EU Energy Markets in Gas and Electricity –
State of Play of Implementation and Transposition

May 2010
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Abstract

It is the aim of the European Union to make natural gas and electricity market opening fully effective and to create a single EU market.

The present study assesses the opening and completion of the internal energy market through stocktaking of the current status and a critical assessment of the likely policy challenges ahead.

The study undertakes a sectoral review of implementation and transposition of the 2nd energy package and discusses the 3rd energy package. It gives an assessment of the road ahead and recommends needed policy steps.
This document was requested by the European Parliament’s Committee on Industry, Research and Energy (ITRE).

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LIST OF ABBREVIATIONS

ACER European Agency for the Cooperation of Energy Regulators
APX Energy exchange operating in the Netherlands, UK and Belgium
Belpex Belgian Power Exchange
CEER Council of European Energy Regulators
CCS Carbon Capture and Storage
CEGH Central-European Gas Hub
CNE Comision Nacional de Energia
DSO Distribution System Operator
EEX European Energy Exchange
ERGEG European Regulators’ Group for Electricity and Gas
ERI Electricity Regional Initiative
ENTSO-E European Network for Transmission System Operators for Electricity
ENTSOG European Network for Transmission System Operators for Gas
ETSO Association of the European Transmission System Operators
EuroPEX Association of European Power Exchanges
EXAA Energy Exchange Austria
GIE Gas Infrastructure Europe
GRI Gas Regional Initiative
HHI Herfindahl-Hirschman Index
ICE Intercontinental Exchange
IPA Interconnection Point Agreement
IPEX Italian Power Exchange
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ISO</td>
<td>Independent System Operator</td>
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<td>ITO</td>
<td>Independent Transmission Operator</td>
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<td>LNG</td>
<td>Liquefied Natural Gas</td>
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<td>LTC</td>
<td>Long Term Contract</td>
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<td>MAD</td>
<td>Market Abuse Directive</td>
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<td>MIBEL</td>
<td>Iberian electricity market</td>
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<tr>
<td>MIBGAS</td>
<td>Mercado Ibérico del Gas (Iberian Gas Market)</td>
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<td>MiFID</td>
<td>Financial Instruments Directive</td>
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<td>MS</td>
<td>Member State</td>
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<td>NBP</td>
<td>National Balancing Point</td>
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<td>NP</td>
<td>Nord Pool</td>
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<td>NRA</td>
<td>National Regulatory Authority</td>
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<td>OBA</td>
<td>Operational Balancing Agreements</td>
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<td>OMEL</td>
<td>Spanish power exchange</td>
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<tr>
<td>OS</td>
<td>Open Session</td>
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<tr>
<td>OTC</td>
<td>Over-The-Counter</td>
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<td>PIP</td>
<td>Priority Interconnection Plan</td>
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<td>Polpx</td>
<td>Polish Power Exchange</td>
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<tr>
<td>PSV</td>
<td>Punto di Scambio Virtuale</td>
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<td>PWXT</td>
<td>Powernext, French power exchange</td>
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<tr>
<td>RES</td>
<td>Renewable energy source</td>
</tr>
<tr>
<td>RI</td>
<td>Regional Initiatives</td>
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<tr>
<td>SSO</td>
<td>Storage System Operator</td>
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<tr>
<td>TEN-E</td>
<td>Trans-European Energy Networks</td>
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**TPA**  Third-Party Access

**TSO**  Transmission System Operator

**TTF**  Title Transfer Facility

**UIOLI**  Use It Or Lose It
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EXECUTIVE SUMMARY

Background

Against the background of increasing demand in the future, the dependency on external supply including the possibility of supply disruptions, as well as the risk of excessive price volatilities, the efficient functioning of energy markets in Europe is of paramount importance.

The aim of the community efforts in the field of energy markets is to complete the existing regulatory framework to make market opening fully effective and to create a single EU natural gas and electricity market with fair competition between companies, and lowest possible energy prices for citizens and industry.

Aim

The European Parliament Committee on Industry, Research and Energy (ITRE) has requested the present study on "EU Gas and Energy Markets – State of Play of Implementation and Transposition".

It is the aim of the study to assess the opening and completion of the internal energy market through stocktaking of the current status and a critical assessment of the likely policy challenges ahead. In addition, the study undertakes a sectoral review of the state of implementation and transposition of the 2nd package and discusses the 3rd package on the internal market for gas and electricity, presented in September 2007 in light of identified problem areas, with a view to giving an assessment of the road ahead and to recommend needed policy steps.

Though the implementation of the current 3rd package is yet to be completed (Member States must comply with legislation by 3 March 2011), the study discusses the evidence that led to the tabling of the 3rd package, as developed in the impact assessment accompanying it. Furthermore, the study addresses policy requirements going beyond the 3rd package.

The study is based on key documents of the European Commission as well as on independent sources. It thus reflects all main views in the area, and provides independent critical assessments.

Status of market liberalization and integration

The integration and liberalisation of EU markets in the field of gas and electricity is a challenging task, given the complexity of national structures, legislations, and international markets. While some progress has been made in the last years, there are still a number of areas and Member States where the existing legislation of the 2nd internal market package adopted in 2003 with implementation deadlines until 2004 and 2007 for distribution system operator (DSO) unbundling has not been properly implemented, or where the need for yet new legislation has become apparent. Therefore, the current challenge concerning electricity and gas markets is at least twofold: while following up on deficits of the implementation of the 2nd Electricity and Gas Directives, the 3rd energy package, adopted in July 2009 also needs to be implemented and followed up on – further shortcomings could reveal a need for additional measures at EU level for the completion of the internal market.

Electricity and natural gas markets have certain aspects in common, while for a number of factors a differentiated view is necessary.
Progress has been made in the competences allocated to the National Regulatory Authorities (NRA) and in their independence, in both electricity and natural gas. Nonetheless, regulators have not yet harmonized competences concerning capacity allocation and congestion management mechanisms.

Major problems are the **lack of effective enforcement action by competent authorities** and the **absence of effective systems of penalties at national level**. Also, there is a **significant lack of autonomy on the part of ‘independent’ regulatory agencies**.

The 2\textsuperscript{nd} package places clear **obligations with respect to consumer rights for transparent, simple, and inexpensive procedures for dealing with their complaints. This obligation has not yet been transposed** in many Member States.

### Electricity market

The level of liberalization of European electricity markets has increased during recent years. Nonetheless, liberalization is not as advanced as anticipated when the 2\textsuperscript{nd} energy package was adopted, and the **variance between Member States is still large**. In comparison, the telecommunications market that is perceived to be the most liberalized of the utility sectors has only a slightly higher level of liberalization, but virtually no national variance.

The concentration in national electricity wholesale markets varies from moderate to high. While incumbents’ dominance on national markets is hard to decrease, market concentration can be lowered by enhancing market integration.

There are a **number of power exchanges in Europe, and market designs differ**. At least partial harmonization of market designs (for instance gate-closures) is required in order to achieve a single EU electricity market.

**Wholesale electricity prices in Europe are not uniform**. Correlations between regional electricity prices are increasing as more interconnectors between regional markets are built. The stage of physical market integration based on **interconnection capacity and efficient trading regimes on interconnectors varies, but is generally well below the EU objective of 10\% of national markets**.

**Insufficient unbundling of network companies, notably DSOs**, remains a big obstacle to competition.

Paramount obstacles to network investments from the transmission system operator’s (TSO) point of view are the **rigid authorization procedures** in the Member States that can take up to eight years. In addition, the accommodation of renewable energies requires major investments, and the introduction of smart metering and smart grids, which have more effect on DSOs than on TSOs, will require time and significant resources. These requirements are not easy to combine with the NRAs’ pursuit of low and stable tariffs.

**Retail market integration is still in its infancy**. The most advanced Nordic regulators aim at launching a common Nordic retail market in 2015.

**Retail competition is still weak**. 57\% of the households in EU-27 plus Norway still have regulated end-user prices, which is a major obstacle to competition. Also industrial customers enjoy regulated prices in at least France, Spain and Norway, which is an obstacle for wholesale market competition.

**Annual customer switching rates vary among Member States between zero and 20\%** (by volume). Barriers to switching are the lack of available information and the lack of consumer interest.
National technical standards do not seem to constitute a great barrier to market integration anymore today.

**Natural gas market**

Natural gas imports are dominated by long term contracts (LTC), where in general the pricing is coupled to the price of oil. Trade within Europe is dominated by over-the-counter (OTC) deals on physical and virtual hubs. Exchange trade is still marginal and very illiquid, except for the mature UK market.

Considerable price differences exist between Member States, due to both differences in energy prices and taxes.

Physical and contractual congestion occurs both between countries and between different markets within countries. Congestion and, related to it, lack of market integration are the main barriers for new entrants. Third party access, mainly to import capacity, cross-border capacity and storage capacity is still restricted.

**LNG provides flexible, but limited import capacity,** with new capacities in planning. Third party access (TPA) is in most cases practically non-existent during the first decades of operation of import terminals as they are locked-in by the consortium building them. However, some countries require TPA for at least a minority of capacity.

Gas storage capacity is currently neither sufficient to guarantee security of supply nor to ensure competition through sufficient liquidity. Since 2007, significant capacity has been built and if all planned projects were to be finalized, a substantial increase in capacity would be achieved.

Legal/functional TSO and DSO unbundling is implemented, except in those countries that received derogation. However, management independence remains a problem in DSOs.

Investments in natural gas infrastructure are a high risk venture with long-term perspectives and low rates of return. In Europe, the regulatory framework elements vary among Member States with regulators allowing more or less attractive returns on capital.

Retail markets are still very concentrated, only the Italian market is only moderately concentrated. Competition is very limited in retail markets. Switching rates are relatively low, especially for household consumers. Barriers to switching are the switching procedure, the information available, and consumer interest due to a lack of awareness of switching rights.

Technical standards remain slightly more of an obstacle in natural gas than in electricity for cross border trade, and in cases even for intra-Member State trade.

**Critical Analysis of the 2nd and 3rd packages**

Based on the experiences made with the implementation of the 2nd package, an equally slow and tedious implementation process of the 3rd package may be expected. It is recommended that the European Parliament closely monitors the implementation of the 3rd package and keeps pressure on the Commission (and regulators to the extent possible) to enforce the implementation.

**Powers and tasks of NRAs** vary a lot for the moment, but will be more harmonized after the 3rd package is transposed. Monitoring harmonized implementation will be important in this respect.
Regulated prices for both private households and industry, notably in electricity and including electricity-intensive industrial customers, are still abundant. They are a significant obstacle to efficient and fair competition and hinder market entry and infrastructure development. Tariff regulation should be eradicated with priority on industrial users by proper implementation of the 3rd package.

Electricity market

Access to networks and cross-border infrastructure is crucial for the integration of national markets, and for reducing barriers for new market entrants. Information provision by TSOs and capacity allocation systems on cross-border interconnections to optimize network use is lacking or insufficient. In general, coordination and cooperation across borders is inadequate. In these respects, the 2nd package is not properly implemented.

Regional Initiatives (RI) have been established on a voluntary basis without connection to the 2nd package. Allocation of costs from regionally important infrastructure investments has proven to be problematic. During the relatively short time in which the RIs have been operational, there has been real progress in transparency, capacity allocation, and congestion management. RIs offer a possibility to test practices and solutions before starting the implementation all over Europe. The 3rd package will introduce obligations for regulators and TSOs to cooperate regionally.

According to the new Electricity Directive the geographical area covered by each regional cooperation structure may be defined by the Commission. RIs should be defined on a case by case basis depending on the issue. They should be consistent with a coordinated European objective and harmonized wherever possible. RIs should improve the involvement of Member State governments.

Natural gas market

Natural gas RIs have quite different initial situations, approaches and foci than electricity RIs. In the 2nd package infrastructure planning was left to the RIs and to voluntary cooperation, which did not prove sufficient. In the 3rd package regulators and Member States are obliged to cooperate on a regional level, and regional network development plans will be drafted.

Potential 4th package

The 3rd package, if properly transposed and implemented together with independent ongoing activities, will considerably advance liberalization and market integration on a European level. At the present stage, it is too early to judge whether this will be sufficient or whether a 4th package will be necessary.

An issue that may develop in the future is the need for additional competences for the European Agency for the Cooperation of Energy Regulators (ACER) to ensure that it will be able to play its role in creating a more integrated market. It is recommended that the European Parliament monitors and studies this closely.

A potential 4th package could also address the guidelines and codes for market design should the work currently undertaken not deliver the desired results.

The 3rd package has not introduced ownership unbundling on a distribution level. The impact assessment accompanying the package, however, contains several arguments for a further unbundling of DSOs. If the producers of renewable energies continue to experience problems in grid connection in the future, a 4th package might have to address this issue.
The Financial Instruments Directive (MiFID) and the Market Abuse Directive (MAD) that currently regulate the markets do not contain specific transparency and integrity obligations applicable to traded energy markets. However, the NRAs must have access to data on transactions in the same way as the system users need the data on network use, generation, storage, and consumption. The Committee of European Securities Regulators (CESR) and the European Regulators’ Group for Electricity and Gas (ERGEG) have suggested that a framework carefully tailored to the needs of particular energy and energy derivatives markets should be designed.

The Lisbon treaty provides a possibility for enhanced cooperation of Member States in the field of energy as long as it does neither “undermine the internal market or economic, social, and territorial cohesion”, nor jeopardize trade relations nor distort competition between them. It remains to be seen whether a group of Member States would wish to proceed in this direction.

Infrastructure investments

It is an open question whether the currently developed Trans-European Energy Networks (TEN-E) guidelines will provide the required infrastructure incentives. This area should be closely studied after their finalization by the end of 2010.

The EU 20-20-20 target includes the reduction of primary energy consumption by 20% until 2020. An increase in natural gas consumption without violation of this target seems unlikely even if natural gas replaces coal in power generation. There have been indications that resource constraints in supplier countries may not allow to increase or even maintain current consumption levels in natural gas over the next decade. However, for the EU expected accumulated output losses will most likely reduce EU gross domestic product by 10% in 2020, compared to projections before the economic crisis. While at the moment it is unclear what the projected gas demand will be in the next decade, required additional infrastructure investments for system or market integration may not be justified on a strictly market basis. Infrastructure planning at EU level should analyse these constraints in more detail, and take them into account.

Similarly, increasing penetration levels of renewable energies will require additional investments in electricity and gas infrastructures from a reliability or security of supply perspective without necessarily increasing traded volumes. Justification of investments is difficult in view of possibly lacking return on investment.

Additionally, beneficiaries of these infrastructures may well spread over a large region. Mechanisms for cooperation should be developed and implemented to achieve their construction.

Furthermore, market integration has specific issues related to increasing renewable energy shares. Currently, investments in renewable energy sources aim for maximum subsidies, which lead to a sub-optimal allocation of investments into regions with weaker renewable resources and thus higher generating costs. Hence, harmonised support schemes would avoid distorted investment decisions and possibilities for gaming. In addition, it is recommended to include incentives in the support schemes for renewables to react to system conditions and system requirements.

In essence, infrastructure investments required for security of supply, increasing renewable energy shares and market integration may need additional incentives beyond market economics.
POLICY DEPARTMENT A
ECONOMIC AND SCIENTIFIC POLICY

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Policy departments are research units that provide specialised advice to committees, inter-parliamentary delegations and other parliamentary bodies.

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