

EDITION 2010

European Energy Markets Transparency Report

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April 2011

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Executive Summary

This report describes the development of transparency in the European wholesale energy markets.

Every year starting from 2010, the Florence School of Regulation (FSR) will publish a Transparency Report and assign the Energy Transparency Award. The award aims at promoting transparency best practices and distinguishing a European undertaking, institution or industry association for its particular contribution to the transparency of energy markets. The initiator and the first financing body of the Energy Transparency Award is RWE Supply and Trading.

The 2010 Transparency Report focuses on the issue of transparency in wholesale energy markets. Energy trading in Europe has increased considerably since liberalisation and currently involves several hundreds of operators. For instance, figures show that the overall volume of electricity traded via both exchanges and OTC almost tripled between 2000 and 2009, and that the number of total daily transactions in Europe - physical and financial - ranges nowadays between 6,000 and 10,000.

In this context, transparency has the important role of allowing the operators to better understand the market and receive correct economic signals, in a “what-you-see-is-what-you-get” fashion. As a result, transparency contributes to create competitive and well-functioning markets, which is a core goal of the European energy policy.

The need for coordination and information disclosure among operators playing in different countries and regulatory settings grows as long as the European markets become more and more interconnected. The example of the management of interconnection capacity shows that the choice of an adequate market design is fundamental to guarantee correct economic signals to market participants.

“Self-regulation” for transparency has been promoted by a number of initiatives undertaken by market and system operators. These include the definition of clear market conduct rules and codes, abusive behaviours monitoring, the provision of disclosure requirements and user-friendly and informative websites. Particular regard is deserved for the initiatives recently implemented by ERRA, Joint Oil Data Initiative, National Grid Gas, AGGM, Entso-G, Grt Gaz, Red Eléctrica de España, Gas Regional Initiative North-West, NordPool, Belpex and EEX.

Notwithstanding the importance of these forms of private governance, European energy markets are in big need of a regulatory framework ensuring the consistent implementation of common and transparent trading practices across Europe. The effectiveness of the current framework is jeopardised by the existence

of some regulatory gaps preventing the implementation of an integrated and efficient form of governance. The European financial regulation in place is specifically designed for financial markets, and it covers only energy derivatives traded at energy exchanges - which is a tiny portion of the total traded energy volumes. Moreover, the 3rd Energy Legislative Package does not address the specific issue of transparency in wholesale markets.

Since there is a clear regulatory interest in ensuring that wholesale markets are well-functioning and that wholesale prices and quantities are not distorted by abusive market practices, the European institutions are working on the development of a common set of rules. To this purpose, the Commission has presented a draft Regulation to the European Parliament and to the Council.

In defining a common regulation for transparency, the main challenge is represented by the need of a high level of coordination: firstly in order to avoid inconsistencies with the regulation already in place in the different countries and secondly, to integrate the three policy domains influencing the function of wholesale energy markets (energy as commodity, financial and carbon market).

1. Introduction: The New Economic Approach to Market Transparency

1.1 The role of transparency

Transparency plays a relevant role for the energy industry as a whole, both at retail and at wholesale level. Retail transparency, in particular, helps consumers making sound choices when selecting among the different suppliers operating in the market. However, efficiency and transparency of retail markets depend upon the organization of wholesale markets. Therefore, the present first edition of the Energy Markets Transparency Report focuses on the development of transparency in wholesale markets.

European wholesale energy markets involve a few hundred companies trading energy in Europe, including energy producers, large energy users, pure traders, investment banks and funds. Energy is typically traded either at exchanges or through over-the-counter (OTC) agreements. At the moment around 15 energy exchanges provide trading platforms for electricity, natural gas and carbon emissions. Nevertheless, the majority of energy in the EU is traded via OTC. For instance, statistics show that in 2009, 75% of electricity was traded via OTC, while only 25% was traded via power exchanges (Europa Press Room, 2010).

Transparent wholesale markets ensure that ope-

rators have a minimum level of understanding of the market in which they are operating, and that available data (like prices and quantities) provide them the right signals. Hence, it plays an important role in promoting the market to function well. The effect of market transparency could be epitomised by the popular catch phrase “what you see is what you get”, meaning market transparency makes the relevant information available to the operators, so that they can more efficiently evaluate the benefits and costs associated with their choices.

Moreover, transparency enhances competition. More precisely, it creates a level playing field for market participants, by reducing the information advantage of the operators with asymmetric position or greater market power. Transparency also facilitates market oversight and therefore helps detecting abusive behaviours. As a result, transparency boosts the operators’ confidence in the pricing mechanisms and in market integrity.

The liberalisation of European energy markets officially started in 1996 and since that moment the need for transparency has increased. First of all, the liberalisation process - finally completed in 2007 - led to the increase in cross-border trading volumes and to the development of more complex and sophisticated markets. Second, in the current liberalised context incumbent operators compete with new entrants.

As for the former argument, figures show, for instance, that the overall volume of electricity traded via both exchanges and OTC almost tripled between 2000 and 2009 (from 3,500 TWh to 10,000 TWh)

(Europea Press Room, 2010). Statistics also report that in 2009 the overall cross-border exchange of electricity among ENTSO-E members was four times the cross-border exchange in 1975 (ENTSO-E, 2010a).

The creation of a single EU market entails the interconnection of several national energy markets, which need to coordinate and align in pursuing common objectives (Glachant and Lévêque, 2009). In this context, the availability of information is crucial: it facilitates coordination and strengthens the competition among a bigger number of operators and national markets involved. Furthermore, the traditional role of operators has changed. Generators, for instance, very often operate as traders and retailers. Grid system operators, being responsible for reliability and the balance of supply, touch upon wholesale markets - for example, when they manage grid capacity auctions or balancing markets, where generators submit bids to increase or decrease their production on a very short notice.

Wholesale energy markets now attract a range of actors including utilities, pure traders, financial institutions and other trade facilitators. It is not possible to make a perfect distinction between specialist traders and physical market participants as many pure or financial energy traders also take contracts for physical delivery, and some traders are subsidiaries or affiliates of strong physical market participants. So while traders can speculate with physical contracts, generators can hedge their production with financial contracts; in the latter case, the dispatch of the plant is not modified by the contract - the financial contract only sets the incomes of the

plant (EFET, 2006a; EFET, 2006b). The combination of physical and financial transactions makes energy trading rather hectic nowadays. Figures show that the average number of total (physical and financial) daily transactions in Europe ranges between 6,000 and 10,000 (Europa Press Room, 2010). Accordingly, there is a big need for market monitoring and for clear and effective rules on the information to be disclosed.

The second reason why transparency is so important in liberalised energy markets relies on its pro-competitive function. The transition from the national vertically-integrated monopolies to the post-liberalisation European energy market produced an area where incumbent operators - holding consistent market power - compete with new entrants. The accessibility of information thus becomes a particularly crucial issue: market participants with greater market power enjoy an information advantage which can be used to deter entry and limit fair competition.

The tight relationship between market monitoring, transparency and competition is confirmed by the argument advanced by Bower (Bower, 2007): large firms operating in very concentrated electricity supply industries became generally more hostile towards the disclosure of information in the post-liberalisation context. This deterioration in both data availability and time-effectiveness was particularly evident in those cases where these firms were aware of being scrutinised by EU regulatory authorities.

At the moment, market abuses on wholesale energy markets are not effectively prohibited. Section 4

shows that oversight in the EU is fragmented and that the existing rules only apply to few market places: some regulatory gaps currently prevent a common framework for market transparency and integrity.

1.2 The new “Economics of Transparency”

From the economic theory point of view, it is worth noting that at least three relevant issues related to market transparency have been studied by prominent scientists who have recently become economics’ Nobel Laureates. Their contributions witness the enduring interest in the matter and set up the milestones for a brand new “Economics of Transparency”.

Peter Diamond, Christopher Pissarides and Dale Mortensen were awarded the economics’ Nobel Prize in 2010 for their analysis of markets with search frictions. Markets with search frictions are markets where the lack of relevant information prevents buyers and sellers from easily “matching”, i.e., finding an appropriate trading partner. These Nobel Laureates mainly applied their analysis on search frictions to the labour market: buyers and sellers on the labour market typically incur search costs whilst looking for each other. The Laureates then deliver a key contribution to the general economics of market transparency which highlights the role played by “market design” in favouring more transparent coordination and trade among operators.

A second group of economic theory development underlines the role of the availability of information

in the production of efficient market outcomes. Friedrich von Hayek was awarded the economics’ Nobel Prize in 1974 for his analysis of the interdependence of economic, social and institutional phenomena. His fundamental hypothesis on the role of information in the economic system led him to the conclusion that the information is scattered and that market operators only have a portion of it at their disposal (Hayek, 1937). Consequently, information gained a prominent role in the economic theory and enormously contributed to the understanding of market functioning. Some years later, Joseph Stiglitz, Michael Spence and George Akerlof extended the study on the role played by information and described the markets with asymmetric information (Akerlof, 1970), which won them the economics’ Nobel Prize in 2001. The major contribution of this group of scientists to the economic theory of transparency relies on the finding that information asymmetries are common in real-life economic systems and may produce detrimental effects on the efficiency of market outcomes and trade.

Finally, a third group of Nobel Laureates highlighted the importance of the governance dimension for efficient trading: Ronald Coase (Nobel Prize in 1991), Douglass North (in 1993), Oliver Williamson and Elinor Ostrom (in 2009). First of all, they enlightened the existence of costs related to using the market and his pricing mechanism (: the “transaction costs”). Second, they supported the behavioural hypothesis of “opportunism”, according to which an information advantage could be used to make private gains while limiting efficient coordination or fair competition. Finally, and more generally, they underlined the role of institutions in creating rules

and incentives affecting the economic performance. A conclusion is that efficient trading requires an adequate form of governance as well as a credible and transparent regulation.

These three scientific foundations of the economic nature of market transparency strongly inspired the logical structure of this report.

Section 2 illustrates the importance of market design in the promotion of transparent markets. The example of the Tri-Lateral Coupling between the French, the Belgian and the Dutch electricity markets shows that some organisational frameworks may contribute better than others to produce clear and reliable price signals for the operators.

Section 3 provides an overview of European wholesale energy markets; following a quantitative description of the markets, the work of the Market Observatory for Energy of the European Commission is presented.

Next, Section 4 describes the current European framework for data transparency and governance as well as current regulatory gaps which the European Commission is willing to fill. To this purpose, a proposal for a Regulation of the European Parliament and of the Council was issued in December 2010.

Section 5 illustrates in detail the types of transparency and the current measures defined at the European level.

Section 6 describes how transparency is be-

nefitting from the initiatives implemented by market operators and Section 7 analyses the different dimensions of market transparency governance.

Finally, Section 8 presents some concluding remarks.

2. Market Transparency and Integration: Enlightening Market Design

The creation of a single and well-functioning energy market is a crucial objective of the European Union. Market integration and market transparency can both contribute to this purpose and at least to a certain extent may work in synergy.

The integration of two or more markets requires a certain level of transparency to be achieved: in the context of an integrated market, operators need to disclose and exchange a bigger amount of information, set common rules and homogenize codes and practices. The disclosure of relevant information from the transmission system operators in an integrated market, for instance, affects their ability to accurately predict flows and efficiently manage cross-border capacity. Thus, it clearly represents a key factor in achieving an efficient allocation of the available capacity.

Similarly, transparency issues become more relevant when - on top of physical trading - financial trading is also taken into account. In this case, due to the combination of physical and financial regulatory settings, among other things there is the need to establish who shall be responsible for creating and enforcing the rules. The coordination issues deriving from the fact that different policy domains are involved in the regulation of wholesale energy markets in Europe are illustrated in greater detail in Section 7.

If there is a relationship between the features of the market and the level of transparency required in order to guarantee efficient market outcomes, then market design may have a big role in preventing market distortion and information manipulation.

This is particularly evident from the comparison between the two mechanisms of explicit and implicit auctioning in the allocation of transmission capacity.

Even though national electricity price differences have been diminishing over time, empirical studies show that price convergence is only partial and some relevant international price differences are still creating arbitrage opportunities to cross-border operators. In particular, it was underlined how price convergences can be the result of the exercise of market power and inefficient explicit auctions (Zachmann, 2008).

Explicit auctions allow the auctioning of transmission capacity on an interconnector separately and independently from the market places where electricity is auctioned. Since the two commodities -

transmission capacity and electricity - are traded separately, explicit actions are associated to relevant operational risks and trading costs. First, the trade of the two commodities requires TSOs and power exchanges (PXs) to coordinate the functioning of both the capacity market and the energy market, in a relatively short time. Second, it requires the operators to send their bids to the energy markets on the basis of the results of the capacity auctions (Gestore del Mercato Elettrico, 2008). In fact, the separation of the two auctions typically leads to a lack of information about the respective prices and the auction generally provides an inefficient utilisation of interconnectors.

By contrast, implicit auctions integrate capacity and energy markets. The resulting prices in each market include both the cost of energy and the cost of congestion. Other things being equal, in this case the trade is more efficient - i.e., energy generation is oriented towards the expensive market - and operational risks and trading costs are lower.

In 2007, the DG Competition Sector Inquiry established that, although explicit auctioning was theoretically an efficient mechanism, it had shown efficiency deficits when compared to implicit auctioning, especially when applied to not-so-liquid markets (European Commission, 2007). The European experience has indeed been increasingly proving the inadequacy of coupling markets through explicit auctioning methods (Glachant, 2010a), while showing that market coupling mechanisms based on implicit auctions could actually lead to efficient market outcomes.

A valuable example is provided by the tri-lateral

market coupling between the French, Belgium and Dutch electricity markets (Box 1).

B1. The Tri-Lateral Market Coupling

The Tri-Lateral Coupling (TLC) was established in November 2006 by linking three separate power exchanges: Powernext (France), Belpex (Belgium) and APX (the Netherlands).

In the coupled market the exchanges keep operating their own order books, settlement and clearing arrangements as before. However, they use a common algorithm to set market clearing prices; then they handle their respective supply and purchase curves according to the overall merit order. Coupled markets match the highest purchase bids and lowest sales bids - regardless of where they have been introduced -, while taking directly into account the interconnection capacity constraints. This "coupling" reduces the uncertainty in the matching of energy market and capacity market outcomes.

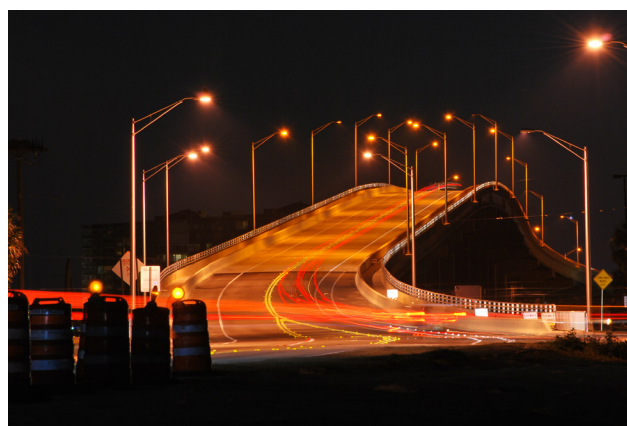
The TLC allows a rational use of existing interconnections and guarantees the convergence of the three electricity market prices (provided there is no structural congestion). Finally, and most importantly, the TLC delivers clear and functional price signals to orientate generation towards the high price zones: cheaper electricity generation in one country can meet the demand and reduce prices in another country.

The TLC has produced visible effects on market prices since the very beginning: price convergence increased almost immediately after its establishment

in November 2006 (Belpex, APX and Powernext, 2007). It was also found that apart from sharply decreasing hourly price differences, the creation of the TLC created potential for volatility reduction (De Jonghe, Meeus and Belmans, 2008).

The TLC case illustrates that market design may help sending better price signals to market operators. Notably, when the objective of a transparent single European energy market will be fully achieved - as already promised by the "Price Coupling of Regions" (Glachant, 2010b) - market participants will be offered "seamless" or at least smoother and wider trading platforms.

Due to their nature of centralised organisations, PXs may pave the way in providing a more transparent framework for energy transactions vis à vis bilateral trading and OTC in the European energy markets (Moen, 2010). OTC contracts in both gas and power markets constitute the bulk of traded volumes in Europe (with the exception of the Scandinavian area). Nevertheless, since the OTC information availability is still limited by the confidential nature of these transactions, PXs may provide more visible signals and benchmarking for OTC contracts.



3. Overview on European Energy Markets

3.1 A quantitative outlook

As shown in Section 1, transparency is crucial to energy trade efficiency. The availability of information and long-term and stable rules, as well as the provision of similar legal frameworks for the operators engaged in cross-border trade, increase the confidence in the market and in price setting.

A quantitative outlook on the European wholesale markets can be based on two major features affecting market well-functioning and efficiency, namely liquidity and market concentration.

Liquidity can be defined as the degree to which an asset can be bought and sold in the market without affecting the price of the asset and without incurring significant transaction costs. The liquidity of a market can be assessed by observing the volume or the number of trades in the market, the range of products available to market participants and the number of market participants.

Second, a well-functioning wholesale market requires that there are many sellers and buyers. When the market is too concentrated, larger operators behave as price-makers and exercise (sometimes, abuse) their market power. The more the market is concentrated, the higher the scope for anti-competitive behaviours.

3.1.1 Liquidity

The 2009 figures show that trading activity on the EU's gas hubs and exchanges remained much "thinner" compared to power markets. In contrast, in 2009 a new trend of consolidation started for the European power exchanges, in particular with the creation of EPEX and the launch of a preliminary project for a pan-European price coupling by Nord Pool Spot, EPEX Spot and Omel (Iberian spot power exchange).

Table 1 shows the relevant figures concerning the number of trades and the total traded size in the European wholesale power and gas markets in 2010. and integrity.

In 2010 the European wholesale power and gas markets expanded compared to 2009. In the European power market the number of trades increased by almost 50% up to 418,000, while in the European gas market the number of trades increased by 48% up to 222,000.

The total traded size increased too. The European gas wholesale market was the fastest growing with a 52% increase from the previous year, and reached a size of 4.9 million GWh. Considering an average price of €13.51/MWh, the estimated annual value of the traded market approximated at €67 billion. The 52% increase represents a relative slowdown in growth from the 115% increase witnessed in 2009 with regard to 2008. Nevertheless, in absolute terms the growth experienced in the last two years is similar.

As for the European electricity market, a growth of 19% reaching 4.8 million GWh compared to the previous year was registered in 2010. Applying an average price of €44.78/MWh, the estimated annual value of the traded market reached up to €219 billion. Differently from the gas trend, the 19% growth in the electricity market represents an important result compared to the 9% increase in traded size registered in 2009 (Financial Services Authority, 2010).

3.1.2 Market concentration

In 2009, a slight reduction in concentration in the electricity wholesale market - in terms of disposal of capacity - could be observed. To a different extent, a decrease in market concentration (measured through the HHI Index) was registered in 10 European countries. The tendency was particularly evident in Belgium, Slovenia and Slovakia. Nevertheless, as shown by Table 2, market concentration

finally exhibited moderate levels only in 7 Member States: Finland, Poland, the UK, Spain, Italy, the Netherlands and Austria.

Concentration in wholesale gas markets remained high. In 10 Member States the three largest gas wholesalers were holding a market share greater than 90%. Moreover, only in 5 countries the share of the 3 biggest companies (in terms of available gas) decreased compared to the previous year: Belgium (-7.4%), France (-0.97%), Hungary (-5.9%), Italy (-1.5%) and Spain (-9%) (European Commission, 2010f).

T1. Number of trades and traded size of European wholesale energy markets

	Number of trades in 2010	Increase from 2009	Traded size in 2010 (GWh)	Increase from 2009
Electricity	418,000	50%	4,884,571	19%
Gas	222,000	48%	4,924,378	52%

Data source: Financial Services Authority, 2010

T2. Concentration in the European electricity market (HHI by capacity)

	HHI	Countries
Very highly concentrated	HHI > 5000	BE, FR, GR, LV, LU, SK
Highly concentrated	1800 < HHI < 5000	CZ, DE, LT, PT, SI, RO, HU, DK, NO
Moderately concentrated	750 < HHI < 1800	FI, PL, UK, ES, IT, NL, AT

Data source: European Commission, 2010f

3.2 The Market Observatory for Energy

The Market Observatory for Energy was established in 2008 within the European Commission. It pursues the aims of promoting transparency and contributing to the selection of effective policies, through the monitoring and analysis of the European energy markets development. The Observatory's most important tool is EMOS (Energy Market Observation System), a warehouse hosting the data relevant to the European energy markets.

EMOS provides data related to the EU and its Member States, the candidate countries and other European countries which are fundamental for policy-making at EU-level, plus essential data on other world players, such as the biggest producing countries. The data features different reporting time-frames (daily, monthly, quarterly and yearly) and in some cases includes historical series. The issues on which EMOS focuses on range from demand and supply developments to trade volumes, to wholesale and retail prices on physical and financial markets. The Observatory also monitors the oil stock situation in light of the security of supply issue.

With regard to wholesale prices, the analysis of the Observatory shows that in 2010 the wholesale electricity market was rather volatile, while wholesale gas prices in 2010 showed a lower level of volatility and followed a typical seasonal trend, increasing in the last part of the year (Market Observatory for Energy, 2010c).

As for price levels, the Pan-Euro day-ahead base-load index reached up to €60/MWh in October 2010

and €70/MWh in December 2010, and sensibly decreased in early January 2011. The UK NBP day-ahead index reached up to €25/MWh in late December (Market Observatory for Energy, 2011).

The Observatory produces a number of EMOS-based publications, including Annual Reports, Oil Bulletins, as well as Quarterly Reports on Electricity and Gas Markets.

The Quarterly Reports on European Electricity Markets analyse the recent developments in electricity markets (wholesale and retail) across Europe; the final part of the Report generally focuses on a specific issue, such as market transparency. Similarly, the Quarterly Reports on European Gas Markets overview the recent developments in gas markets (wholesale and retail). Overall, the Quarterly Reports allow monitoring price trends and identifying those situations where distorted or manipulated price signals are sent to market operators (Box 2).

B2. Quarterly Reports on European electricity and gas markets (Q2 2010)

The Quarterly Report on European electricity markets for Q2 2010 (April to June 2010) illustrates some cases of extreme volatility: Sardinia and Sicily's prices (Appennine peninsula) were far from the national prices and presented some extreme price movements. Particular attention is also dedicated to the case of Greek electricity prices, since both base-load and peak-load day-ahead power prices showed a sudden jump in April. The Report concludes that the exceptional drop in the indigenous electricity generation might have in turn affected the demand for imports of power.

The Quarterly Report on European Gas Markets for the same period relates the worse-than-usual weather conditions which pushed gas prices up in May. In contrast, temperatures were relatively milder in the UK, which could favourably trade with the continent. Nevertheless, the report highlights that market fundamentals do not provide all the necessary explanations for the high gas prices. There is a possibility that artificially high levels of demand were brought into the market by financial operators.

The current Observatory structure departs to a certain extent from the original project proposed by the European Commission in 2002. The proposal of a distinct entity dedicated to market monitoring and analysis was finally rejected and the Observatory developed as an internal function within DG Energy.

The first step towards the implementation of the Observatory dates back to 2004, when the European Parliament adopted a preparatory action to explore the establishment of an observation entity. The preparatory action included the development of EMOS in order to collect and optimize the information provided by the different institutions operating in statistics and collection of data across Europe (such as Eurostat, International Energy Agency and Platts). The information would then be presented in order to facilitate both data analysis and the identification of the major issues of the European energy system, as well as to support efficient policy decisions. In line with the Parliament preparatory action, in the 2007 Communication on "An Energy Policy for Europe" the Commission proposed the

creation of an Energy Observatory within its premises. As a result, the Market Observatory for Energy started operating in 2008.

There is some scope to improve the role currently played by the Observatory as a collector of information and monitoring tool. First of all, in terms of accessibility of the collected data. The architecture of EMOS is such that the information included in the database is transformed and aggregated. Nevertheless, due to security reasons, direct access to the database is limited to the system administrators from the Observatory. Thus, in case of specific queries on the data, final users can only address the Observatory by writing to a dedicated email address.

By contrast, the development of more sophisticated system integrity and security mechanisms could enhance the accessibility of the information, and open it to market operators. In turn this would also require more attention to be paid to the level of user-friendliness of the website.

Finally, the scope of EMOS could be extended. The database is currently mainly focused on electricity, gas and oil, while the evolution of the EU energy mix as well as the implementation of sustainable energy policies would require its scope to be extended, for instance, to renewable energy sources.

4. European Framework for Data and Governance

4.1 The position of the European Commission

Well-functioning and competitive wholesale markets reflect on the overall performance of the energy sector. First of all, it is well-known in the regulatory practice that prices established at the level of traded markets work as a benchmark for the retail prices paid by household and industrial consumers. According to Ofgem, for instance, wholesale costs account for around 60% of a customer's energy bill and are a major factor affecting suppliers' retail pricing decisions (Ofgem, 2009a).

Second, wholesale prices in the energy sector show where energy prices are high and where they are low, and therefore send signals for future investments in energy infrastructure.

The two arguments above clarify the reason why there is a regulatory interest in ensuring that the EU wholesale prices are not distorted by abusive market practices and lack of transparent rules.

The transparency issue was at first put under scrutiny by the European Commission in 2007. The DG Competition of the European Commission issued the Final Report of its Energy Sector Inquiry and unhesitatingly concluded that the benefits deriving from an increase in the accessibility of the informa-

tion were overweighting the risk of possible negative side effects: "The existing lack of transparency means that it is more necessary to enhance transparency than to limit it." (European Commission, 2007). The side effects which the Commission was referring are the loss of confidentiality and the risk for collusive outcomes. Undertakings might indeed suffer from disclosing strategic information. It may also be a concern that excessive transparency could facilitate collusion between market players and produce, for instance, parallel bidding and other similarly coordinated arrangements detrimental to markets. More generally, a collusive potential is associated to information exchanges among firms, as well as to all those practices increasing the observability of prices and quantities or helping firms monitoring each other's behaviour (Motta, 2004).

The two potential drawbacks highlight that already at a high level of information there is a trade-off between transparency and the risk for market abuse. Nevertheless, at a lower level of information, in light of the large extent to which markets may benefit from transparency, the European Commission adopted a very clear position: "There is a lack of transparency in most Member States. (...) More transparency is needed." (European Commission, 2007). That conclusion appeared consistent with the view of relevant institutions, such as the Council of European Energy Regulators, the former European Association of Transmission System Operators and the European Federation of Energy Trading.

4.2 The existing framework

The issue of energy markets transparency is to a

different extent affected by three pieces of European legislation, namely the Market Abuse Directive (MAD), the Markets in Financial Instruments Directive (MiFID) and the 3rd Energy Package.

Markets Abuse Directive (MAD), 2003: Directive 2003/6/EC provides a common framework for the disclosure of information to the market and aims at the prevention, detection, investigation and sanctioning of insider trading and market manipulation. Nevertheless, the MAD is designed for financial markets only. Physical products (such as spot energy market products) are not covered by the MAD, while derivatives are covered only if they are admitted to trading on a regulated market. The present scope of the MAD does not apply to any OTC trades including standard OTC transactions, which represent the bulk of traded electricity and gas markets in Europe.

Markets in Financial Instruments Directive (MiFID), 2004: Directive 2004/39/EC provides with investor protection and market oversight over investment service activities carried out by investment firms. This objective is not important for energy markets since energy derivatives are typically not investment products: they are rather primarily used as hedging instruments for mitigating price risks. The MiFID also ensures free competition and regulatory supervision in trading venues established in different Member States, and provides requirements to ensure fair trading and appropriate transparency for shares admitted to trading on a regulated market. However, these transparency obligations do not apply to commodity derivatives. Neither the spot market nor the non-standardised

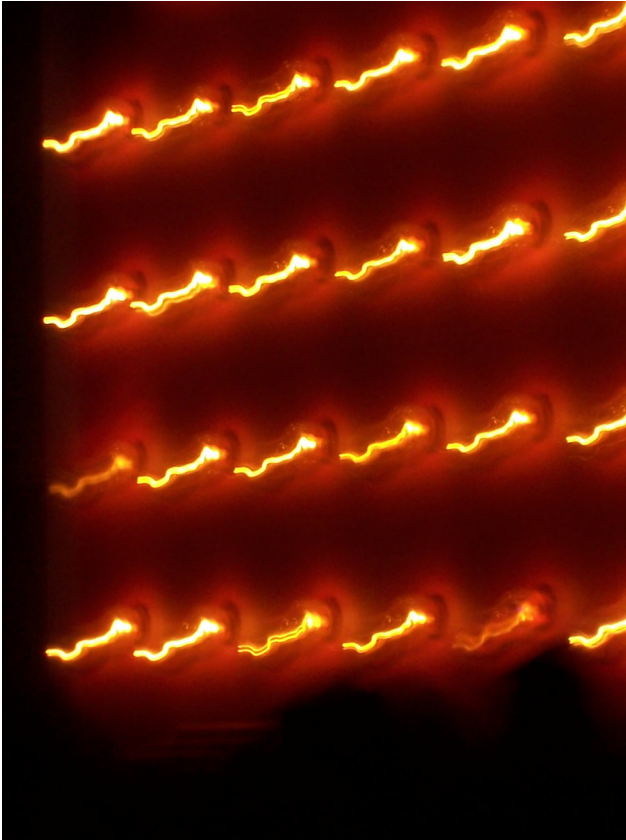
physical OTC transactions are covered by the definition of a financial instrument in the Directive.

3rd Energy Legislation Package, 2009: The 3rd Legislation Package (Regulation (EC) No 713/2009, Regulation (EC) No 714/2009, Regulation (EC) No 715/2009, Directive 2009/72/EC and Directive 2009/73/EC) entered into force in March 2011. It aims at promoting a fully functioning and competitive internal market where consumers have more choice and pay competitive energy prices. Greater transparency and competition plus strengthened security of supply are two of the main objectives of the package. In order to increase market transparency, the package includes a range of disclosure provisions and codifies a record holding obligation for supply undertakings on all trading transactions for 5 years. That information is supposed to be accessible for competent authorities (MiFID regulated entities are exempted). Moreover, very broad wholesale market monitoring duties are identified for National Regulatory Authorities and for the newly-established Agency of Cooperation of Energy Regulators (ACER).

Since the MAD and the MiFID are designed for financial markets, only energy derivatives traded at energy exchanges are covered by these Directives. In figures this means that a portion equal to 16% of the total traded volumes of electricity is covered by these rules (Europa Press Room, 2010).

At the same time, the 3rd Energy Package does not assess the issue of the provision of information closer to real time, the provision of more detailed information on individual infrastructure or the cove-

rage of CO₂. More generally, it does not specifically address the issue of transparency in energy wholesale trading markets.



4.3 Filling the regulatory gaps

The European Commission recognised the need to fill the regulatory gaps deriving from the financial regulation (MAD and MiFID) and the 3rd Package, and started exploring possible options for a new tailor-made market transparency and integrity framework.

The definition of a tailor-made regulation for wholesale energy markets will supposedly achieve a dual purpose: first, it will provide an integrated regula-

tion covering all of the transactions taking place in European wholesale energy markets and not only a portion of them; second, it will take into account energy-specific market abuses. An example of energy-specific market abuse is the withholding of generation capacity from the market. Since market prices are highly sensitive to the availability of generation capacity, prices can promptly increase when capacity is withheld. This is particularly true in the electricity markets, due to the impossibility to store electricity on an industrial scale. Nevertheless, to a lesser extent the same concern also applies to the gas markets (as with transportation capacity).

Apart from the economic and regulatory arguments, the involvement of the European Union in the preparation of a common transparency framework appears the most appropriate also from a purely legal point of view.

The EU action is justified on grounds of subsidiarity since energy markets are cross-border in nature and transactions may be executed in different places than where energy is delivered. Thus, a regulatory initiative from a single Member State or from some Member States would not be sufficient to address the entire issue. The EU action is also justified since the objectives of the proposed action could not be achieved sufficiently by the Member States (this is the Necessity test): trading platforms are located all over the EU and Member States initiatives would suffer possible divergences and would create legal uncertainty. On the contrary, a European legislative intervention would be able to produce a single set of rules and increase the legal certainty for all of the market participants in the EU markets (this is the EU

Added Value test).

The new regime on market transparency and integrity is supposed to include three items (European Commission, 2010d):

- ❑ **Identification of efficient transparency measures:** focussing on the relevant data to be publicly available and assessing whether existing provisions on information disclosure are sufficient;
- ❑ **Definition of insider trading and market manipulation:** establishing common grounds for regulatory intervention and deciding whether financial regulation is applicable to energy markets;
- ❑ **Regulatory monitoring and enforcement:** setting up a common regulatory framework, defining which regulatory authority is best suited to be responsible for energy markets and enforcing the regulation on data availability.

While the second and the third items represent the European Commission's area of intervention and define the scope for the new Regulation on Energy Market Integrity and Transparency (REMIT), the European Regulators Group for Electricity and Gas (ERGEG) was asked to support the Commission with regard to the identification of efficient transparency measures.

The action paths followed by ERGEG and by the European Commission towards the definition of a new regime for transparency and integrity in the European energy markets are reported in Sections 4.3.1 and 4.3.2, respectively.

4.3.1 ERGEG's action path

ERGEG and ENTSO-E, Florence Forum, June 2010:

During the 18th meeting of the Florence Forum on 10-11 June 2010, ERGEG and ENTSO-E (European Network of Transmission System Operators for Electricity) renewed their support to the Commission initiative of the public consultation on market integrity in energy trading. In light of the fact that ERGEG was invited by the European Commission to give advice on a legally-binding guideline concerning fundamental data transparency rules in electricity, ERGEG and ENTSO-E confirmed their intention to work in close cooperation. The two organisations assumed the transparency rules in the Northern Regional Initiative as a starting point and focussed on discussing and comparing both requirements and definitions. They highlighted that all published data must be relevant to the market and that there is a need for a homogeneous definition for each item all over Europe. Moreover, they highlighted the importance of a central pan-European transparency platform, compatible with the existence of regional and local websites adapted to local needs.

ERGEG, December 2010: Following a public consultation of stakeholders, on 7 December 2010, ERGEG presented its advice to the European Commission on Comitology Guidelines on Fundamental Electricity Data Transparency. The document contains a proposal of the requirements for publishing information on generation, load, transmission, interconnections and balancing, and it also clarifies the role of the central platform responsible for the publication of all of the relevant electricity data. The details

of ERGEG's advice are spelled out in Section 5.2.

Finally, with specific regard to the gas market:

ERGEG, September-November 2010: In the gas sector, legally binding transparency requirements are currently most detailed for transmission systems, while transparency requirements for LNG and storage facilities are currently covered by the 3rd Package and in ERGEG's Guidelines for Good Practice (GGP). Additionally, the 3rd Package offers the possibility to develop comitology guidelines for storage and LNG transparency. In order to evaluate the market need for further transparency requirements - exceeding the legally binding transparency requirements in Regulation (EC) 715/2009 and Directive 2009/73/EC - ERGEG published a public consultation concerning a list of all existing transparency requirements and called for comments. The consultation process closed on 26 November 2010. More details are reported in Section 5.2.2.

4.3.2 European Commission's action path

The legislative initiative of the European Commission on transparency and integrity of traded energy markets was finally issued in early December 2010, though its foundations go back to December 2007.

January 2009: The potential gaps in the regulatory framework of electricity and gas wholesale markets were already recognised by the Commission during the preparatory phase of the 3rd Package. In December 2007. In the context of the 3rd Energy Package proposals, the former DG Tren issued a joint mandate to the Committee of European Secu-

rities Regulators (CESR) and to the European Regulators Group for Electricity and Gas (ERGEG) to seek advice on transparency in electricity and gas supply contracts and derivatives. Their mandate requested joint advice on whether the existing securities regulation was sufficiently addressing market integrity in the electricity and gas markets. ERGEG and CESR advised the Commission that the current securities regulations (MAD and MiFID) were not sufficient. They recommended all EU trading platforms to publish harmonised anonymous post-trade information, on a trade-by-trade basis and close to real-time (15 minutes at most). That information would be requested for all standardised electricity and gas supply contracts as well as for derivatives traded on or cleared through these platforms. Data would be published by all platforms, from regulated markets to broker platforms, and would be accessible on a non-discriminatory and reasonable commercial basis. ERGEG and CESR also suggested that regular reporting on trade transactions would be a helpful tool to monitor the integrity of the market.

December 2009: DG Energy published a draft discussion paper, and presented it at both the Florence Forum (December 2009) and the Madrid Forum (January 2010). The draft discussion paper concerned the several issues which had to be addressed by the incoming legislation: definitions, commodity scope, transactional data, fundamental data and monitoring models.

Definition of insider dealing and market manipulation: The discussion paper highlights the need for definitions of insider dealing and market manipulation in cases where MAD does not apply. Howe-

ver, since energy markets transactions involve both physical and financial contracts, these definitions would need to be consistent with those of MAD. The coordination between the new European regulation for transparency and integrity and the MAD is pivotal to ensure the well-functioning of energy markets.

Commodity scope: The discussion paper poses the question of whether it would be desirable to go beyond electricity and gas. There is a clear trade-off between the consideration of cross-commodity inter-linkages, suggesting the inclusion of the carbon market, and the higher complexity of the legal and institutional design which would be required in that case.

Transactional data: First, the discussion paper presents the issue of determining whether the record keeping obligations codified under the 3rd Package would provide a solid enough basis. Second, the discussion paper suggests that as long as transactions are already reported by MiFID and MAD regulation, such transaction reports would need to be made available to the market monitor. Finally, the record keeping obligation set up in the 3rd Package also poses a problem with regard to the EU ETS market, since there are no national regulators of the European carbon market who would be natural recipients of data on carbon market transactions. Accordingly, it is important to assess whether there is scope for an extension of the duties of national energy regulators.

Fundamental data: The discussion paper refers to the legal possibility offered under the 3rd Package

to codify disclosure obligations for fundamental data through comitology (i.e., the approval of new detailed EU bidding rules in a process where the representatives of Member States vote at qualified majority). One of the issues to assess is the differentiation of disclosure regimes between electricity and gas. On the one hand, a harmonised regime would seem preferable, while on the other hand, there are some physical features of the two commodities which may suggest a different approach. Furthermore, the external dimension also represents an important topic, with particular regard to the carbon market. The European disclosure requirements regime has to determine how to deal with the fact that most of the operators in the carbon market compete with companies in other parts of the world, which would not be subjected to the same transparency obligations.

Monitoring models: The discussion paper suggests that there is a fundamental choice to make between a subsidiary oversight - based on the competences of Member States regulatory authorities - and a centralised oversight. The latter case envisages a European body monitoring all standard wholesale transactions in spot and derivatives products on all European markets. This duty would be compatible either with the creation of a brand new regulatory body or with an extension of the responsibilities currently foreseen for the Agency for the Cooperation of Energy Regulators (ACER).

May-July 2010: DG Energy published a full public consultation on measures to ensure transparency and integrity of wholesale markets in electricity and gas. The consultation process started on 31 May

2010 and ended on 23 July 2010, and included a large number of items (19). As a result, 51 exploitable answers were provided by a variety of stakeholders.

December 2010: Following the public consultation, DG Energy finally issued a draft Regulation on Energy Market Integrity and Transparency (REMIT) on 8 December 2010. If adopted by the European Parliament and by the Council, the Regulation will aim at ensuring market transparency by obliging energy wholesale operators to respect clearer market rules.

In particular, the draft Regulation prohibits the use of inside information, i.e., it requires price sensitive information to be disclosed before trades take place, as well as all sorts of information manipulation providing misleading signals to the market.

The Regulation also requires market participant to provide ACER with a record of their transactions. The form, exact content and timing of the information will be established in the future through specific acts of the Commission, based on the guidelines developed by ACER. In any case, ACER guidelines will provide for several channels for the reporting data, in order to avoid double reporting for those operators already covered by the MAD obligations.

Finally, market monitoring plays a crucial role in the draft Regulation. Market monitoring will be mainly the responsibility of ACER. The Regulation provides for ACER to gather, review and share data, while national regulators will be responsible for detailed investigation of suspected abuse. Nevertheless, given the cross-border nature of energy markets, ACER has a duty of cooperation with national authorities

especially with regard to the need to share relevant post-trade data and ensure that suspected market abuses are treated consistently all over Europe. The coordination between ACER and national authorities will be particularly important in those cases where an investigation covers several Member States.

Finally, as for the gas market:

November 2010: On 11 November 2010, the Commission's Decision on new transparency rules for the European gas market was published in the Official Journal (Decision OJ L 293/67). The Decision has applied since 3rd March 2011, i.e., the day when all provisions of the 3rd Energy Package came into effect. The Decision aims at improving transparency of the European gas transmission network. TSOs will have to publish information on the availability and use of network capacity, in standardised formats and units, and this information will have to be updated at least every day. Moreover, TSOs will have to publish a detailed and comprehensive network code outlining the rights and responsibilities of all users, containing information about the different services they provide and the different types of transportation contracts available for those services.



5. Methodology

5.1 Types of transparency

The data dimension in the issue of transparency is of crucial importance and concerns three main aspects: fundamental data, trade data and record keeping.

Fundamental data transparency is also called “pre-trade transparency”, since it allows the disclosure of the information on physical data - such as networks, generation, storage and consumption - which operators shall gather before trading. For instance, data transparency allows for the disclosure of information on all sorts of situations leading to a foreseeable change in the available capacity, such as planned outages, restrictions, expansions or dismantling of capacity. This information represents a prerequisite for efficient trading choices and therefore shall be publicly available.

Trade transparency, also known as “post-trade transparency”, allows access to information on previous wholesale transactions. Transparency requirements in this case include the publication of information on the price and the quantity exchanged as well as bid curves.

Finally, **record keeping obligations** provide for a certain amount of information to be available also in the medium-long term. Trade transparency and record keeping clearly represent a relevant tool for market monitoring and they are therefore one of the main aspects which the EU is currently fo



cussing on. The previous section showed that the 3rd Legislative Package for the EU energy markets, implemented since March 2011, includes some provisions to increase post-trade transparency and codifies a record keeping obligation of 5 years for supply undertakings on all trading transactions. Moreover, the previous section also reports that post-trade transparency obligations play an important role in the draft Regulation recently proposed by the European Commission.

5.2 How to measure transparency

The identification of different types of transparency does not solve the most fundamental problem of establishing how to measure transparency and assessing whether a certain given level of transparency is sufficient or not.

Some consensus has been reached on the initiative of ERGEG, which tried to define general guidelines. Sections 5.2.1 and 5.2.2 illustrate the transparency requirements upon which there is a general agreement that they provide a benchmark to which to compare the actual provisions of European markets.

5.2.1 Data transparency in the electricity sector

ERGEG issued its advice on the Comitology Guidelines on fundamental electricity data transparency in early December 2010. The Guidelines aim at establishing a common level of fundamental data transparency, defining a minimum level of data publication and developing a central platform to collect all of the relevant information on European wholesale energy markets. In general, the document contains a proposal on the disclosure requirements to be applied with regard to load, transmission, generation, interconnections and balancing activities. A summary of the main provisions follows hereafter.

Platform: The advice provides for an important role to be played by ENTSO-E, with regard to both the development of clear and common definitions for each data item and the establishment of the central platform for publishing the information specified

in the guidelines. The required information would be disclosed on the common (European) platform without undue delay; it would be accessible, user-friendly, free of charge and published in English. Moreover, the information would be updated on a regular basis, expressed in consistent units and finally stored for at least 5 years.

Load: TSOs shall be responsible for providing:

- ☐ Hourly actual total load at the latest one hour after the operational hour;
- ☐ Day-ahead estimate of the total load per bidding area;
- ☐ Week-ahead, month-ahead and year-ahead estimate of the total load per bidding area (if applicable);
- ☐ Year-ahead forecast margin (difference between yearly forecast of available generation capacity and yearly forecast of total load) per bidding area;
- ☐ Ex-ante and ex-post information on any change (planned and unplanned, respectively) on the availability of consumption units, if the change equals or exceeds 100 MW and lasts at least one market time unit. Ex-ante information shall be published as soon as possible and at the latest one hour after the decision is made, while ex-post information shall be published and updated as soon as possible and at the latest one hour after the outage, or, in any case when an update is available.

In those cases where the primary owners of the data are DSOs, consumption units and generation units, there is an obligation to provide the TSOs with all

the data required to fulfil the disclosure obligations. TSOs are then responsible for collecting and sending the relevant data about load on their control area to the central information platform.

Transmission and Interconnections: TSOs shall provide annual information on expansion and dismantling projects in their national transmission grids per bidding area with the estimated impact (MW) - also with regard to the interconnection capacity - at least concerning the three following years. This information must be given when the effect equals or exceeds 100MW at least during one market time unit. Moreover, the TSOs shall provide:

- ❑ Information on planned outages on interconnections between bidding areas and in the transmission grid that reduce interconnection capacity if the estimated impact on capacity equals or exceeds 100MW;
- ❑ Ex-post information on actual outages (both planned and unplanned) with an impact equal or exceeding 100MW;
- ❑ Offered capacity, in case of an explicit transmission capacity auction;
- ❑ Offered day-ahead capacity, in case of an implicit auction;
- ❑ For each border between bidding areas and per direction, estimated net transfer capacity for the next day, for the next week, for the next month and for the next year;
- ❑ Estimated hourly available transmission capacity for the next day for the intra-day market;
- ❑ Information on any restrictions placed on the use of available cross-border capacity.

Further disclosure requirements concern the TSOs

or Transmission Capacity Allocators in case of explicit auctions and for cross-border explicit auctions, and in case of flow-based allocation of capacity.

Generation: Generators are responsible for providing ex-ante information on the total sum of generation capacity installed for all existing production units equalling or exceeding 1MW installed capacity, for three following years per production type. Moreover, they shall provide:

- ❑ Installed gross capacity annually for the three following years for each production unit (installed and planned) with an installed capacity equal to or greater than 100MW;
- ❑ Ex-ante forecast of available capacity annually for the three following years for each production unit (installed and planned) with an installed capacity greater than 100MW;
- ❑ Ex-ante information on planned unavailability of generation units if the change in the available capacity is equal to or greater than 100MW;
- ❑ Ex-post information on unplanned unavailability of generation units with a change equal to or greater than 100MW in available capacity;
- ❑ Estimated aggregated information per market time unit on the total scheduled generation per bidding area for each hour of the following day;
- ❑ Ex-post information for the previous week on the filling rate of the water reservoir and hydro storage plants;
- ❑ Actual unit by unit generation output detailed per generation unit of each production unit equal to or greater than 100MW installed generation capacity, updated every hour;
- ❑ Actual aggregated generation output per mar-

ket time unit and per generation type;

- ☐ Ex-ante forecast of day-ahead generation of wind power and solar power for each bidding area per each market time unit for the following day in countries with more than 1% feed-in of wind or solar power generation per year or for bidding areas with more than 5% feed-in of this type of generation per year.

Balancing: TSOs or operators of balancing markets shall provide at least the information on:

- ☐ Rules of balancing including the processes for the ex-ante and real-time procurement of different types of balancing power reserves;
- ☐ Amount of reserved balancing reserves (if applicable);
- ☐ Process of ex-ante capacity reservations paid to generators and the price methodology (if applicable);
- ☐ Ex-post aggregated offers for activation to the TSOs, separated for each type of reserve;
- ☐ Ex-post information on the activated balancing reserves;
- ☐ Ex post information on actual prices paid by TSOs for balancing energy;
- ☐ Imbalance prices for balancing time unit;
- ☐ Volumes of the aggregated imbalances; financial balance of the control area on a monthly basis;
- ☐ Market information on the type of balancing bids/offers used for each day of the month.

If applicable, the TSO shall provide additional data, such as volumes of exchanged bids and offers per procurement time unit, maximum and minimum process of exchanged bids, volume of balancing

energy activated in various control areas with joint cross-border balancing.

Monitoring: National regulatory authorities are responsible for ensuring compliance with the guidelines regarding the obligations placed on TSOs, generators, consumption units and DSOs. The Agency for the Cooperation of Energy Regulators shall ensure compliance with these guidelines regarding the obligations placed on ENTSO-E. Moreover, the Agency is in charge of reviewing the efficiency and cost-effectiveness of the central information platform on a yearly basis. This assessment will be based on a report to be sent by ENTSO-E.



5.2.2 Data transparency in the gas sector

EREG was invited by the European Commission to give advice on a draft guideline concerning fundamental gas transparency (Section 4.3.1). Accordingly, in October 2010 EREG launched a public consultation on existing transparency requirements for

natural gas, in order to assess the need for further transparency requirements exceeding the legally binding transparency requirements in Regulation (EC) 715/2009 and Directive 2009/73/EC.

The consultation was closed on 26 November 2010 and 33 responses were received. Stakeholders were invited to express their own opinion with regard to transparency in gas transmission, LNG, gas storage and gas production. In particular, they were asked whether the existing legally binding transparency requirements for transmission, LNG and storage satisfied their needs as market participants and whether they were satisfied with the current level of transparency provided by system operators. Moreover, they were asked whether the non-binding transparency requirements included in the Guidelines for Good Practices for LNG System Operators and in the Guidelines for Good Practices for Storage System Operators were sufficient and whether they should become legally-binding.

Legally binding requirements:

Regulation (EC) 715/2009 on conditions for access to the natural gas transmission networks: TSOs shall publish the relevant information on a website accessible to the public, free of charge and update the information on a regular basis. Information should be provided in a user-friendly manner and be clear, quantifiable and in English. TSOs shall publish their network codes and the standard conditions on the rights and responsibilities of all network users, the rules on balancing and the methodology for the calculation of imbalance charges. Further disclosure requirements include, for instance:

- ❑ Technical capacity for flows in both directions; actual physical flows;
- ❑ Planned and actual physical flows;
- ❑ Amount of gas in the system at the start of each gas day and the forecast of the amount of gas in the system at the end of each gas day per balancing zone, updated on an hourly basis;
- ❑ Effective records of all capacity contracts.

The same Regulation also provides for LNG and Storage disclosure requirements concerning all relevant information, in particular: data on the use and availability of services, subject to the monitoring of such publication by the NRA; information regarding the services offered and the relevant conditions applied; the amount of gas in each system or group of storage facilities, and the available capacities (including those exempted from third party access).

Directive 2009/73/EC concerning common rules for the internal market in natural gas: With regard to LNG and storage operators, NRAs or Member States shall define and publish the criteria according to which the access regime applicable to storage facilities is determined. Moreover, system operators are required to publish their main commercial conditions for the use of storage, linepack and other ancillary services on an annual basis.

ERGEG's non-binding guidelines:

Pilot Framework Guideline on Capacity Allocation on European Gas Transmission Networks (2010): The guidelines suggest that the network code shall define standard communication procedures that are applied by TSOs to exchange information with network users and that TSOs publish the detailed

capacity allocation procedure as well as the offered capacity, its lead time and its duration.

Guidelines for Good Third Party Access Practice for LNG System Operators, GGPLNG (2008): The terminal code shall include the main standard conditions for each service outlining the rights and responsibilities of the system operator, capacity allocation mechanisms and auction terms (if applicable). GGPLNG also proposes maps to indicate the location of LNG facilities, the description of the infrastructure and the connection points of the LNG facility with the downstream infrastructure. Further disclosure requirements include tariffs and tariff methodologies for each offered service, existing and future LNG terminal capacity, maintenance plans, and data on the use and availability of services.

Guidelines for Good Third Party Access Practice for Storage System Operators, GGPSSO (2005): According to the GGPSSO, SSOs should implement user-friendly systems to publish the relevant information on the Internet in a timely manner. Information shall be clear and accessible; users may request the SSO not to publish information about the aggregate use of storage only in the case such publications would harm the commercial interest of users. Nevertheless, in case of non-publication, the NRA could review the decision not to publish. Tariffs and tariff methodologies shall be published ex ante in case of regulated TPA; in case of negotiated TPA the main commercial conditions including the prices for standard services shall be available once and in case of proposed and actual damages. In any case, information shall be disclosed with regard to:

☐ Services offered;

- ☐ Main storage standard conditions;
- ☐ Storage capacity allocation;
- ☐ Congestion management;
- ☐ Charges applicable to storage penalties;
- ☐ TSO's pre-emptive rights with operational rules and processes;
- ☐ Maintenance periods that can affect storage users' rights from storage contracts and the corresponding operational information: during the maintenance period, SSOs shall regularly publish updated information on details, expected duration and effect of the maintenance.

Finally, every day, SSOs shall provide information on stock levels in each storage facility, aggregate inflows and aggregate outflows and percentage of capacity available per SSO or aggregated by all of the hubs.



6. Pro-transparency Initiatives

Market platforms and market operators can contribute to increase transparency. Transparency benefits from the implementation of disclosure requirements and increases as long as the accessible information is provided more time-effectively, more frequently or in more detail. Transparency also benefits from specific design strategies for trading platforms, allowing a more straightforward interpretation and use of the relevant data.

A number of recent initiatives contributed to increase data transparency in the European energy markets. These initiatives particularly involve associations of regulatory authorities and other organisations, system operators - singularly and in cooperation - as well as power exchanges.

6.1 Associations of regulatory bodies and other organisations

Energy Regulators Regional Association (ERRA): ERRA is a voluntary organisation of energy regulators from the Central European and Eurasian region, with affiliates from Asia, the Middle East and the US. It was created in 2000 to support the improvement of energy regulation and the development of stable and independent national regulatory authorities. ERRA has contributed to transparency through publications and the organisation of specific trainings. Moreover, the ERRA Energy Tariff Database collects the information concerning the official electricity and gas tariffs in 19 countries (including Russia, Turkey, Ukraine, Poland, Hungary) and pro-

vides further relevant data on energy markets, such as consumption and generation.

Joint Oil Data Initiative (JODI): JODI was created in 2001 by six pioneering organisations (APEC, Eurostat, IEA, OLADE, OPEC and UNSD) to address the issue of lack of data transparency in oil markets - contributing to excessive price fluctuations -. JODI provides data on monthly oil consumption and production which would be difficult if not impossible to access otherwise. The data is submitted by the national authorities of the participating countries. Nowadays, more than 90 countries, all members of the six organisations (representing more than 90% of global oil production and consumption) are contributing to JODI.

6.2 System Operators

The initiatives of National Grid Gas, AGGM, ENTSO-G and GRT Gaz in the gas sector and of Red Electrica in the electricity sector, contributed to push voluntary innovation on data scope, data format and user-friendly tools.

National Grid Gas: The major pro-transparency initiative promoted by National Grid Gas is the "European Transparency Project" (ETP). The ETP was launched in May 2010, as a specific framework designed to facilitate the implementation of the transparency obligations arising from the 3rd Energy Package. Some key features of the ETP are: the cooperation with other TSOs via ENTSO-G for a common data set; the publication of data beyond the scope of 3rd Package requirements, plus greater granularity and frequency for certain data, and the

ability to send data to other IT systems and publishing platforms, such as the ENTSO-G Transparency Platform. Finally, the transparency project also delivers an improvement in the graphics package to enable users to view data graphically. The project envisaged the early deliver of the new obligations (15 November 2010 as opposed to the required implementation date of 3 March 2011).

A further relevant feature of National Grid's transparency policy is the publication of live (real time) within-day flows. This is one of National Grid's most popular reports: during 2009 the real time flow data registered several million downloads, the majority of which were automated downloads utilising National Grid's API facility. API (Application Programme Interface) allows downloading data automatically and in different formats, such as csv and xml.

Austrian Gas Grid Management (AGGM): AGGM is the independent system operator for the Austrian domestic gas grid in the East Control Area, the biggest of the three control areas in Austria. AGGM's contribution to energy markets transparency derives from the application of transparency standards which are higher than the legal requirements of the Austrian Gas Act and concern the information on the system utilisation at all entry-exit points of the East Control Area. Among other things, AGGM also publishes statistical information as well as information specifically dedicated to new market participants, concerning procedures and guidelines, in order to provide assistance and advice.

European Network of Transmission System Operators for Gas (ENTSO-G): In November 2008,

ENTSO-G launched a central platform called "Transparency Platform" (TP). The TP provides both a consistent picture of the access regimes to gas transmission in the EU and dynamic data on capacity, nominations and re-nominations, commercial flows and interruptions per cross-border and cross-balancing zone. All data is presented in the same units and according to common principles concerning, for instance, the timeline of data submissions. Moreover, the TP offers a noticeable tool which enables the user to look for available commercial routes to transport gas across the whole European gas grid. This is possible thanks to an exclusive, technologically advanced model that is able to take into consideration all commercial frameworks for access to the transmission systems. Finally, TSOs are able to send information through a user-friendly input mask that automatically generates .xml messages.

GRT Gaz: GRT Gaz transports gas to the public distribution system and to industrial customers in France. With its 32,000 km of network it represents one of the most important gas transporters in Europe. GRT Gaz's contribution to transparency relies on the fact that its website provides relevant data on the network, such as gas exchanges at the virtual points, capacities, maintenance programmes, consumptions, gas commercial flows at the cross-border interconnections and balancing activities. All data are published and updated on a daily basis. The website also provides charts, graphs, maps, different exports or RSS feeds. Finally, all of these data can be directly accessed from the home page of GRT Gaz by clicking on the specific button "Key Transmission Figures".

Red Electrica de España (REE): The mission of the Spanish transmission electricity system operator (REE) establishes that all its commitments should be accomplished in a transparent framework. The REE web page is available in Spanish and in English and reports all current operating procedures, demand, wind forecasts and real time data. There are three main remarks highlighting REE's contribution to the transparency. First of all, REE's website also includes information from neighbouring markets (Portugal and France). Second, REE developed a simulator tool that allows users to calculate the cost of their international transactions through the website with ease.



Finally, starting in 2007, the three TSOs of the south-west region of Europe (REE, RTE and REN) have been coordinating their efforts in the framework of a regional initiative. The topics on which the three TSOs are working include transparency and information management, as well as possible market coupling mechanisms and a possible balancing scheme for the whole region. It is worth noting that in September 2008 the Regulatory Authorities of the three interested countries issued a Transparency Report concerning information management and wholesale data handling in the south-west region. The report concluded that transparency in the region improved considerably and there is potential for further enhancements with regard to information handling and disclosure.

6.3 Electricity and Gas Regional Initiatives

Electricity and Gas Regional Initiatives (ERIs and GRIs, respectively), launched by ERGEG in Spring 2006, are considered an interim step towards the creation of single EU electricity and gas markets. Transparency is indeed one of the main "statutory" priorities for all of the ERIs and GRIs and different initiatives have been taken in this respect.

In recent years, all of the current 7 ERIs have issued a transparency report containing uniform transparency requirements for the market operators. In the North ERI, for instance, - including Denmark, Finland, Germany, Norway, Poland and Sweden - a Transparency Report was already issued in 2007, and two Transparency Monitoring Reports were issued in 2008 and in 2010. In the FUI ERI, - including

France, the UK and Ireland - a Consultation Paper on wholesale Market Transparency was issued in 2007, even though priority was finally given to the two issues of balancing and congestion management policies in the period 2008-2009. The other ERIs (Baltic, Central-East, Central-South, Central-West and South-West) issued a Transparency Report between 2008 and 2010. Also the 3 GRIs (North-West, South South-East and South) implemented some pro-transparency initiatives.

Among all of the Regional Initiatives, the Gas Regional Initiative North-West (GRI NW) is the one which overall most substantially contributed to the development of transparency.

Gas Regional Initiative North-West (GRI NW): The Gas Regional Initiative North-West includes nine countries and is the largest of the three Gas Regional Initiatives in terms of both market size and geographic scope. The improvement of transparency was one of the GRI NW's priorities, especially following the results of the DG Competition Energy Sector Inquiry, which concluded that the lack of information on the availability of gas transmission and storage capacity was one of the main shortcomings in the wholesale market.

Transmission transparency benefited from the TSOs' commitment to publish a list of deliverables including technical capacity, probability of interruptions as well as daily flows and interruptions and historic gas flows. TSOs were also able to broadly agree on the format and units in which to publish the information. The list of information requirements produced by network users, jointly with EFET and IFIEC

(International Federation of Industrial Energy Consumers), actually represented the starting point for the European Commission comitology proposal to improve European gas market transparency. The European Commission's comitology proposal indeed extended the progress made by TSOs in the GRI NW and established it as a minimum level of transparency required across the whole of Europe.

As for storage transparency, in order to respond to the concern of gas security of supply and facilitate an early implementation of the 3rd Package requirements, the members of the GRI NW initiative agreed to publish daily information on storage levels, storage inflows and storage outflows starting from December 2009.

6.4 Trading platforms

Among the European trading platform, Nord Pool, Belpex and EEX provided exceptional contributions to the development of both pre-trade and post-trade transparency.

Nord Pool Spot (NPS): NPS runs a single energy market for Norway, Denmark, Sweden and Finland and it is owned by the Nordic transmission system operators. In 2009 NPS covered 72% of the Nordic consumption. NPS holds a leading position as the largest exchange for electrical energy in Europe, with 330 companies from 20 different countries trading.

It is generally recognised that NPS's expansion and success are clear indications of its efficiency and of the high degree of confidence of market partici-

pants. NPS's pioneering role in the improvement of market transparency is confirmed by the fact that more than 12 years ago, Nord Pool (now NPS) was already implementing web distribution of hourly production, consumption, export and import, balancing market data, day-ahead spot market and long-term financial electricity contract data from its organized markets. The level and timing of data distribution at the time were already fulfilling most of the requirements established by EU Directives and Regulations in place today.

Still nowadays, the extent and the detail of the published information represent a major strength of NPS transparency policy. The disclosure requirements provide disclosure of any information relating to the Nordic electricity market regarding their business or facilities for all participants, and in particular information on facilities for production, consumption or transmission of electricity (planned and unplanned outages, limitations, expansions or dismantling of capacity from 6 weeks to 3 calendar years following) as well as any other information that is likely to have a significant effect on prices. The participants' disclosure of information is provided electronically to NPS through the Urgent Market Messages (UMM). Disclosure shall at least include information on:

- ☐ Affected geographical area or interconnection;
- ☐ Relevant generator, station or line;
- ☐ Time of decision or occurrence of outage;
- ☐ Available capacity to the market before, during and after the event;
- ☐ Starting time of the planned or unplanned outage, and the corresponding stop time;

☐ Cause of the event.

A complementary role in ensuring the high transparency standards in NPS is played by internal market monitoring. The market surveillance internal function monitors trading activities and price formation in the spot, intraday and financial markets, regularly publishes reports and investigates possible breaches of laws and regulations. If the investigation concludes that rules were violated, the market participant will be sanctioned by NPS through oral warning, written warning or a violation charge of up to (the equivalent of) €310,000. In relation to investigations, in cases where the market participant does not comply with the duty to provide information on request by NPS, a daily charge can be imposed until the information is provided. Market monitoring also involves the energy regulators and the competition authorities of the four countries, which are under a full mandate to handle any question of market abuse in relation to the competition law that arises. All of the authorities involved are supposed to collaborate for market well-functioning.

In 2010, Nord Pool Spot was awarded the first Energy Transparency Award.

Belpex: Belpex is the Belgian power exchange which in 2006 contributed to the launch of the first continental market coupling: the Tri-Lateral Coupling (Section 2). Belpex and the market coupling strongly contributed to the development of transparency in the Belgian market and provided a valuable benchmark for future market integration at the EU-level. Furthermore, Belpex's contribution to transparency also relies on the disclosure of re-

levant information, such as day-ahead price, hourly available capacities and hourly flows between Belgium and France and between Belgium and the Netherlands. Also historical data in terms of prices, volumes and aggregated curves are freely available.

European Energy Exchange (EEX): EEX was established as a result of the merger of the two German power exchanges in Frankfurt and Leipzig in 2002 and currently offers a trading platform to 191 participants from 19 different countries. Today the platform covers the German and the Austrian electricity wholesale market areas, but there is a potential for expansion to additional bidding areas or countries in the future. The major EEX strength in terms of transparency is represented by the information provided by its website, which goes beyond the scope of the legal requirements and is presented in a user-friendly way. The website includes data regarding installed generating units and planned and actual production by generating units, including wind and solar generation units. Moreover, the website contains data on installed and available capacity broken up into different types of energy sources.

Special attention is dedicated to the design of the data publication. All data is presented through graphs such as bar or circle diagrams, in order for the information to be more easily interpreted. A menu control right next to the graphs offers the users the possibility to filter the information and display it so that it can be downloaded. Moreover, the menu offers access to extensive historical data. Another positive remark on EEX concerns the fact that 80% of the platform uses voluntary information

and that operators are given the possibility to send updates at all times in addition to the initial reporting at fixed and mandatory times.

Finally, an interesting contribution to transparency is provided by the existence of plausibility checks and very high security standards. Plausibility checks offer a technical and logical validation of the reported data to avoid mistakes: in case of a non plausible report, the data provider gets a message that his reported data set is not accepted by the system, so that he has the chance to correct his message. Security standards are guaranteed through the existence of a Public Key Infrastructure (PKI) which provides digital certificates for user identification. The digital certificates protect the communication channels between the user and the transparency platform and minimises the probability of interception or manipulation of reported data.



7. Market Governance

Governance consists of setting rules and related enforcement mechanisms. According to this definition, the governance of transparency in European wholesale energy markets can be analysed from a three-dimensional point of view. The three dimensions are the level of governance, the policy domain and the nature of the enforcer.

7.1 Level of governance

Governance of transparency combines at least two fundamental “layers” of governance: national and supranational. The creation of EU-wide regulation represents a form of supranational governance. It also provides centralised governance since common rules and enforcement are centrally provided.

In practice transparency governance in the EU functions in a multi-level frame in which the different levels interplay and compete in creating or implementing rules. Given the absence of a perfect allocation of tasks, information and power in multi-level forms of governance, it could be the rivalry between the various levels of rules which cure the imperfections of certain levels (Brousseau and Raynaud, 2006; Meeus, 2010). Nevertheless, the existence of multiple levels of governance may also generate overlaps and heterogeneity and thus calls for a higher level of coordination, through both formal rules and informal arrangements (Manganelli, Nicita and Rossi, 2010), as we have actually been seeing in the European Union pace of change since 2007.

7.2 Policy domain

The second dimension of the governance for energy market transparency combines three policy domains, namely sector-specific energy regulation, financial regulation and carbon market regulation (Glachant, Ahner and de Hauteclocque, 2010). The tight link among the three domains derives from the fact that nowadays wholesale energy markets are highly hybrid and organise transactions which involve different types of trade.

Several examples of interrelations have been highlighted with the draft discussion paper published by DG Energy in December 2009. First, due to the hybrid nature of energy markets, it is very important to ensure the coordination between the new European regulatory framework for transparency and integrity and the already existing financial regulation against market manipulation and abuse. Second, the existence of commodities’ inter-linkages suggests the inclusion of the carbon market in the proposal. In this case though, further coordination issues would arise. For instance, the record keeping obligation established in the 3rd Package would pose a problem since there are no national regulators of the European carbon market who would be natural recipients of the post-trade data on carbon market transactions.

As shown by these examples, the main challenge with regard to this dimension of transparency governance is the need for coordination among different European policies and different action lines which have developed separately so far.

7.3 Nature of enforcers

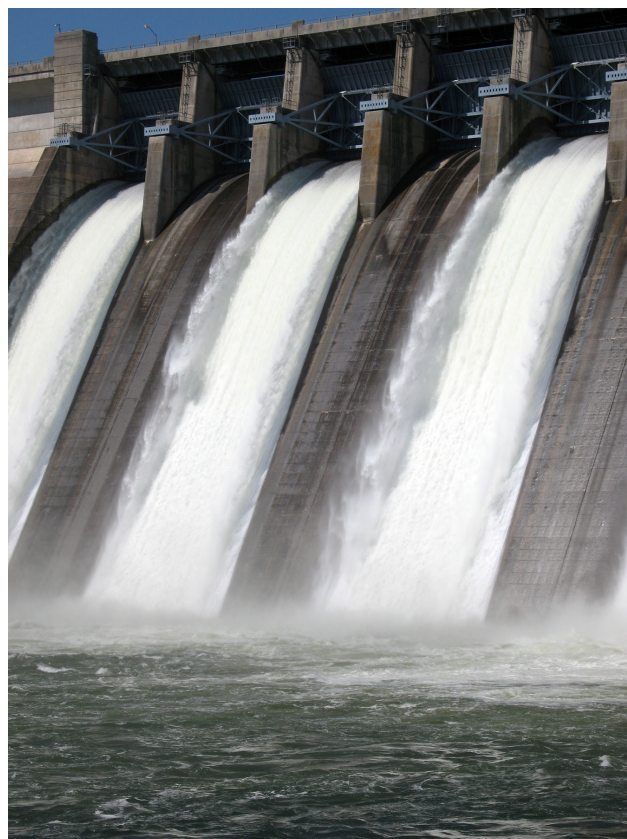
The last governance dimension concerns the fact that private and public governance compete to create rules and to enforce them. Section 6 showed to what extent market operators may contribute to increase the level of transparency. From an institutional point of view, market conduct rules, non-binding grid codes, internal regulations and internal enforcement mechanisms could represent valuable forms of “private institutions” or “self-regulation”. All these initiatives shape the private dimension of the governance for market transparency.

Public authorities’ activity of law-making, regulation and enforcement provides the public-side of governance instead. As reported in the previous sections, the European institutions are currently working on the definition of a common regulatory framework for wholesale energy markets’ transparency. To this purpose, the Commission issued a draft Regulation for the European Parliament and for the Council in December 2010. That draft regulation asks to prohibit the use of inside information and the manipulating practices in wholesale energy markets, and provides some post-trade transparency obligations. Moreover, it establishes a market monitoring function within ACER and a duty of collaboration with national regulation authorities.

However, the work is still in progress. Since the draft regulation will have to be adopted by the European Parliament and by the Council, there is still some degree of uncertainty on both the final outcomes of the Commission proposal (the content of the draft could be amended) and its implementation time-

line.

As a result, the extent of the future contribution of public governance to the development of energy markets transparency is not given yet.



8. Concluding Remarks

Transparency allows operators to have a better understanding of the market and to receive better price and quantity signals. Therefore, it provides a fundamental contribution to the creation of competitive and well-functioning EU wholesale energy markets.

This report highlighted a number of noticeable pro-transparency initiatives undertaken by market actors. These include the definition of clear market conduct rules and codes, abusive behaviours monitoring, as well as the provision of user-friendly and informative websites. All of these actions represent forms of private governance and heavily contribute to the development of transparency in the energy wholesale markets in Europe.

Nevertheless, energy trading is in big need of a regulatory framework ensuring the consistent implementation of common and transparent trading practices across Europe.

In fact, the development of adequate public governance is still a work in progress. The current framework exhibits some regulatory gaps, which the European Commission is willing to fill in order to establish a common set of rules for all wholesale energy markets. To this purpose, a draft regulation has been presented to the Parliament and to the Council in December 2010. However, at the moment there is uncertainty about the final content of the regulation which will be eventually adopted, as well as about the time-line of the entire legislation process.

In any case, the main challenge to the definition of an efficient ordering of European energy markets transparency is clearly the need of a higher level of coordination (Vasconcelos, 2009). First of all, more coordination is needed to avoid overlaps, deadlocks and inconsistencies among the existing rules set at both national and trans-national level. Second, more coordination is needed with regard

to the three policy domains affecting the regulation of wholesale energy markets: energy-specific regulation, financial regulation and carbon market regulation. These three policy domains have developed through separate action lines and implementing paths so far, thus a serious effort should be directed at coordinating and integrating the transparency interdependencies among them.

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