

## ENERGY

# In search of an optimal design for European gas markets

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**The liberalisation of the European gas market is becalmed. Meanwhile regulatory uncertainty looms on the investment horizon.**

**D**uring the last ten years, European gas markets have gone through profound restructuring processes. Initially ambitious, regulatory targets from the European Commission (EC) boiled down to a very basic introduction of competition and liberalisation in the form of the first Gas Directive. Since then, the EC has accelerated the reforms and deepened competition by progressively releasing new directives, regulations and guidelines, while at the same time remaining resolute during the energy sector inquiry. Since the beginning, attempts to liberalise European gas markets have faced strong opposition and resistance from the gas industry and industry-oriented governments, aiming to maintain the status quo of the market organisation, while leaving energy policy as a national issue.

## Clash of industry visions

Gas reform is accompanied by a clash of industry visions. Reformers, such as the EC, argue along the lines of the structure-conduct-performance paradigm of industrial organisation studies. They claim that liberalised markets reduce monopoly rents and that consumer demand will ensure the necessary infrastructure is in place in a timely manner.

In contrast, opponents argue that liberalised markets do not provide enough incentives to ensure a sufficient level of investments. As a result, this line of argument suggests that underinvestment might result in a failure to meet the security of supply obligations that regulatory authorities are supposed

to guarantee. Another prominent argument against the breaking up of integrated energy companies, that is, ownership unbundling, is related to the evolving demand side competition that characterises the political economy of international energy markets (Biol 2008). Furthermore the concentration of reserves in a few gas-producing countries, often linked to state-owned gas companies, alongside the growing demand in consuming countries, increases the negotiation power of the natural gas exporting companies vis-à-vis importing companies and countries. Accordingly a fragmented market structure, with relatively small companies and limited purchasing volumes, will most probably attract few natural gas contracts at favourable prices. This reasoning leads to a call to maintain or create market power through national or European champions.

Despite the different visions, practitioners and academics involved in energy governance tend to have a common goal: they are all in search of the optimal market design. To address this concern, let us start by reviewing the current status of European gas market regulation and then consider some of the obstacles to defining an optimal market design for European gas markets.

## European gas market regulation in a nutshell

Market harmonisation and integration were the key drivers behind the European gas reforms which aimed at creating a Europe-wide level playing field. However European legal

provisions gave considerable leeway to member states in establishing their own national regulatory regimes. As a consequence, the reform resulted in heterogeneous regulatory regimes across Europe. Recent research, published with the Gas Programme of the Oxford Institute for Energy Studies, analysed in detail the envisaged convergence of national regulatory regimes. This trend study took the European Union's Directives and preference statements as a basis to determine a best-practice model in terms of regulation-for-competition and developed a methodology to measure the member states' progress towards this best-practice (Haase 2008). In reality, reform in the old member states seems to be becalmed. The gas reform has resulted in widespread application of the demanded, as well as voluntary, regulatory instruments such as regulated third party access, entry-exit tariff structures, capacity provisions to prevent capacity hoarding, the so-called use-it-or-lose-it provision and so forth. Other instruments, however, enjoy less popularity. These include gas release programmes and the separation of the trade and network arms of integrated utilities in the form of ownership unbundling to prevent cross-subsidies and anti-competitive behaviour.

Practitioners and academics are in search of the optimal design for the European gas market

By 2005 only seven of the old member states had released gas formerly contracted by the incumbent onto the market. Two years later, only 10 out of 27 European countries

had implemented ownership unbundling.

Not surprisingly, ownership unbundling became one of the most contested measures that triggered the public debate accompanying the third energy package. Paradoxically the liberalisation of European gas markets has translated into the re-regulation of the sector. New governance arrangements are a central part of the gas reform on community, national and firm levels. Since 1998 the regulatory landscape across Europe has been transformed into a multi-authority structure for which the regulatory rules have been rewritten. National regulators, competition authorities and ministries, and their European equivalents, newly evolving European regulatory bodies such as the European Regulators' Group for Electricity and Gas, institutions like the Madrid Forum and industry associations form a complex system within which gas market regulation is evolving.

### European gas market governance is still under construction

The third energy package shows the governance structure to be in flux. If ownership unbundling is rejected, the most likely solution would seem to be the Independent System Operator (ISO) approach. Under this option, vertically integrated firms retain ownership of their pipelines and storage assets but hand over their management to an ISO to be established in each member state. Unlike the ownership unbundling option, the ISO option would be accompanied by a requirement to comply with a ten-year investment plan that would be proposed by the national energy regulator. Additionally the third energy package aims at establishing an Agency for the Cooperation of Energy Regulators (ACER) to extend cooperation among national regulators. The ACER should have some regulatory powers with regard to cross-border issues such as granting exemptions for infrastructure projects of European interest and deciding on a regulatory regime to be applied to infrastructure within the territory of more than one Member State. Furthermore the new agency should oversee cooperation

among transmission system operators (TSOs) in the form of a European network of TSOs, whose task may be to develop European grid codes and investment plans for interconnections.

So far the third package seems to be setting up an institutional structure, but without clarifying how the competences are divided between the new agency and the EC in detail. The EC reserves its right to make 'substantive decisions' and sees itself specifying the competences of the agency in the form of binding guidelines once it is established (EC 2007: 13). This ambiguity could become a potential source of regulatory uncertainty in the future. For the time being, the EC envisages the extensive use of guidelines, as regulatory tools, in proceeding with the regulatory reform process. In this way, the EC gains room and time for action without launching an extensive legislative procedure which a fourth energy package would require. In short, European gas market governance is still under construction.

### Optimal market design

The benefits of the gas liberalisation policy are highly contested. At the beginning, experiences stemming from the gas reforms in the United Kingdom (UK) and the United States inspired market designers. However, due to the severe malfunctions and overall complexity of the reform, observers sense a growing uncertainty as to whether the UK regulatory regime is appropriate as a basic model to apply to other European countries. Since UK natural gas prices have skyrocketed during recent winters, the opponents to liberalisation have been in the ascendancy. To put it provocatively, if the basic model is in danger of becoming a phased-out model, then we need to address the question of what the optimal design for gas market regulation in Europe might actually be.

One way to define the optimal market design is as the market design that achieves the reform objectives in the most optimal way. The goal of the gas reforms is to achieve reliable, sustainable and affordable energy for all consumers. The dilemma the reformers face is that rarely does a single or even a bundle of regulatory instruments serve all the objectives in the same way. On the conceptual level, a public regulatory approach tries

to capture this conflict between objectives by distinguishing between first-order economic objectives and second-order political objectives. Accordingly specific regulations might prioritise either achieving regulation-for-competition or safeguarding public service obligations such as security of supply or climate change, and this might be at the expense of the former. The European energy policy strategy does not clearly prioritise their three objectives. Only actual choices made in the application of regulatory instruments will reflect, retroactively, the relative importance attached to the objectives. As yet, there are no signs of any prioritisation within the European energy strategy.

When it comes to the effect of reforms on economic performance our knowledge is very limited

Another way to identify well-aligned modes of governance is taken from transaction cost theory. In this case, either one compares an idealised type of governance with an existing one, or one compares two existing ones (or an existing one with a recent historical example) and studies the effects on performance. The former is more of a theoretical approach favoured by academics, whereas practitioners are more prone to compare real cases. The latter would ideally involve a cost benefit analysis weighing the administrative costs of restructuring to optimise transaction costs (transaction cost efficiency) against the benefits stemming from an improved economic performance (effectiveness). What we have already seen is that the administrative costs attributed to the implementation of the gas reforms are enormous for both the regulatory side and for the regulated industry, although one searches in vain for precise figures.

Reform costs and benefits are rarely estimated and compared. In fact, even when it comes to the effect of reforms on economic performance our knowledge is very limited. Natural gas prices, for instance, are still oil-indexed. Given the absence of any gas-to-gas competition, the effect of liberalisation on natural gas prices is unclear. Network access, regulated tariffs and incentive regulations are

key measures if one is to introduce competition and reduce monopoly rents. Tariff regulation and incentive regulation encourage productive efficiency gains by reducing operational costs. The possible efficiency gains are limited because not all the operational costs, which contribute to rising costs, are controllable. For instance, the fuel costs for running compressors are largely beyond the control of firms and member states. The relatively moderate cost reductions achieved compared to the rise in household energy bills are rarely confronted with the administrative costs arising from the regulation itself. For this reason, voices are increasingly heard demanding a regulatory impact assessment to evaluate both the transaction cost efficiency and the effectiveness of the reform.

In terms of regulation-for-competition, the gas market reforms are becalmed in mid-channel

### Defining Europe's investment needs in a liberalised gas market

In its simplest form, security of gas supply is achieved when contracted volumes are securely delivered at competitive prices and thereby ensure that demand is met in a timely manner, now and in future. To safeguard security of gas supply, it is generally accepted that massive investments are necessary in the decades ahead. In the EU-15 countries between 2001–30, the estimated cumulative gas investments will amount to \$85–95 billion for distribution, \$50–75 billion for transmission, \$10–15 billion for storage, \$15–20 billion for liquefied natural gas re-gasification (International Energy Agency, 2003: 271). The challenge for the European Union is to optimise investment incentives in a liberalised market. A crucial, but also very difficult, task is to determine an objectively optimised investment level. In a monopolistic market structure, or with a regional market division involving a few companies, determining investment needs is relatively straightforward and aligned with the needs of the incumbent companies.

The traditional way to decrease uncertainty

has been to integrate vertically along the value chain or to establish long-term contracts which safeguard the return on investment. In a more competitive gas market, problems involving collective action arise as several shippers and at least one transmission system operator have to coordinate their potentially conflicting interests. The need for coordination exponentially increases if players are active in several countries. To try to overcome or prevent underinvestment in gas transmission networks, open-season procedures have been used. During this process, capacity requests from shippers are collected and the transmission system operator then decides, on the basis of this demand, how much and what sort of capacity is built and when. Only the future will show how successful the open-season procedures were in optimally matching demand and supply in a timely manner. Although open-season procedures do appear to be reasonable responses in channelling transport capacity demands towards investments, the structural problem of regulatory uncertainty is not fully resolved. After an investment is made, the regulator may, for instance, decide to revise the incentive regulation (for instance, the allowed rate of return) in such a way that the return on investment is substantially reduced or even turns into a loss.

The third energy package goes one step further than the open-season procedures by involving regulatory authorities more directly in the investment planning process. Adopting the ISO option, the designated independent system operator would need to comply with a ten-year investment plan proposed by the national regulator. Moreover, through the creation of the ACER, the EC aims to improve the interconnections among the various national markets. The agency will be mandated to facilitate exemption decisions concerning transnational investment projects. It will also review the investment plan that any European network of TSOs is expected to compile.

### The bottom line

In terms of regulation-for-competition, the gas market reforms are becalmed in mid-channel. European gas market regimes have not adopted a fully-fledged liberalised market

design, nor are they still organised according to the old model that favoured vertically integrated companies embedded in a monopolistic market structure. Attempts to designate an optimal market design, by comparing current market designs and their effects on administrative costs and thus on transaction cost efficiency and on effectiveness, are hindered because administrative costs and economic benefits have not been sufficiently researched. Europe-wide regulatory impact assessments could fill this gap and highlight ways to fine-tune or redesign the reforms. Further, it remains unclear how the re-regulation now taking place in the course of gas market liberalisation will develop. The third energy package strives for ownership unbundling in an attempt to boost regulation-for-competition. However, at the same time, the direct involvement of regulatory authorities, be it in form of national regulators or the ACER, in the investment planning process can be seen as a qualitative move towards a regulation-for-security-of-gas-supply approach. Although enhanced coordination between regulatory authorities and European TSOs across Europe promises to alter the incentives for investing, considerable regulatory uncertainty remains. ★

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