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Gas and Electricity:

A Challenge for Europe and for France

Report by Jean-Marie Chevalier and Jacques Percebois

The threats linked to global warming, the increase in world energy demand and the concentration of hydrocarbon reserves in a few often politically unstable countries generate substantial risks for the energy market. Faced with this situation, Europe offers a novel vision for an energy future that would be competitive, secure and sustainable. Nevertheless, it will only be possible to achieve these objectives if currently fragmented national markets become integrated in a single market. In this respect, the report recommends increasing the independence of national regulators and the powers of the Association of European Regulators (ERGEG-Plus) and the association of network operators (for natural gas and electricity). It also proposes encouraging investments by network managers and gradually adapting prices and tariffs so that they genuinely reflect the cost of the investments needed at European level.

The report was discussed in the presence of Christine Lagarde, Minister of the Economy, Finance and Employment on 18 October 2007. This letter, published under the responsibility of the permanent think tank, resumes the main conclusions drawn by the authors.

EDITORIAL

Europe and therefore also France face formidable challenges in the new energy environment. They need to improve the security of their supplies, and incorporate their energy policy into a more general framework that now gives the place they deserve to environmental (particularly, combating climate change) and sustainable development considerations.

The report favours two complementary approaches: facilitating the implementation of investments needed for the production and transportation of electricity and gas; increasing harmonisation and coordination between European Union Member States.

The report defends the idea that in the long-term, Continental Europe at least must anticipate moving towards a single network, a single market and a single regulator. To facilitate this transition, it proposes strengthening the role and powers of existing coordinating bodies.

Christian de Boissieu
Executive Chairman of the CAE

Network industries in Europe are subject to an underlying trend towards deregulation. This deregulation, which is accompanied by the gradual opening up of markets and increased competition, creates new opportunities but also new problems in terms of coordination. At the same time, the energy markets have seen new environmental constraints added to their specifications. It is against this backdrop that we have to consider the way in which the electricity and gas markets in Europe operate and their development.

The global energy context

In the first section of the report, the authors present the global energy context. The two points that appear to be fundamental in their eyes concern the new place of the environmental aspect in energy-related issues and the large number of risks that are a feature of the current energy situation.

In fact, risks and uncertainties have a major impact on the international energy situation. In the case of hydrocarbons, the concentration of reserves in high-risk countries generates fears regarding the implementation of necessary investments. However, the greatest uncertainties are those linked to global warming. This fact has prompted the report's authors to focus firmly on an energy/environmental issue that calls for action.

However, although it appears that urgent action is required, the authors also highlight the difficulties in reconciling energy and envi-

ronmental issues. They note that the systems in place are very rigid. Although a gradual awareness of environmental constraints is one of the underlying trends, for the moment there is no sign of any major and rapid change in the global energy balance sheet. The domination of the three main fossil fuels remains. These underlying trends and this relative immobility, as the authors point out, have prompted the International Energy Agency to write that, in a scenario where current energy policies are unchanged, the energy future that we are building is unsustainable –for environmental reasons but also because it could come up against inadequate supply as a result of inadequate investment, natural disasters or disruptions in supplies.

The authors also stress the importance of *geopolitical* risks related to the geopolitics of the thirty States which control more than 80% of hydrocarbon resources. Political turmoil, internal struggles for the capture of oil and gas income, nationalist movements inspired by the growing scarcity of resources, and all kinds of covetous ambitions are unlikely to encourage the investments needed to transform the resources in place into production capacity. Inadequate investment could therefore have the effect of fuelling tensions in the markets and raising prices.

Lastly, *regulation-related* risks are an increasingly worrying issue for investors. This risk concerns the electricity and gas industries in particular. Given the amount of investments envisaged in electricity, this is an important factor in the decision-making process. The report stresses the fact that in France and Europe, electricity and gas investments are made in a regulatory environment that is not yet stabilised. The risk is all the more evident since investments are amortised over several tens of years.

European policy

Although for the authors of this report, Europe does not yet have a genuine energy policy, they highlight the fact that there is a 'European energy vision' based on a few major consensual principles: reduction in greenhouse gas emissions, improvement in energy efficiency, diversification of the energy balance sheet, competitiveness, security of energy supplies. The 2006 Green Paper on the security of supplies, the 'energy package' presented by the Commission on 10 January 2007, the European Council meeting in March 2007, clearly show that this 'European energy vision' is a priority that needs to be examined more closely. The global energy context and Europe's growing dependence on imported energies reinforce this priority which could result in the definition of a genuine European energy policy.

A prerequisite for going further is for all European Union countries to have transposed all the European regulatory laws. This is not yet the case. At the beginning of 2007, proceedings were still initiated against twenty countries for non-transposition or inadequate transposition of directives. It is a Commission principle that market mechanisms must make it possible to achieve the objectives that have been set. However, this is not always achieved spontaneously and it is sometimes necessary to compel the markets through regulated measures, which are all exceptions to the spontaneous achievement of a balance. Moreover, the market is not anarchy and there must be a regulator that sets the rules of the game (and its exceptions) and ensures they are adhered to.

In this respect, the report stresses the need for regulators to be independent. Comparisons made between European regulators appear to show that there are significant differences in terms of the powers with which they are entrusted, the resources available to them, their independence in relation to political power and their responsibilities. However, the regulator has a crucial role. It has the role of supervising the conditions for access to the networks and supervising the company in a monopoly position (network operators) with regard to the necessary investments it must make to develop, modernise and ensure the security of the network. In addition to these major responsibilities, the regulator may have the power to supervise the markets, an area in which its responsibility may be shared or coordinated with the competition authorities.

The report's authors note that the regulator may be helped in its role by network managers, which are also independent. They return to this point in their final recommendations.

This description of the risks inherent in the energy markets, together with the development of a European energy vision and the implementation of effective regulatory instruments, constitutes the institutional framework that needs to be considered in order to understand the way in which the electricity and gas markets in France and Europe operate as well as recent price trends in these markets.

Electricity markets in France and Europe

The electricity markets in France and Europe have been going through a difficult period marked by a substantial increase in prices, largely due to the increase in fuel prices. This trend has given rise to discontent, concerns, and also unexpected profits (for example, nuclear or hydraulic income).

In France, a power exchange, Powernext, was set up in 2001. Since that date, electricity wholesale prices on Powernext have been indexed to prices in the German market, whereas the average cost of hydraulic and nuclear electricity produced in France is not likely to have risen significantly. Hence, wholesale prices, which were around EUR 30/MWh in 2004 rose to more than EUR 60 in 2006-2007.

This indexing of French prices to German prices is a subject of concern for the French public authorities and consumers. In fact, the level of German prices is well above the average cost of French hydraulic or nuclear electricity production. The authors have put forward several reasons to explain a situation that seems lasting: the marginal long-term cost, the new role of interconnections and their reinforcement, the interdependence of exchanges, the CO_2 effect but also the power of an individual and/or collusive market which is potentially one of the explanatory factors.

It is also possible to point the finger at the imperfections of the electricity market to explain the increasing price of electricity in France and Europe. It is a concentrated market, with vertical restrictions and insufficient integration between national markets, particularly between France and Germany. The lack of transparent information is also blamed. Greater transparency in these markets appears to be necessary for the authors of this report and would make it possible to:

- reduce the entry barriers and the risks associated with decision-taking, especially for new entrants;
- reduce the information asymmetry between players;
- to establish a climate of confidence with regard to the industry and wholesale markets.

The lack of transparency is hampering the development of wholesale markets and, more generally, the development of competition.

This is why the authors have focused their recommendations on the most strategic and most urgent pro-competition measures. These recommendations are reiterated at the end of the summary.

Gas markets in France and Europe

In the case of prices in the gas markets, the authors emphasise the differences existing between these markets and the electricity markets. Unlike gas, electricity cannot be stored. More importantly, Europe is highly dependent on hydrocarbon imports. This dependence has increased during the last ten years and looks set to increase again between now and 2030. The European Union's energy dependence rate was 56% in 2005 and is expected to exceed 65% in 2030. Dependence on gas imports looks set to rise from

57% currently to 84% in 2030, with the figure for oil rising from 82% to 93%.

To explain the high gas prices, the report emphasises two features of gas contracts:

• the signing of long-term contracts, which are necessary to secure supplies but often perceived as hindering competition;

• the indexing of prices in these contracts to crude which contributes to price decoupling with the market.

The report also underlines that, as in the case of the electricity market, high prices can also originate from imperfections in the gas market in Europe. The European Commission's communication, made public on 10 January 2007, pursues this line and focuses on the obstacles which are currently, especially in the case of gas, preventing the introduction of a single European energy market. For the European Commission, there are still some barriers to free competition and it states that 'substantial increases in gas and electricity wholesale prices that cannot be entirely explained by higher primary fuel costs and obligations to protect the environment prompted the Commission to open an inquiry into the way the European gas and electricity markets operate'. Several entry barriers were listed during this inquiry: market concentration reflecting the excessive market powers of some operators (traditional operators especially), vertical closing off of the market, in particular insufficient separation of the transportation/distribution network, the lack of transparency at certain levels of the gas chain (cross-border transportation in particular) and border congestion, all of which are detrimental to greater competition.

For the Commission in Brussels, 'gas import contracts use price indexes linked to oil derivatives (domestic fuel or heavy gas oil) and therefore prices have closely tracked the trend in the oil markets. This connection results in wholesale prices that do not react to fluctuations in gas supply and demand, thus jeopardising the security of supplies. It is essential to ensure the liquidity of the market in order to improve confidence with regard to price formation in gas trading platforms. This will make it possible to loosen the link with oil. In several Member States, regulated tariffs have had unfavourable effects on the development of competitive markets because they have been set at very low levels in relation to wholesale prices and cover a large section of the market, effectively leading to a re-regulation'. (Communication of 10 January 2007, COM 851 final p. 8). What is in question is both the indexing of gas wholesale prices to the prices of oil products and the maintaining of regulated prices in the retail market for non-eligible consumers or eligible consumers (that have not exercised this eligibility). These regulated prices are too low and send a bad signal to the operators, consumers and investors alike, even though the difference between the regulated price and the spot market price for natural gas is smaller than for electricity. For Brussels, these regulated prices are destined to gradually disappear after July 2007. The Commission also regrets the existence of long-term contracts between traditional suppliers and some end-customers, notably contracts that are renewable by tacit agreement and which, in the eyes of the Commission, constitute entry barriers for many suppliers.

At the end of the report, the authors defend the idea whereby maintaining long-term contracts is a good thing for the security of supplies, as well as indexation clauses which are a favourable factor in an environment where gas still has numerous substitutes in terms of oil products. However, greater flexibility in removal clauses is desirable and as soon as the gas spot markets have become more liquid on the European continent, the indexing of contract prices to gas spot prices can be envisaged and will be beneficial for everybody.

Links between electricity and gas prices

The authors also note that the issue of the electricity price trend in France and the gas price trend are not two separate issues. In fact, the dependence of French prices on German electricity prices, mentioned above, ultimately results in the dependence of electricity prices on natural gas prices. This is due to the fact that the French/German electricity market is currently an integrated market that is highly interconnected (more than 6,000 MW). The German price is the guiding price in this market and it is correlated for much of the year (two-thirds of the time) to the production cost of a gas power station. The French nuclear power station plays only a marginal role for a short period (one-third of the time) and it is the marginal German gas power station that dictates the price the rest of the time. Operators that use natural gas to produce their electricity do not take any risks because the increase in imported gas prices is passed on in the price of electricity, which does not jeopardise the profitability of the capital invested. However, a decline in oil prices, and therefore the gas price, would be liable to undermine the competitiveness of French nuclear energy especially as the profitability of the two types of investment is not calculated over the same lifespan. This alignment of French prices to German prices gives EDF a comfortable 'nuclear income'. The authors also note that the existence of such 'income' is likely to call into question the social acceptability of nuclear energy in France. Germany's decision not to revive nuclear energy and ultimately to pull out of nuclear energy therefore has a direct impact on the price paid by French electricity consumers. From a collective viewpoint, the 'French/German energy mix' is therefore far from optimal. It is because the role of nuclear energy is too small in Germany, and even Europe, that electricity prices are driven upwards by hydrocarbon prices. Moreover, the report underlines the fact that the concerted revival of nuclear energy would have the merit of reducing the average cost of electricity especially as this would lead to an easing in the natural gas market: strong demand for gas in Europe and worldwide can be attributed to a large extent to the need for electricity generation. We could therefore see a 'virtuous circle': the revival of nuclear energy reducing the cost of electricity and the price of gas and this reduction in the price of gas having, in turn, a beneficial impact on the cost price of thermal electricity… An increase in nuclear's share in Germany would lead to a lower equilibrium price in the French/German electricity wholesale market. The good interconnection of the two markets means that the equilibrium price is much the same in both countries and this benefits German consumers for part of the 'basic period'. However, the importance of thermal power stations in Germany means that this equilibrium price tends to be aligned to German production cost the rest of the time, which penalises French consumers. Paradoxically, less interconnection would allow the French market to remain 'isolated' for longer, which would be beneficial for French consumers.

The report's main recommendations

By focusing their analysis on the gas and electricity markets, the authors have chosen to give priority to the institutional aspect which, in their view, constitutes the driving force for the construction of a European energy market. In their view, France has a major role to play in this institutional momentum. The report's main recommendations are designed primarily to strengthen the powers of certain entities in order to accelerate the harmonisation of procedures and standards, coordination, the circulation of information, and transparency. Hence, the report's authors propose:

• increasing the independence of national regulators and ensuring, in particular, that the protection of the collective interest comes before individual interests (operators but also the short-term interests of consumers);

• increasing the powers of the Association of European Regu-

lators (ERGEG-Plus) and harmo-nising the scope of action of the various European regulators. It would be desirable if, for example, the club of regulators could establish a 'code of good conduct' that sets the common rules for access to the networks, congestion and transit processing;

• increasing the powers of the association of network operators (for natural gas and electricity). These associations must act in close consultation with the association of regulators ;

• coordinating and creating the impetus necessary for future investments. For the authors, it would appear to be difficult to transpose the French system of long-term investment planning (PPI) for electricity to Europe. However, they suggest more appropriate methods, at least for countries that are prepared to go further in the harmonisation and construction of an 'energy Schengen'. Hence, the approach adopted in this report is based on the idea of moving gradually, at least in Continental Europe, towards a single electricity network, a single regulatory body and a single electricity market;

• stimulating investments by network managers without hesitating, sometimes, to encourage overcapacity in order to ultimately accelerate the fluidity of the markets and competition;

• gradually adapting prices and tariffs so that they send the real market signals, those that reflect the cost of the investments needed at European level to build an energy system that is competitive, secure, and that contributes to sustainable development.

Comments

In his comments, ***Philippe Chalmin*** underlines the fact that we cannot treat the gas and electricity markets like traditional commodities markets. They have a fundamental place both in terms of choosing the kind of society we want to live in and environmental control. It is therefore perfectly logical and legitimate that in Europe, as elsewhere, there is an energy policy aimed at the harmonisation of national practices, better regulation of the markets and supplies but, more importantly, that takes account of collective choices, which are especially important given that Europe is a global benchmark in energy and even environmental terms. Consequently, he has to subscribe to the report's main recommendations and notably the idea of strengthening the regulations and especially European energy governance. Nevertheless, he emphasises the fact that currently this governance does not exist, which would entail establishing it, with more boldness than the authors envisage. Basically, in his eyes, the fundamental issue that the report raises is that of the transmission of market signals for the formation of energy prices and tariffs in Europe. The operation of the market alone combined with a few regulations cannot be a substitute for a European energy policy as the Brussels authorities assume. Therefore, he sees the risk as putting the 'cart' of the market before the 'horse' of governance and especially public interest.

Meanwhile, ***Élie Cohen*** emphasises that, at European level, there is a conflict of objectives in the policies pursued, inappropriate regulations, and deregulation objectives that are discon-nected from the real issues. He criticises the systematically descriptive and institutional bias of the report's authors who seem to him to be postulating consistency between policies and pretending to believe that the *institutional design* can also be amended. He indicates that the European energy policy will only emerge from the current impasse if four conditions are met. Firstly, the prioritisation of objectives, with climate becoming a central issue. Secondly, changes in the institutional design in order to integrate markets through the development of interconnections and a common regulation. But also, it is necessary to encourage the formation of powerful energy players at European level instead of striving to bring about the downfall of European champions such as EDF or Eon. Finally, recognition of the fact that the battle for *ownership unbundling* is futile.

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