand that electricity and natural gas can be traded differently than it was 15 years ago all over the continent. They believe that the law of physics and the monopoly structure which evolved over the last century makes energy an inevitably centrally planned and controlled system. On the other hand, consumers also seem to accommodate themselves with their traditional utilities and this partly explains why only a few have changed suppliers.

Most of the CEE governments have the intention of creating their national champion. So far only the Czech CEZ and the Slovenian HSE seem to be successful in the regional field of electricity and the Hungarian MOL in the regional hydrocarbon business. It is questionable though whether the efforts of building up and maintaining such companies would have higher benefits for the country then they cost to the tax payers. On the other hand, their impact and influence on the market so far is rather controversial. This has been described very illustratively in the Polish report[16]: An extremely important barrier facing the creation of a competitive market is the creation of the national champion. In the case of Poland this is the Polish Energy Group (PEG). Firstly, the construction of the champion draws interest and efforts away from the creation of the market; secondly, the establishment of PEG, with a 50% share in national generation and a 30% share in national distribution, along with Southern Energy Concern, with its 25% of generation and 17% of distribution, will lead to the development of a highly concentrated market and thereby allow for only minimal or perhaps even negligible opportunities for ensuring true, well-developed competition. If we look at the structure of the other "national champions" we find some differences but a very similar weight and role on the national market.

Another common feature of the CEE countries is the so-called long term agreements (LTA). These contracts have been signed between the "single buyer" and the power plants either at the time of privatisation or during the period of "preparation" for the market opening. We can see these in Poland, Slovenia and Hungary. Even though according to EU rules it is not possible to have LTAs anymore since it is seen as a form of State subsidy, the contracts have been converted into similar agreements by fulfilling EU regulations. The result is that the monopoly will be maintained (LTA's

16 Zmijewsky et al., p 5-7

"leave little room for new market entrants"[17]), however, now we have fully a "liberalized" market. This is a major market distortion which excludes new entrants and at the same time keeps efficiency very low at generation level. The Assessment of the Hungarian Competition Authority openly states: "the problem is that the long-term agreements contain a mechanism to determine prices that ensure considerable profit for the power generator companies"[18].

4. Environmental Obligations

It seems that much effort has been invested in the last decade by governments to develop policy documents. Yet it is unfortunately fair to say that the Central and Eastern European Member States are neglecting the EU obligations rooted in certain environmental considerations. While energy and climate are discussed together in Brussels and in most EU countries as two sides of the same problem, this is not the case in CEE. Rational use of energy and the utilisation of renewable energy sources are put to one side as the bitter pill of the menu. It is partly connected to the supply side orientation of the decision makers. Moreover renewable energy is seen by the fossil fuel based energy industry as a threat. Even though energy efficiency would be the ideal solution, creating a win-win situation serving security of supply, competitiveness and environment at the same time, the governments are not paying enough attention to that either.

Unfortunately in many of the countries surveyed, the aim has been more to pay lip service to it rather than to implement effective measures. This has resulted in the development of patchwork policies and legal frameworks; in programmes and implementation measures being developed sometimes before the policies and concepts they should serve; in many cases the necessary background analysis has not even been conducted.

4.1. Energy efficiency

Energy efficiency has appeared in many documents as a priority for the last decades in CEE. Indeed most countries have developed policy documents that provide some legal framework for initiatives in the area of energy efficiency.

The implementation of important EU legislation is not uniform in the countries surveyed. In most of the countries, with the exception of Slovakia, at best major parts of the legislation are missing and the measures guaranteeing their implementation are missing. These governments basically took action just to be able to fulfil requirements at a formal level. This is true not only for the problematic Energy Performance of Buildings Directive but also for all the other efficiency related EU regulations[19]. Much could be said about the general neglect of the completion of their Energy Efficiency Action Plans, but this is not a typical CEE shortcoming since "older" member states have also failed to submit their plans.

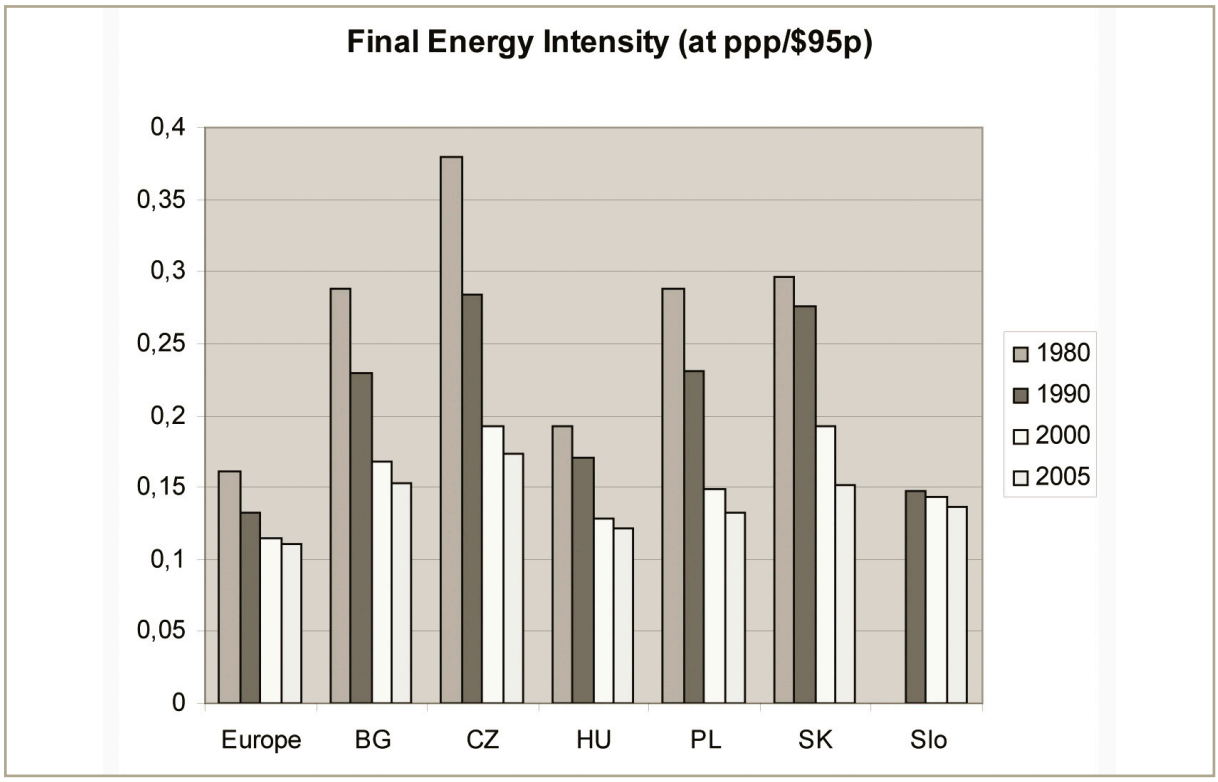
17 Press Release of the Commission [http://europa.eu/rapid/pressReleasesAction.do?reference=IP/05/1407]

18 Assessment of the Electricity Market, Hungarian Competition Authority, 2006. p 4. [http://www.gvh.ionlab.net/index.php?id=4332&l=h, in Hungarian], in Domina, p 7

19 See table at the end of the chapter

In some countries like Poland and Slovenia there is a clear lack of funds supporting energy efficiency investments while in other countries – such as Hungary – State funds have been allocated for the purpose without any significant results. Two areas of concern should also be mentioned; the institutional framework and the information base. A well-structured institutional framework would be able to gather the necessary information, with which it would be in a position to encourage and coordinate State, private and community based initiatives. In order for this to happen, strong political commitment is needed and a clear mandate and independence needs to be given to the agencies concerned.

Despite these shortcomings, the countries surveyed have seen a significant reduction of their energy consumption although this reduction is not a result of the energy efficiency measures or any conscious effort of the State. There is still a huge potential for energy efficiency as is revealed when we compare the energy intensity rates to the EU average. Indeed, in all countries surveyed, the energy intensity is higher than the EU average.



Source: World Energy Council20

The strength of political commitment emerges as one of the decisive factors preventing progress in energy efficiency. Without political commitment, the necessary policy and legal frameworks will not be developed in a coherent way nor will the appropriate funds be allocated to this area.

Opportunities are huge, though. For example, as the Czech report on potential energy savings in residential and administrative buildings[21] showed, it is possible to save about 60% of its current con-

20 World Energy Council, Energy Efficiency Policies around the World: Review and Evaluation, January 2008

21 'Potential study of energy savings in residential buildings by 2050, September 2007 and Potential study of energy savings in tertiary sector by 2050', in Prosenna – November 2007

sumption while increasing living standards or comfort in the working environment. 175 PJ can be saved which is the equivalent to one sixth of overall final energy consumption in the Czech Republic or half of all natural gas imports into the country.

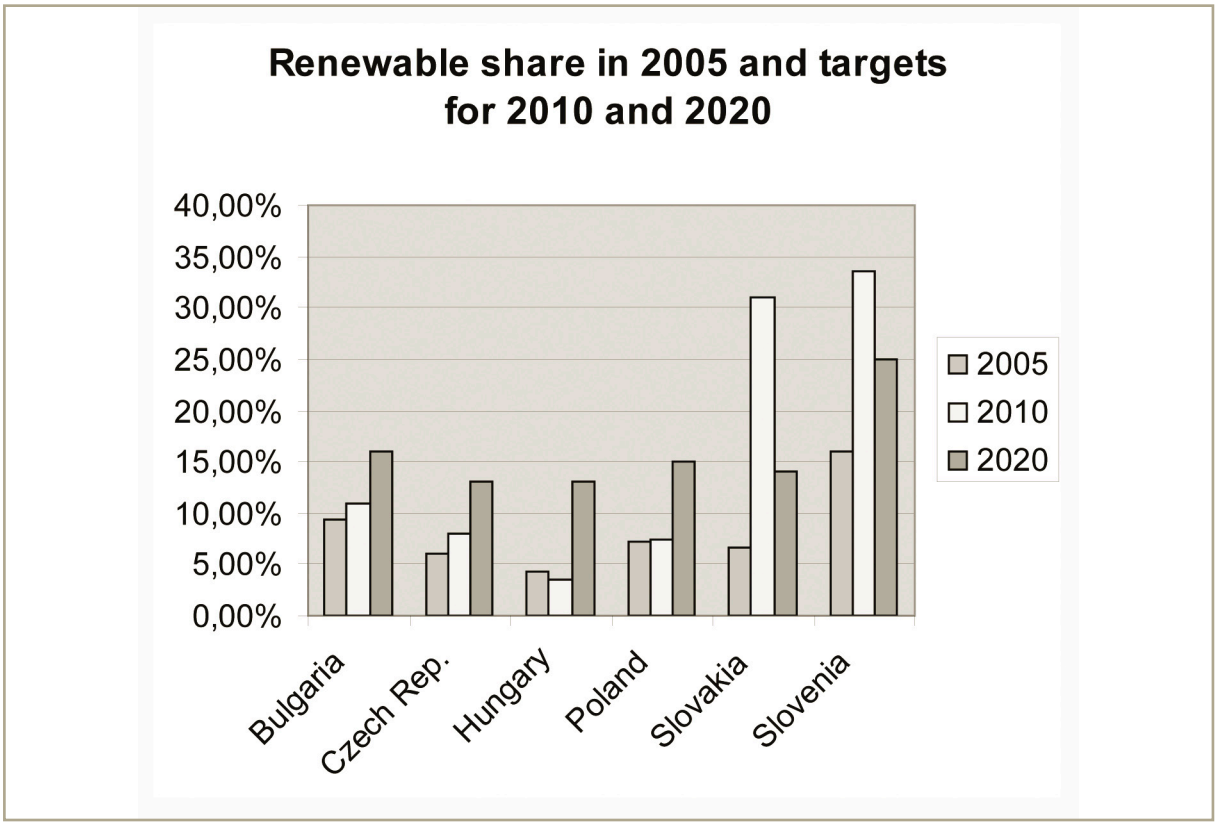
4.2. Renewable energy

Most countries have developed certain policy documents or some legal framework for initiatives in the area of the utilization of renewable energy sources. As we could conclude in the field of energy efficiency, these are mainly driven by external requirements rather than genuine interest in making primary energy supply more diversified, reducing dependence and becoming more environmentally sound.

Unfortunately the situation regarding renewables in the CEE is worse compared to energy efficiency. Indeed renewables policy and regulation cannot be worked out without well researched background studies and a good understanding of the technologies involved. The lack of the above prerequisites has had a negative impact on the development of the renewable energy sector in the region. Generally speaking, in countries where progressive legislation has been introduced very cumbersome administrative barriers remain which hinder the wide deployment of clean energy sources for electricity production. Another element to deplore is that the whole renewable energy debate is almost strictly focused on electricity production.

The lack of effort in developing a coherent policy and regulatory framework from the beginning has led governments to adjust this framework as the market develops and problems occur. These changes do not provide stable market conditions for renewable energy investment within the region. The arbitrary limits such as “protected areas” in Slovakia or the Hungarian 330 MW cap on wind capacity have been introduced to slow down the progress of the wind industry; governments were alarmed by the quick growth of the market which had been encouraged by the original regulatory measures, e.g. feed-in tariff. The lack of a differentiated feed-in tariff in many countries has led to problems, such as the already mentioned wind development, the widespread and unsustainable use of biomass in the region. Moreover this biomass is burnt with very low efficiency in old coal-fired plants. The issue of biomass is further complicated by the crisis of the CEE agricultural sector. There is a risk that unsustainable biomass developments will be used for the sake of the survival of this sector.

If we look at renewable targets a few questions arise. In the case of certain countries, e.g. Hungary and Poland, the 2010 target was obviously set too low since it had already been reached or exceeded in 2005. This is most probably because the decision makers were not aware of the projects and investments already in place, nor did they have any realistic information on their country’s renewables potential. Targets for Slovakia and Slovenia on the other hand clearly show the political interest to set a target that would justify certain investments (e.g. large hydro) which have since become obsolete.



Source: Energy Club own compilation

It is clear from the above that the integration of renewable energy technology into an energy system is a complicated issue. It is also obvious that decision makers lacking proper background information are acting like an apprentice magician; creating regulations and measures on an ad hoc basis. This can potentially have long term negative impact on both markets and the environment. This could be avoided by learning from the experience already gained on the Continent.

4.3. Emissions Trading Scheme (ETS)

Phase I of the EU ETS has ended and Phase II has begun. Although formed with the aim of reducing greenhouse gas emissions where this is the cheapest, for the new Member States the EU ETS turns out, at least initially, to be more a tool to allocate generous State aid than a reduction stimulus.

In its report of 2006, Agree.net assessed second National Allocation Plans (NAPs)[22] for six new member states, Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovenia. The assessment shows that the Member States have disregarded the Commission's guidance about the formation of the caps. Caps of most NAPs are very weak and the "polluter pays" principle has not been respected. The cap on allowances for the Bulgarian energy sector is higher than the amount applied for (113 per cent), the Czech industry is heavily subsidised with allowances that cheat the ETS scheme; the total amount of allowances for Hungary is 1 per cent above the business as usual prediction, thus

22 Assessment of Key National Allocation Plans for Phase II of the EU Emissions Trading Scheme, Agreenet-WWF-Can Europe, November 2006

clearly showing the Hungarian government's policy of subsidising ETS-sectors instead of making real emission reductions. Indeed the Hungarian proposal was cut back by 12.4 per cent by the European Commission.

The estimation for Hungarian companies shows that the ETS sector received approximately 133 million Euros[23] in subsidy over the first phase of EU ETS (2005-07). It is also estimated that Czech businesses do not need the allocated allowances to cover their emissions, which means that they will be making windfall profits. All in all, the allowances from inflated new member states' caps will lead to an increase of emissions elsewhere, while creating profits for those whose governments have been over-generous when allocating allowances. The situation is very similar in Poland where Phase II of NAP continues to reward large polluters by setting a weak cap, making use of fuel-specific benchmarking and over-generous emissions projections.

There are also other major shortcomings detected in the new member states' NAPs: the allowances are mostly allocated at no cost or based on benchmarks that give incentives to the most polluting technology (coal) and too many external credits can be used to comply with commitments without quality criteria for projects, undermining technological change in the EU.

The new proposal from January 2008 to replace NAPs with the Europe-wide allocation of allowances, in principle all by auctioning, would represent a substantial improvement on the present system; nevertheless the final form of the new legislation will not be known until 2009.

Conclusions

Energy "market directives" (Electricity 2003/54/EC, Gas 2003/55/EC) are only one part of the full list of energy related directives which new Member States should adopt. There are many more which relate to environmental concerns (e.g. renewable, energy efficiency or emissions trading directives) and these receive much lower attention from the decision makers. Therefore, when we are talking about the poor transposition of the electricity and gas directives we have to keep in mind that these are the ones that have been given more time and consideration by the governments and the national parliaments. Since these new regulations – according to the perceptions of the management of the State-owned companies – would harm their economic interests much more and would take away old advantages and force companies who were in a privileged position for decades to compete. Therefore, they developed ways of formally fulfilling the new directives and at the same time keeping their advantages as described in the previous paragraphs.

When we look at the problem of the full liberalisation of the CEE energy markets, we can see that the following main obstacles are in the way of a real market operation:

- High degree of State control of the energy sector
- High market concentration by the European energy giants
- Lack of effective unbundling, including full ownership unbundling

23 [http://rekk.uni-corvinus.hu/pdf/mezo_ets.pdf]

- Weakness and the non-independent functioning of the regulatory bodies
- The establishment of "national champions"
- Long term power purchase agreements
- Political price setting – low consumer tariffs
- Bureaucratic difficulty in changing suppliers
- Technological problems e.g. metering system

In terms of sustainable energy sources, the strength of political commitment emerges as one of the decisive factors preventing progress in energy efficiency and renewable energy. Without political commitment, the necessary policy and legal frameworks will not be developed in a coherent way nor will the appropriate funds be allocated to these areas. Decision makers lacking proper background information are acting like an apprentice magician; creating regulations and measures on an ad hoc basis which can potentially have a long-term negative impact on both markets and the environment.

Degree of EU legislation transposition[24]

Directive	Number	BG	CZ	HU	PL	SK	SLO	CR	TRK
Electricity Directive	2003/54/EC	4	4	4	4	5	4	4,5	2
Gas Directive	2003/55/EC	3/4	2	2	1	4	4	4,5	2
Renewables Directive	2001/77/EC	5	4	4/5	4	3	4	4	4
CHP Directive	2004/8/EC	4	4	4	4	4	4	4	2
Energy Performance of Buildings Directive	2002/91/EC	3/4	3	1/2		5	3	3	3
Biofuel Directive	2003/30/EC	3/4	5	3	4	4	3	3	2
Energy End-use Efficiency and Energy Services Directive	2006/32/EC	4/5	3	2	2	2	3	2	4
Eco-Design Directives	2005/32/EC	4	3	1	3	2	3	2	2
Completion of Energy Efficiency Action Plan	COM (2006)545	3/4	3	2	2	5	2	3	NS

Explanation of marks:

5 full transposition in the spirit of the original text of the directive.

4 close to full transposition: only minor legislation is missing and there are tools that guarantee the implementation of existing legislation.

3 vaguely done: major legislation is missing and the measures and/or programmes guaranteeing implementation are missing. The government basically took action to only formally comply with EU requirements.

2 legal transposition is missing, but it is in the legislative pipeline (deadline is passed)

1 no sign that the country/government wants to fulfil the legal obligation

24 For details on the markings, please see individual country reports at www.agreenet.info

IV. Continental Themes and Trends and Environmental Issues

Antony Froggatt

The Spring Summit in 2007 was a milestone for the development of a common EU energy policy. The headline agreements were that by 2020 the EU should adopt binding or indicative targets that would see a 20% increase in energy efficiency, 20% of energy from renewable energy sources (including a minimum of 10% of biofuels for liquid transport fuels – however, in the law proposed in January this has now been changed to a 10% target for any renewable energy source in the transport sector, which could include electric trains and trams providing there was no double counting) and an "at least 20%" decrease in greenhouse gas emissions (with a 30% target to be adopted if there was an effective international agreement). Of great importance was the fact that the Summit agreed to directly link future EU energy policy with action to stop climate change and a much greater potential role for the EU in addressing energy in external affairs. These measures along with others covering further market liberalisation, energy research, trans-European networks, nuclear power and fossil fuels were described by the President of the European Commission José Manuel Barroso as "a step change for the European Union. Energy policy was a core area at the start of the European project. We must now return it to centre stage". While Commissioner for Energy Policy, Andris Piebalgs, stated that these proposals were part of "a new industrial revolution[25]".

On market liberalisation, the Commission proposed that within three years a European Gas and Electricity grid and truly competitive and pan-European market should be established through:

- New legislation on network unbundling. This is a controversial issue as currently many grids are in the hands of large vertically-integrated energy companies that produce electricity mainly from coal or nuclear power stations. Unbundling can be done either through ownership unbundling or the introduction of an independent system operator (where ownership separation is not required but complete functional separation is). The Commission clearly favours the first option of full ownership unbundling. However, some Member States do not favour either option and are pushing for less onerous regulation.
- Greater regulatory harmonisation for cross-border activities through the improvement of existing powers and the development of a new network of independent regulators and a new cross-border agency for regulatory cooperation.
- A new Community mechanism for the closer cooperation of Transmission System Operators to be established. This could adopt legally binding measures and promote standards for more cross-boundary projects and trade.

The full opening of the energy retail (supply) market in July 2007 requires protection and information for consumers which it is proposed be provided through the 'Customers' Energy Charter'.

The Commission has put forward new proposals for inter-connectors, including increased funding for Trans-European Energy Networks, identification of lacking infrastructure, a five-year maximum development period for projects of 'European interest', the development of four priority inter-con-

25 European Commission 2007, Commission proposes an integrated energy and climate change package to cut emissions for the 21st Century, 10th IP/07/29

nection projects: Power-link Germany, Poland and Lithuania; offshore wind connections in Northern Europe; electricity connections for France/Spain and the Nabucco pipeline (Caspian to Central Europe).

Despite the general view that the energy/climate package was driven by a desire for greater integration of policy between the two areas and to create a common European energy policy for the first time, other issues were also at play. Most importantly, in 2005 the Commission opened a major inquiry into gas and electricity markets due to higher than explicable energy prices. The final report of the Commission was released in January 2007. In this report the Commission remained convinced that there was no alternative to market liberalisation and that it was a question of greater transposition and implementation of the existing rules, while also developing new initiatives.

The main shortcomings identified were:

- Effective unbundling of the network and supply activities
- Removal of regulatory gaps, in particular in cross-border activities
- Market concentration and barriers to new entry
- Increased transparency.

A more detailed analysis of the liberalisation proposals can be found in the chapter: The European Union's legislation liberalising energy markets. Therefore this paper looks at other issues that affect the European energy markets.

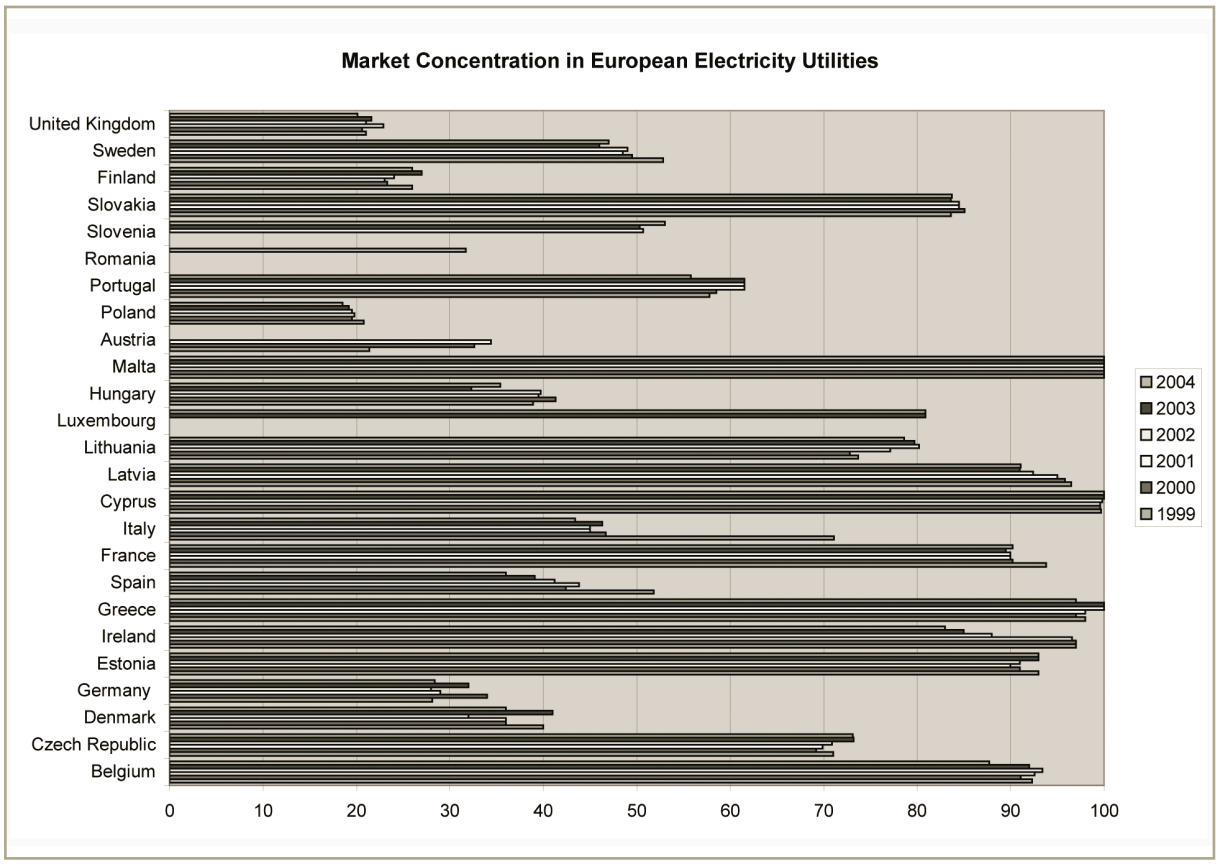
1. Market Concentration

The purpose of the liberalisation process was to increase competition which would in turn lead to more cost-effectiveness and often lower prices and thus aid the economic competitiveness of the EU. One key measure of this is the market share of the major utilities. Eurostat and the Commission measured this on a national basis to show the degree to which the market is dominated by the incumbent utilities. Its figures demonstrate two key factors.

1) That there is a significant variation in the market dominance of the major utilities in systems which have introduced ownership unbundling compared to those which only require legal unbundling. As the Commission demonstrates in its Impact Assessment report, the average share of the largest generators in those countries with ownership unbundling is 47.7% (in 2005) while for those countries with only legal unbundling the average is 73%[26].

2) That the introduction of the European market has not had a significant impact on the dominance of the large utilities. Since 1999, the average dominance of the major utility in each Member State has not changed significantly. In the following graphic the marginal decline in the market share of the major electricity utility in each Member States is documented over a six year period. As can be seen the average decline in the market share of the major utility has only decreased by around 4%.

26 European Commission 2007: Commission Staff Working Document, Accompanying the Legislative Package on the Internal Market for Electricity and Gas Impact Assesment, (SEC 2007) Annex II p 89



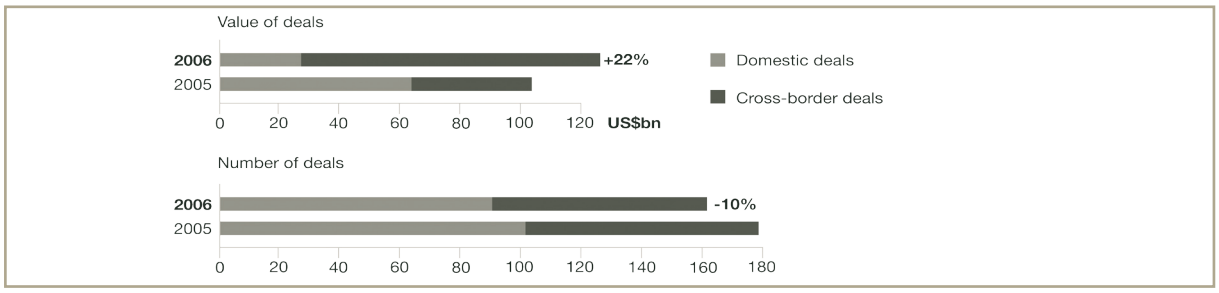
Source: Eurostat 2007

It is equally important to look at the activities of the utilities on a European level. Over this same time period the major utilities have grown considerably. This was highlighted by the scale of mergers and acquisitions (M&A) in 2006. Globally there were $300 billion in activity in the energy utility sector, which was a 50% increase over 2005. Europe had the largest share of global M&A, with 58% of the target companies and 64% of the bidders. Furthermore, the two largest deals were European: The Suez takeover of Gaz de France (GDF) ($43 billion [€30 billion]); and the Iberdrola takeover of Scottish Power ($22 billion [€15 billion])[27].

The graphic below also shows the extent to which the European M&A activities were dominated in 2006 by cross-border activities. This has been associated, erroneously, with the introduction of the full opening of the retail market requirements on the EU level. PriceWaterhouseCoopers (PWC) state that 'A more integrated and fully liberalised EU power market is likely to ultimately feature a handful of players. Moves by existing 'super-regionals', such as EON's for Endesa, are part of the quest to be at the top of the select pack'.

27 PriceWaterHouseCoopers 2006: Power Deals 2006 Annual Review, Mergers and Acquisitions Activities within the Global Electricity and Gas Sector.

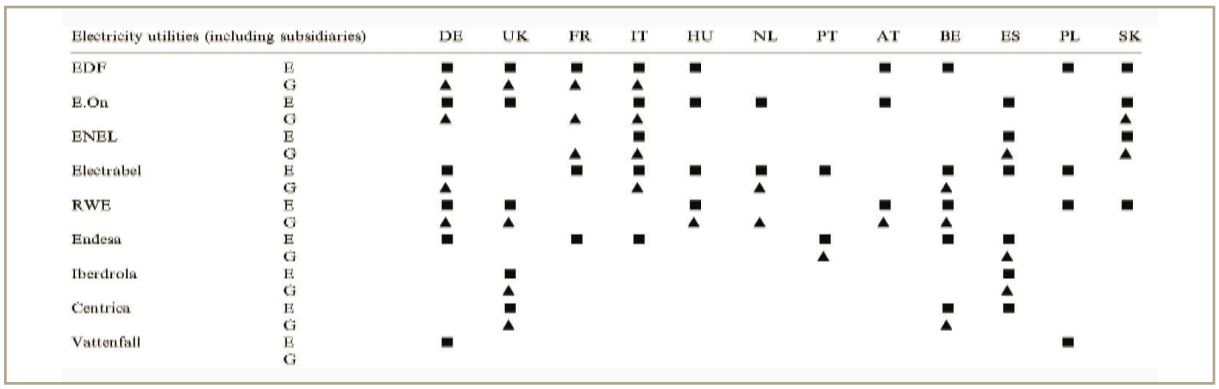
Europe (by target) electricity deals



Europe (by target) gas deals

Source: PriceWaterhouse Coopers 2006

This activity has resulted in fewer companies being active in more Member States and in both gas and electricity markets. This can be seen in the graphic below



Source: Domanico 2007[28]

2. Meeting Environmental Obligations

The use of energy is responsible for 80% of all greenhouse gas emissions in the EU-15, around a quarter of this relates to transport. Emissions from the electricity and gas sectors relate to power and heat generation by public facilities which are responsible for 24% of all greenhouse gas (GHG) emissions and the residential sector for 10%[29].

The Commission claims that the overall impact of the liberalisation process on CO_2 emissions is neutral. It argues that liberalisation leads to lower energy prices and this will therefore lead to higher levels of

28 Domanico (2007): Concentration in the European Electricity industry; The international market solution? Fabio Domanico, Energy Policy 35 (2007) 5064-5076

29 European Environment Agency 2007: Greenhouse Gas Emissions Trends and Emissions in Europe in 2007 – Tracking progress towards Kyoto Targets, No 5 2007, ISSN 1725 9177

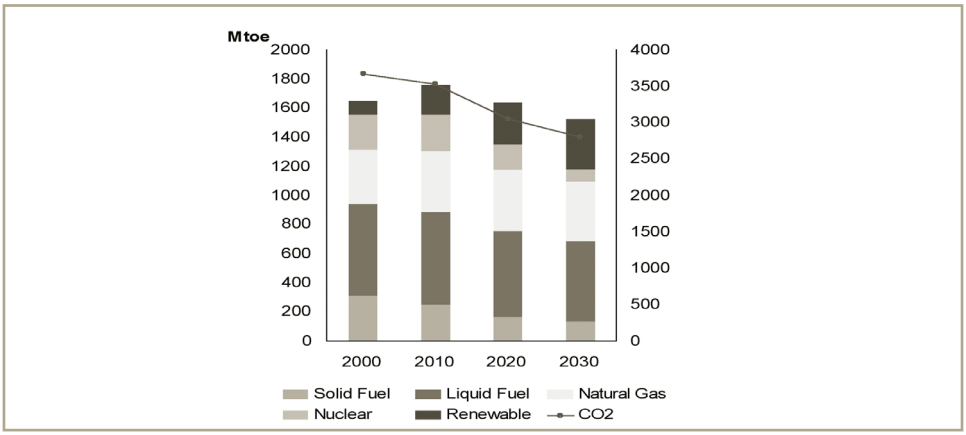
energy consumption. The increased emissions associated with higher levels of energy consumption will be balanced, through the requirements of the Emissions Trading Scheme, by fuel switching – away from coal – and into natural gas and renewable energy. Further CO_2 reductions will be achieved through greater supply side efficiency measures driven by greater economic competitiveness[30].

Levels of CO_2 emissions in the power and district heating sector vary considerably between Member States and between the different regions. Since 1990 CO_2 emissions from the EU-15 countries from these sectors have increased by 6% but figures for the EU 27 show a 7% decrease. This is due to the significant CO_2 reductions registered in CEE 10 countries, resulting from the restructuring of their economies and the modernisation of their power and heating sectors.

The electricity and gas sectors are responsible for environmental impacts other than those relating to climate change. The most prominent is the production of nuclear waste through the use of nuclear power. However, there are other important issues, those relating to air pollution and contamination of soil and water. Through a number of mechanisms the EU is attempting to reduce its GHG emissions from the gas and electricity sectors.

At this year's Spring Council, EU leaders agreed to what is known as the "20:20:20 Plan". The EU will seek to reduce its GHG emissions by 20%, increase its energy efficiency by 20% and meet 20% of its energy needs from renewable sources, all by 2020. This creates an important set of priorities and principles that would set Europe down a much more sustainable energy path.

The implementation of just the renewable energy and energy efficiency targets would result in a 24% decrease in CO_2 emissions by 2020 – more than the current unilateral targets. More significant to this debate, however, is that the scenario outlined also envisages a decrease in nuclear power, in fact a 23% decline by 2020 and a 59% cut by 2030. Thus, as we are seeing now in Germany, which has announced a 40% reduction target and is continuing its phase-out policy, it is possible to both reduce CO_2 emissions and renounce nuclear power.



Source: European Commission 2006[31]

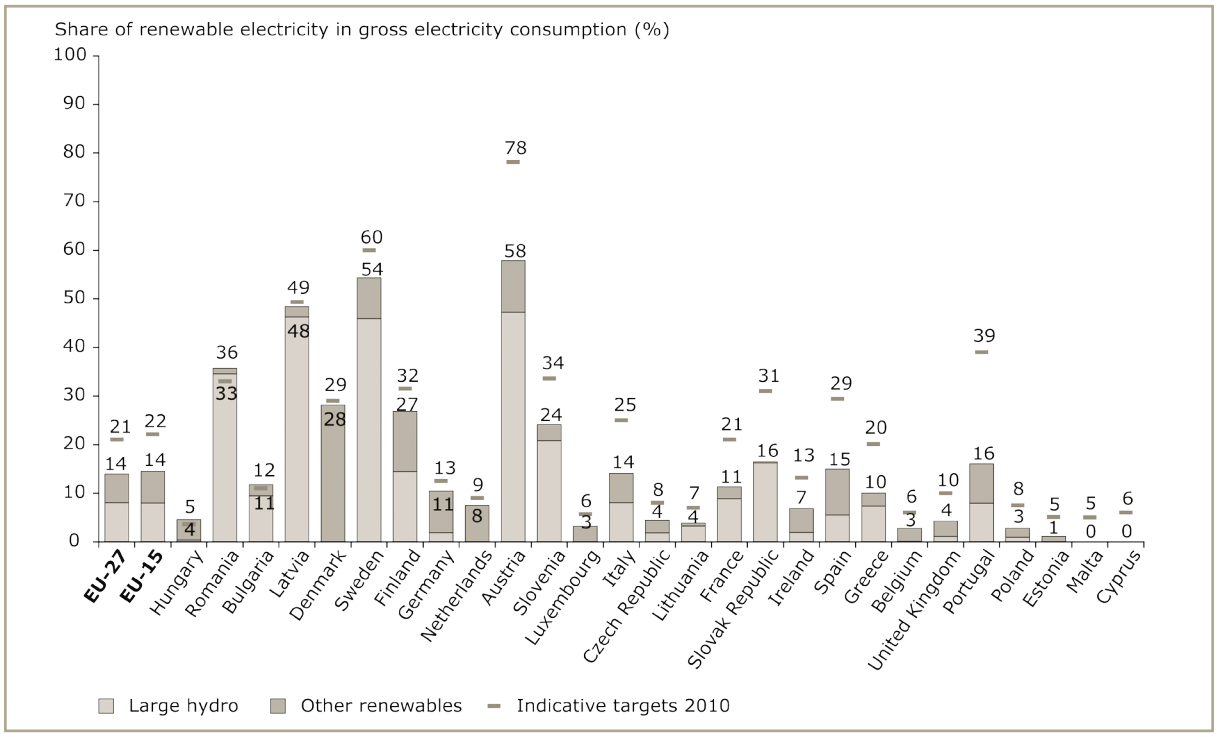
30 European Commission 2007: Commission Staff Working Document, Accompanying the Legislative Package on the Internal Market for Electricity and Gas Impact Assesment, (SEC 2007) p 71

31 European Commission 2006: European Energy and Transport Scenarios of Energy Efficiency and Renewables, DG TREN, table 1-4.1

2.1. Renewables

In 2004 renewable energy accounted for 6% of EU energy consumption (13% of electricity). The EU has introduced targets for the use of renewable energy that would, if met, require that by 2010 12% of the EU's energy should come from renewable sources. This translates into an equivalent target of 21% of electricity by 2010. Member States are having different degrees of success in meeting the target, as a result of the national policy tools proposed and the effectiveness of their implementation.

The graphic below from the European Environmental Agency (EEA) shows the extent to which Member States are meeting their 2010 target. The graphic also shows the dominance of large-scale hydro on the renewable energy sector, as it currently provides 66%, with biomass 17% and wind 15%. However, the growth in the renewables sector over the last decade is largely due to the increased use of wind power, which has increased by a factor of 80 between 1990 and 2004. This has largely been on the back of extremely strong growth in Denmark, Germany and Spain, but its use is not widespread in most European countries.



Source: EEA 2007[32]

The use of renewables is expected and will be required to continue in the coming decades. As noted, the EU adopted a proposal to require 20% of the EU's energy to come from renewable energy sources by 2020. This is not a common target for each Member State as the resources and current exploitation of renewable energy varies significantly, e.g. Austria and Sweden already exceed the 20% target. The European Commission proposed the targets for each Member State, who will then be allocated sector (electricity, transport, heat and cooling) targets. The EU, other than for biofuels (for which a 10% target has been proposed) will not set sector targets. However, the European Parliament has called for sector targets in its report on the draft legislation.

32 European Environment Agency 2007: Greenhouse Gas Emissions Trends and Emissions in Europe in 2007 – Tracking progress towards Kyoto Targets, No 5 2007, ISSN 1725 9177, figure 9.6

In order to meet this target the EU must increase its production from renewables threefold. The allocation to Member States can be seen in the table below.

Renewable Energy Requirement in Member States

Member State	Share of renewables in 2005	Share required by 2020
Austria	23.3%	34%
Belgium	2.2%	13%
Bulgaria	9.4%	16%
Cyprus	2.9%	13%
Czech Republic	6.1%	13%
Denmark	17%	30%
Estonia	18%	25%
Finland	28.5%	38%
France	10.3%	23%
Germany	5.8%	18%
Greece	6.9%	18%
Hungary	4.3%	13%
Ireland	3.1%	16%
Italy	5.2%	17%
Latvia	34.9%	42%
Lithuania	15%	23%
Luxembourg	0.9%	11%
Malta	0%	10%
The Netherlands	2.4%	14%
Poland	7.2%	15%
Portugal	20.5%	31%
Romania	17.8%	24%
Slovak Republic	6.7%	14%
Slovenia	16%	25%
Spain	8.7%	20%
Sweden	39.8%	49%
United Kingdom	1.3%	15%

Source: European Commission (2008)[33]

The Commission has also set a series of interim targets, in order to ensure steady progress towards the 2020 targets:

- 25% average between 2011 and 2012;
- 35% average between 2013 and 2014;
- 45% average between 2015 and 2016, and;
- 65% average between 2017 and 2018.

33 European Commission 2008: Proposal for a Directive of the European Parliament and of the Council for the Promotion of the use of energy from Renewable Energy, January 23rd 2008

Although there is no sectorial target within the Directive, the Commission has previously indicated how the Directive could be met between the different sectors:

- 34% of electricity, up from 15% in 2006
- 18% of heat and cooling, up from 9% in 2006
- 14% of transport fuels, up from 2% in 2005

2.2. Energy Efficiency

Despite the claim by the Commission and EU Member States that energy efficiency should be "a if not the" priority, the energy efficiency target is only an indicative and stems from the October 2006 Energy Efficiency Action Plan (EEAP). The action plan calls for an increase of 20% in energy efficiency of the EU by 2020 and, if implemented across the EU, would reduce its overall energy consumption by 13% by 2020, while increasing GDP, saving €100 billion and 780 billion tonnes of CO_2 each year. This is a truly win-win scenario and should only be seen as a first step, as by using current technology 40% increases in efficiency are possible.

Member States were required to submit to the Commission by July 2007 a National Energy Efficiency Action Plan (NEEAP) to demonstrate their commitment to achieving the EU's energy efficiency objectives. However, by that deadline only two, Finland and the UK, had done so. As a result, the Energy Commissioner said that if the others were not forthcoming he would bring infringement procedures. Over the following months a further 15 States (Austria, Bulgaria, Czech Republic, Cyprus, Denmark, Estonia, Germany, Ireland, Italy, Lithuania, Malta, Netherlands, Poland, Romania and Spain) complied. In October 2007 the Commission began infringement procedures against the remaining States and in December 2007, the action plans of Belgium and Slovakia were received.[34]

Of the 17 NEEAPs submitted only five – Cyprus, Lithuania, Italy, Romania and Spain – went beyond the minimum indicative target. However, the Commission stated that 'many seem to present a business as usual approach' and that this 'lack of clear formal commitments may confuse the strong signal in favour of energy efficiency to market actors'.
However, the Commission has an inconsistent view on energy efficiency, as do the Member States.

On the one hand, the Commission supports the energy efficiency action plan and notes that energy efficiency is of fundamental importance to Europe. On the other hand, the objective to improve the efficiency of the EU is not a target, but an objective. Furthermore, the stated objective of the action plan to improve efficiency by 20% by 2020 should lead to a 13% reduction in energy demand. However, in the baseline assumptions put forward by the Commission in most scenarios, the energy demand is projected to increase along business as usual lines[35]. If the energy sector and wider society is to believe that the energy efficiency targets are both achievable and expected to occur then these forecasts must be built on this assumption.

34 European Commission (2008): Communication from the Commission to the Council and the European Parliament on the First Assessment of the National Energy Efficiency Action Plans as Required by Directive 2006/32/EC on Energy End-use Efficiency and Energy Services, Moving Forward together on Energy Efficiency. January 23rd 2008

35 see Figure 9.8 in EEA GHG report and European Energy and Transport, Trends to 2030- 2005 update

2.3. Emissions Trading Scheme

The European Union has placed at the heart of its attempts to reduce emissions the Emissions Trading Scheme (ETS). This law was adopted in October 2003 and introduces a 'cap and trade' system for CO_2 emissions from over 12,000 installations. This initially covered around 40% of all greenhouse gas emissions from the EU 27. The scheme became operational in January 2005, with the first trading scheme running until the end of 2007. The second period runs until the end of 2012.

The ETS covers only large industrial CO_2 producers, including: power stations over 20 MW; oil refineries; coke, iron and steel; lime and cement production; glass production; ceramics; paper and pulp production. The methodology of the scheme is for a set number of emission allowances to be allocated to installations by each Member State, based on existing emission levels. In Phase I, a minimum of 95% of the allowance must be allocated at no cost (or 'grandfathered'). In the second phase this is 90%. In both phases, the remaining allowances may be auctioned.

The key issue is therefore the total level of allocations, or 'cap'. Member States submit national allocation plans (NAPs) to the European Commission for its approval. The table below indicates the national targets for Phases I and II of the ETS.

Summary information (all figures are annual, in million tonnes of CO_2)[36]:

Member State	1st period cap (2005-7)	2005 verified emissions	Proposed cap 2008-2012	Cap allowed 2008-2012 (in relation to proposed)	additional installations in 2008-12	JI/CDM limit 2008-2012 in %
Austria	33.0	33.4	32.8	30.7 (93.6%)	0.35	10
Belgium	62.1	55.58	63.3	58.5 (92.4%)	5.0	8.4
Bulgaria	42.3	40.6	67.6	42.3 (62.6%)	n.a	12.55
Cyprus	5.7	5.1	7.12	5.48 (77%)	n.a.	10
Czech Rep.	97.6	82.5	101.9	86.8 (85.2%)	n.a.	10
Denmark	33.5	26.5	24.5	24.5 (100%)	0	17.01
Estonia	19	12.62	24.38	12.72 (52.2%)	0.31	0
Finland	45.5	33.1	39.6	37.6 (94.8%)	0.4	10
France	156.5	131.3	132.8	132.8 (100%)	5.1	13.5
Germany	499	474	482	453.1 (94%)	11.0	20
Greece	74.4	71.3	75.5	69.1 (91.5%)	n.a.	9
Hungary	31.3	26.0	30.7	26.9 (87.6%)	1.43	10
Ireland	22.3	22.4	22.6	22.3 (98.6%)	n.a.	10
Italy	223.1	225.5	209	195.8 (93.7%)	n.k.	14.99
Latvia	4.6	2.9	7.7	3.43 (44.5%)	n.a.	10

36 Emissions trading: Commission adopts amendment decision on the Slovak National Allocation Plan for 2008 to 2012 [http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1869&format=HTML&aged=0&language=EN&guiLanguage=en]

Member State	1st period cap (2005-7)	2005 verified emissions	Proposed cap 2008-2012	Cap allowed 2008-2012 (in relation to proposed)	additional installations in 2008-12	JI/CDM limit 2008-2012 in %
Lithuania	12.3	6.6	16.6	8.8 (53%)	0.05	20
Luxembourg	3.4	2.6	3.95	2.5 (63%)	n.a.	10
Malta	2.9	1.98	2.96	2.1 (71%)	n.a.	Tbd
Netherlands	95.3	80.35	90.4	85.8 (94.9%)	4.0	10
Poland	239.1	203.1	284.6	208.5 (73.3%)	6.3	10
Portugal	38.9	36.4	35.9	34.8 (96.9%)	0.77	10
Romania	74.8	70.8	95.7	75.9 (79.3%)	n.a	10
Slovakia	30.5	25.2	41.3	32.6 (78.9%)	1.78	7
Slovenia	8.8	8.7	8.3	8.3 (100%)	n.a.	15.76
Spain	174.4	182.9	152.7	152.3 (99.7%)	6.7	ca. 20
Sweden	22.9	19.3	25.2	22.8 (90.5%)	2.0	10
UK	245.3	242.4	246.2	246.2 (100%)	9.5	8
SUM	2298.5	2122.16	2325.34	2082.68 (89.56%)	54.69	-

It has been retrospectively shown that in Phase I there was a major over-allocation of emission permits to Member States to a significant degree, as can be seen in the table above, where the allocated emissions for 2005-7 were 2298 million tonnes per year, but in 2005 emissions levels totalled 2122 million tonnes of CO_2. With such over-capacity it is hardly surprising that despite a buoyant start the price of carbon dropped to close to zero, from a high of over €30/tonne. Despite the fact that virtually all of the permits were given to the utilities at no cost, the introduction of the ETS has had a measurable impact on the price of electricity in Europe. This has been to the advantage of the large electricity generating sources and it has been said that the main economic winners of Phase I were the coal and nuclear utilities[37].

In Phase II the total emissions allocated were 2082 million, a shortfall of around 200 million tonnes of CO_2, which is a reduction of around 10%.

However, Phase II of the scheme allows the import of Kyoto credits (through the linking Directive)[38]. Member States submitted in their national allocation proposed plans regarding the extent to which they would use Joint Implementation (JI) or Clean Development Mechanisms (CDM) to reach their targets. Emissions credits from these schemes are called Emissions Reduction Units (ERUs) and Certified Emissions Reductions (CERs) respectively. These were subsequently revised by the European Commission (in the case of Germany upwards). According to WWF in the countries they assessed,

37 CitiBank 2006: Peter Atherton, head of European Utility Research, Citigroup 'Citigroup Analysis of the Impact of the EU Carbon Market on European Utilities', 2006

38 OJEU 2004: Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emissions allowance trading within the Community, in respect of the Kyoto Protocol's project mechanism., 13th November 2004. [http://eur-lex.europa.eu/LexUriServ/site/en/oj/2004/l_338/l_33820041113en00180023.pdf]

the maximum JI/CDM credits allowed will be 227 Mt CO_2/year (compared to the shortfall of around 200 Mt CO_2/year). The World Bank estimates that the number of credits imported through JI or CDM schemes could be in the order of 1000-1200 Mt CO_2 over the 2008-12 period and therefore that 'put in perspective, it means that installations, using credits from CDM and JI, could be in a balanced position or marginally short one'.

In January 2008 the Commission announced new proposals for the ETS. This is designed to set out longer term targets of EU industrial emissions – accounting for 50% of the EU's total. By 2020, emissions from facilities included should have been reduced by 21% when compared to 2005 levels. One of the main concerns about the current ETS is that virtually all –around 90%- of the existing emissions permits are currently allocated free of charge. However, this is destined to diminish, but by 2013 40% will still be allocated for free; the rest will be auctioned. This is in particular expected to impact upon the power sector which, from 2013 onwards, is expected to have 100% auctioning; this is predicted to lead to a 10-15% increase in electricity prices.

3. Conclusions

The energy sector, both for environmental, economic and security of supply reasons, has moved higher up the political agenda. This has resulted in some major proposed changes in the sector across Europe with: the introduction of a new energy policy; a new wave of market liberalisation including proposals for the unbundling of some large utilities; and targets and objectives to reduce GHG emissions, increase the use of renewable energy and increase energy efficiency.

Some of these objectives are compatible and mutually reinforcing, whilst others are in contradiction. At the same time there is an increasing trend for market concentration, in which the large utilities are seeking to increase their market power, not just in their country of origin and not just in their sector. This is expected to lead to the development of a handful of super-utilities.

A key issue now facing the European sector and in particular European politicians is how to ensure that the environmental and market liberalisation objectives proposed are met, especially in the face of larger and larger utilities, whose interests are not directly served by their attainment.

V. The European Union's legislation liberalising energy markets

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1. Introduction

The European Union adopted a Directive concerning common rules for the internal market in electricity in December 1996 (96/92/EC) and in 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 a single European market in energy. In 2006, 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 energy markets, with a view to making further amendments to the Directives.
In September 2007, the Commission adopted proposals to amend the 2003 Directives ('Common rules for the internal market in electricity' and 'Common rules for the internal market in natural gas'). This paper critically reviews these pieces of actual and proposed legislation.

2. The Model

The objective of the existing Directives was to transform the energy industries from regulated monopolies to industries that, as far as possible, operate as competitive markets. The model that the Directives were aiming for is based on the 1990 reforms to the UK electricity industry.

The sectors would be divided into four activities:

- Wholesale: Generation (electricity) or production/import (gas);
- Retail: Sale to final consumers;
- Transmission: Networks that take energy from production (import) to centres of demand; and
- Distribution: Networks that take energy from transmission to consumers.

The rationale for this separation is that wholesale and retail can be competitive with prices set by markets. Transmission and distribution are natural monopolies and prices must be set by an independent regulator.

For this model to work, the following elements are necessary:

- A wholesale market, typically settled every 30 minutes, which would be an important location for buying and selling energy, and would provide price signals for purchases made outside this market and for investment decisions in new sources of energy;
- A retail market in which all consumers are able to switch retailers. This would place competitive pressure on retailers;

- Access to the networks should be available to all wholesalers and retailers on equal terms; and
- A regulatory body to ensure that competition is fair, access to networks is impartial, and consumers are protected from exploitation by companies.

The most important element is the creation of wholesale markets. Wholesale purchase is the largest element of an energy bill, typically making up more than 50%. Transmission (5-10%) and distribution (25-35%) remain regulated monopolies so re-organisation should not make a significant difference to their cost. Retail is about 5% of the cost to consumers, so retail competition should not make much impact on overall prices. Two further issues, unbundling of wholesale and retail, and corporate concentration need to be considered to evaluate properly the impact of the Directives.

3. Wholesale markets

An efficient wholesale market should be at the heart of any liberalised competitive energy market. Such a market would account for a significant proportion of wholesale energy trades, should provide a price index for longer-term contracts for trade in energy and should provide price signals to stimulate investment in new sources of energy (power stations or new natural gas supplies).
While a wholesale market is an implicit part of the Commission's desired structure and is arguably by far the dominant rationale for the reforms, the legislation does not at any point explicitly require Member States to introduce wholesale markets, be they national, super-national or sub-national. This may be pragmatism based on the Commission allowing Member States to introduce a market design that reflected their national requirements and situation. It may also reflect the lack of any proven models of wholesale energy market. The DG Competition Review of 2006 raised the possibility of the implementation across the EU of a standard market design[39]:

> "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."

This was not taken up in the proposed amendments. Nevertheless, the Commission does acknowledge that the lack of liquidity in energy markets is one of the most serious problems in achieving Single European Energy Markets[40].

> "The internal electricity and gas market is suffering from a lack of liquidity and transparency hindering the efficient allocation of resources, limiting risk hedging possibilities and blocking new entrants. Trust in the market, its liquidity and the number of market participants need to increase, by increasing the information that is available to the market."

39 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

40 [http://ec.europa.eu/energy/electricity/package_2007/doc/2007_09_19_electricity_directive_en.pdf] p 16

For some countries, especially the small ones for electricity and immature or small markets for gas, wholesale markets seem impractical. For electricity, island states like Malta and Cyprus, which have less than a handful of power stations and which have no realistic prospect of connecting to larger networks, cannot have effective wholesale markets. For gas, small markets or countries with one dominant supplier will also find it difficult to produce enough diversity in supply to create efficient markets. The Commission does not acknowledge these difficulties.

4. Retail Markets

The first energy internal market Directives required limited retail competition. For electricity, the 1996 Directive required that by February 1999, about 26% (40GWh/year) of the market had to be open, by February 2000, about 28% of the market had to be open (20GWh/year) and by February 2003, about 33% of the market had to be open (9GWh). For gas, the 1998 Directive required that 20% of the market be opened immediately, 28% five years later (2003) and 33% 20 years after the entry into force of the Directive (2018).

However, the 2003 Directives required that for both gas and electricity, all non-residential should have been allowed retail competition in 2004 and from July 2007, all consumers should have been allowed retail competition. The proposed amendments to the Directives do not change this requirement.

Allowing retail 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% of the bill for small consumers, less for larger consumers. Of the other costs, the wholesale power price should 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% of the price. The importance of retail competition for consumers is that if they are dissatisfied with their service, they can 'punish' the supplier by taking away their business.

If there are significant price differences between suppliers, this can only be because of market failure in the wholesale or retail market. 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.

Thomas (2005) 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 Commission has never acknowledged the costs of retail competition or its negative impacts on small (normally domestic) consumers. If the benefits of competition do not exceed these costs, introducing retail competition is not justified.

These costs 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;

For retail competition for small consumers to be effective, one of the necessary 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 (European Commission, 2007a, p 21):

> "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."

Thomas (2006a) argues that smart meters raise issues for small users. He concludes:

> "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.

5. Unbundling networks

5.1. The provisions of the Directives

To guard against the risk that integrated companies would use their ownership of the network to unfairly give advantage to their wholesale and/or retail businesses, there were measures that required some corporate separation of the network and retail and/or wholesale activities.

Under the first Directives, transmission and distribution system operators (TSOs and DSOs) had to be designated who would determine access to the networks. The TSOs and DSOs could be part of companies with other interests in the electricity sector, for example as generators or retailers but had to operate on objective and non-discriminatory procedures that did not favour, for example, power plants owned by them. Network companies had to prepare separate accounts for their network activities to demonstrate that any generation or retail activities were not being unfairly subsidised by their network activities.

On the basis of experience, this degree of separation was seen by the Commission as insufficient. The unbundling requirements were substantially strengthened in the 2003 revisions so that for integrated companies that were TSOs or DSOs a full legal separation between their TSO or DSO activities and their activities in generation or retail was required. This meant that the DSO and the TSO activities had to be carried out by legally separate companies, although an integrated company could still own

a TSO or DSO company as well as, say, a generation company. Note that, as previously, the TSO or DSO is not necessarily the owner of the transmission or distribution assets. The key point is that the TSO and DSO determine the usage and the development of the network.

The Commission (both DG TREN and DG COMP) was still dissatisfied with the extent of unbundling in its 2006 reviews, although it provided little backing for its assertion that fair access was not being provided. This is partly because few countries have yet complied with the Directive, particularly in gas and for the distribution activity. 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. It argued that full ownership unbundling is required to prevent this occurring and to ensure there is free and fair access to networks for all competitors.

However, in its September 2007 proposals, it had retreated significantly from its 2006 position apparently in the face of strong opposition from a number of quarters. For distribution, the 2003 provisions would remain unchanged, i.e., legal unbundling only will be required. The Commission concluded that:

> "The scope for discrimination as regards third party access and investment is however less significant at distribution level than at transmission level because at distribution level congestion and the influence of generation interests are generally less important than at transmission level.[41]"

> "Finally, the Commission has come to the conclusion that for Distribution System Operators (DSOs) the current legal and functional unbundling rules are sufficient. It does not therefore propose to extend the ownership unbundling rules outlined in chapter 4 above to DSOs.[42]"

For transmission, the proposed Directives will require ownership unbundling, but, as a derogation, Member States will be allowed to opt for a so-called 'Independent System Operator' that is not ownership unbundled. The assets could still be owned by a company that was only legally unbundled but control of the assets would be in the hands of an undertaking or entity that was fully ownership unbundled.

5.2. Issues with network unbundling

Unbundling also has costs. Creating new companies, including new management teams, is costly and the continual changes in legal 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. The Commission seldom acknowledges that energy sector reforms raise issues of training and R&D.

41 [http://ec.europa.eu/energy/electricity/package_2007/doc/2007_09_19_electricity_directive_en.pdf] p 24

42 [http://ec.europa.eu/energy/electricity/package_2007/doc/2007_09_19_electricity_directive_en.pdf] p 19

The Commission dismissed without 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. The criterion should be that the benefits must outweigh the costs, not just for a single case, or even the EU as a whole, but for each country. For smaller Member States, unbundling distribution and transmission could create small companies that would lack the financial and technical strength to carry out their obligations efficiently.

The Commission's 2006 Inquiries did not distinguish between the transmission and distribution systems in terms of unbundling and did 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% of the price of electricity for small consumers, less for larger consumers. This compares to perhaps 30% 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-based regulation schemes, for high short-term profits expecting to sell before their neglect becomes apparent.

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 were not discussed 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 c onstruction out. Svenska Kraftnät is an organisation employing about 300 people.

There is 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.

The apparent determination of the Commission to enforce ownership 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 had not enforced legal unbundling yet especially in the gas sector and for distribution networks. From a practical point of view, it seemed 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 in February 2007 not to explicitly endorse the 'ownership unbundling' concept. This is a decision that was widely interpreted as an indication of a lack of political support for ownership unbundling.[43]

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.

These arguments seem to have been influential in forcing the Commission to abandon its attempt to impose ownership unbundling on distribution and allow the option of an independent ISO separate from the transmission asset owner as a derogation.

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

6. Unbundling of wholesale and retail

When the 1990 UK reforms to the electricity industry were designed, the distorting effect of allowing integration of retail and generation was recognised. The initial British model included limitations on how far generators could engage in retail activities and retailers could engage in generation. 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 lost.

In 1998, the UK government reversed its position allowing this form of integration and within 2-3 years, the whole system was dominated by integrated generator/retailers. The government was unclear about the rationale for its decision, but the result is that the British wholesale market has minimal liquidity and the market is dominated by six integrated generator/retailers. From a competitive point of view, the lack of an efficient wholesale market is a poor outcome, and the onus now falls entirely on final consumers to force companies to operate competitively by switching regularly to the cheapest supplier. As argued above, this is a task that small consumers do not have the skills and resources or 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.
The advantage of integrating wholesale and retail is security of supply. An integrated company has an incentive to ensure that there is sufficient supply to meet demand, while an independent generator is likely to earn better profits from a shortage of supply, giving it a disincentive to invest to meet demand.

The Directives have never placed any restrictions on integration of wholesale and retail and it was only DG Competition that mentioned the issue – foreclosure of markets – in its 2006 preliminary report. In DG Competition's final report, the issue of foreclosure of markets through integration of retail and wholesale is downplayed and the emphasis is on foreclosure of markets due to insufficient unbundling of networks. The proposed revisions to the Directive do not mention the issue of integration of wholesale and retail.

7. Regulation

In the first Directives, a sector regulator was not required but an independent authority had to be designated to resolve disputes between companies in the sector. In the 2003 Directives, the provisions on regulation were much stronger. Member states were required to designate a sector regulator that had to have a minimum set of competences, for example, on the setting of network charges. It also committed the Commission to set up a European Regulators Group for Electricity and Gas (ERGEG), which would encourage cooperation between regulatory bodies. ERGEG would be composed of representatives of the national regulatory authorities. The Directive required that: 'National regulatory

authorities shall contribute to the development of the internal market and of a level playing field by cooperating with each other and with the Commission in a transparent manner' (Article 23 (12)).
The 2006 DG TREN Inquiry (European Commission, 2007a, p 6) was critical of regulation in some countries citing 'insufficient competences of the regulators' 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 dismissed the first option ('not sufficient') and it described the second option as a 'minimum approach', implying that the third was its preferred approach. A single regulatory body raised issues of representativeness, subsidiarity, accountability and sovereignty. 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.
No mention was made of a 'single body' in the DG Competition Inquiry. However, in the proposed amendments to the Directives, it was critical of ERGEG saying that[44]:

> "The initiation of self-regulatory forums and setting up of ERGEG has not resulted in the real push towards the development of common standards and approaches that is necessary to make cross-border trade and the development of first regional markets, and ultimately, a European energy market a reality."

The proposals state:

- The Commission has concluded that the tasks required could be best fulfilled by a separate entity, independent and outside the Commission.
- The Commission proposes that ERGEG would be replaced by an Agency for the Cooperation of Energy Regulators. Its tasks would be

- Providing a framework for national regulators to cooperate.
- Regulatory oversight of the cooperation between transmission system operators.
- Individual decision powers.
- General advisory role.

The Agency is expected to have a staff of 40-50 and an annual budget of €6-7m per year, covered by the Community budget.

This proposal needs to be examined carefully on a number of grounds:

- Will the Agency be representative and how will it be democratically accountable?
- How will the principle of subsidiarity, under which EU bodies should not make decisions that can reasonably be taken at a national level, be preserved?

44 [http://ec.europa.eu/energy/electricity/package_2007/doc/2007_09_19_electricity_directive_en.pdf] p 9

The proposed amendments also require stronger powers and greater independence for national regulators. While strong regulators that are independent of commercial interests are clearly desirable, regulatory bodies also need to be representative of consumers and accountable to democratic institutions.

8. Corporate concentration

Concentration amongst integrated companies was predictable, and while the Commission acknowledges the risks, it has done little to prevent it. In the year up to July 2007, four major takeover/mergers were being completed all of which would remove one or more significant competitor from the field. ENEL, the largest Italian company expects to complete the takeover of the largest Spanish company, Endesa in 2008. Iberdrola, the other large Spanish energy utility, took 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, with GDF might be completed early in 2008. The merger of the two largest Dutch energy companies, Essent and Nuon, was agreed on February 1 2007 and would have created a company ranked in the top ten energy utilities in Europe. The merger collapsed in October 2007, but it seems likely that the two companies will be subject to other take-over bids.

The fear, long foreseen, that European energy markets would be soon be dominated by a handful of companies, the 'Seven Brothers' (Thomas, 2003) led by EDF, RWE and E.ON with other companies, such as ENEL, Vattenfall and Iberdrola manoeuvring to get large enough to survive seems closer than ever.

9. Impact of the Directives on energy efficiency and choice of technology

There is no substantive discussion of the impact of the liberalisation Directives on environmental objectives. The implicit assumption is the two sets of objectives – creating a Single European Energy Market and meeting the EU's environmental objectives are independent and can be carried out in isolation of each other.

This is blatantly not true, especially for electricity. In a competitive market, generating companies will choose what capacity they build on commercial criteria, mainly cost and commercial risk. In practise, this has meant that almost all generating plants that have been ordered since liberalisation have been of the gas-fired combined cycle gas turbine (CCGT) type. This technology has low construction costs and low technological risk. If governments want other technologies to be chosen, for example on environmental grounds or on strategic grounds, they have to give subsidies and guarantees paid for by taxpayers or electricity consumers. These effectively take these technologies out of the market for the life of the plants and are thus a significant market distortion that will compromise the efficiency of the market.

If ambitious targets on greenhouse gas emissions are to be met, it seems clear that most future orders for power plants will have to be for plants that do not use fossil fuels. As these new orders make up an increasing share of the generation, the proportion of the market open to competition will diminish and the objective of creating competitive electricity markets will be lost.

Similarly, the competing energy retail companies will be more profitable the more energy they sell, so there will be a positive disincentive for these companies to encourage the efficient use of energy, widely seen as the most cost-effective way of reducing emissions of greenhouse gases.

10. Impact of the Directives on prices

The Commission has always put great emphasis on the beneficial impact of the Directives on prices. However, its evidence is anecdotal and not rigorously argued. Thomas (2006b) concluded:

> "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 1995-2000 than reforms that had not then taken effect."

We can split the factors that impact on energy prices into; changes in industry's own efficiency – the target of the reforms; and price of fossil fuels, which are unlikely to have been affected by reforms to the energy industries. As a first approximation, energy retail prices are about equally divided into costs that are under the control of the utility and those that are not.

Over the 10 years since the first Electricity Directive, it might be expected that, as with any mature industry, 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 (European Commission, 2007a, p 4), the graph shows falling prices for electricity and gas from 1997-2002 and 1997-1999 respectively. But by 2006, gas was about 45 per cent more expensive than it was in 1997 and electricity was no cheaper.

The Commission's evidence shows that prices have increased in the past few years, a period in which the Directives were more fully implemented than previously. The failure since 1997 to reduce electricity prices and the huge increase in gas prices seem somewhat worse than 'offsetting some of the earlier reductions' that it admits (European Commission, 2007a, p 3). A rigorous analysis of several studies on the impact of deregulation on prices in the US comes to a similar conclusion that the impact cannot be established.

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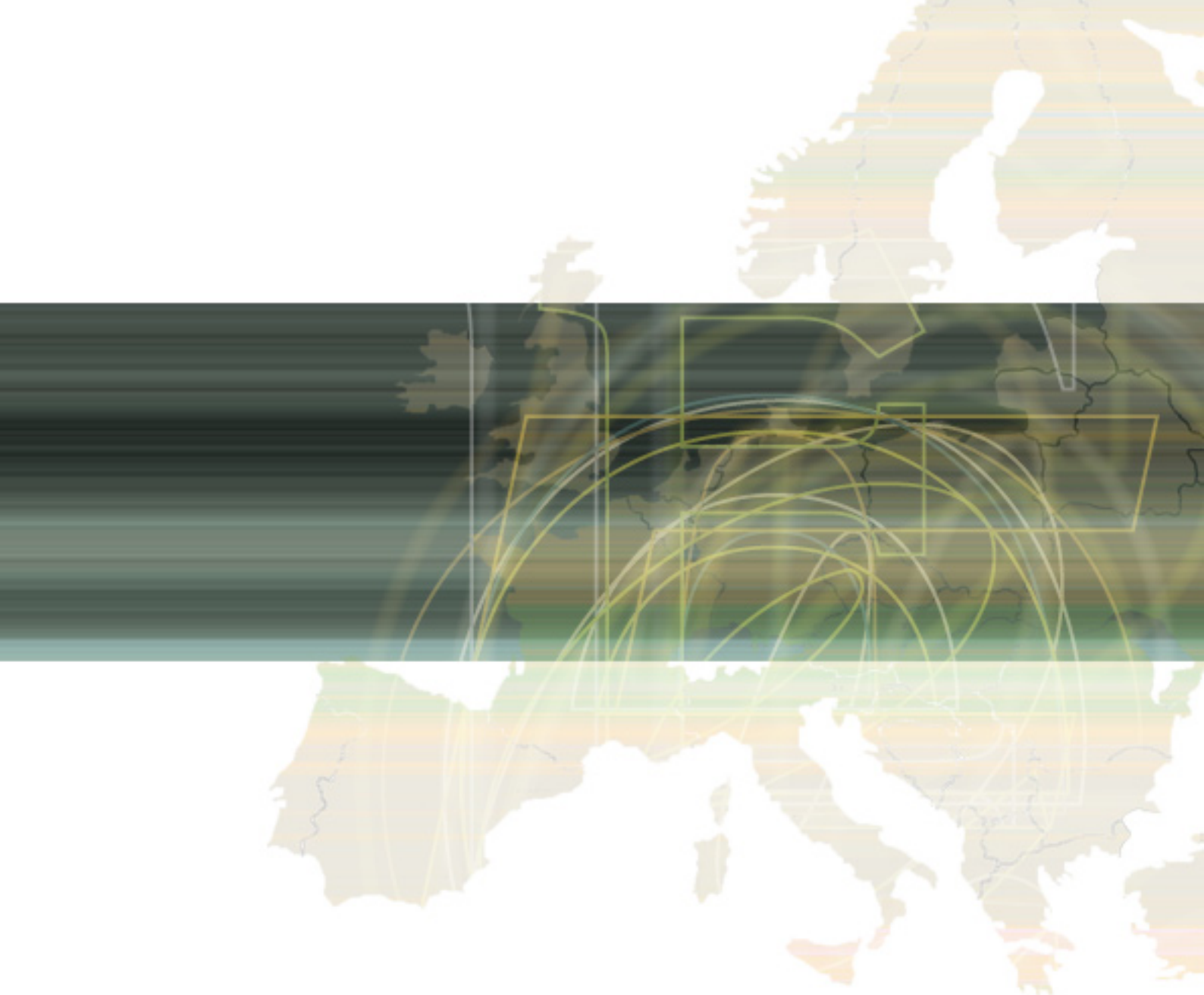
VII. List of Abbreviations

AGREE.NET	Actions for Green and Efficient Energy Network
CCGT	combined cycle gas turbine
CDM	Clean Development Mechanism
CEE	Central Eastern Europe
CERs	Certified Emissions Reductions
CEZ	Ceské energetické závody
CHP	Combined Heat and Power
COMECON	Council for Mutual Economic Assistance
DG	Directorate General
DG TREN	Directorate General for Transport and Energy
DG COMP	Directorate General for Competition
DSOs	Distribution System Operators
EDF	Électricité de France
EEAP	Energy Efficiency Action Plan
EEA	European Environmental Agency
EnBW	Energie Baden Württemberg AG
Enel Ente	Nazionale per l'energia ELettrica
Eni S.p.A.	Italian multinational oil and gas company
E.ON AG	German energy corporation
ERGEG	European Regulators Group for Electricity and Gas
ERUs	Emissions Reduction Units
ETS	Emissions Trading Scheme
GDF	Gaz de France
GHG	Green House Gas(es)
HCA	Hungarian Competition Authority
HEO	Hungarian Energy Office
JI	Joint Implementation
LNG	Liquid Natural Gas
LTA	Long Term power purchase Agreement
M&A	Mergers and Acquisitions
MOL	Magyar Olaj- és Gázipari Részvénytársaság, Hungarian Oil and Gas Plc.
MVM	Magyar Villamos Művek, Hungarian Power Companies Ltd
NAPs	National Allocation Plans
NEEAP	National Energy Efficiency Action Plan
NPP	Nuclear Power Plant
PEG	Polish Energy Group
PWC	PriceWaterhouseCoopers
R&D	Reasearch and Development
RWE	AG Rheinisch-Westfälisches Elektrizitätswerk AG until (1990)
SE	Slovenské elektrárne
TPES	Total primary energy supply
TSOs	Transmission System Operators
TVEL	Corporation (TVEL is an abbreviation from "teplovidelyauschii element"(fuel rod))
WWF	World Wide Fund



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