



“The State of the Internal Energy Market”

A panel debate jointly organised by Bruegel, CEPS and Ifri

The Energy Chapter of this year’s Annual Brussels Think Tank Forum will discuss where the EU is heading with its internal energy market. On the one hand, much progress has already been achieved with adoption of three legislative packages on market liberalisation; on the other hand, the deadline for completing the internal market by 2014 is fast approaching and many challenges remain. In addition, the medium and long-term decarbonisation targets of the EU will cause an even-closer interrelationship between electricity and gas markets, posing new questions as to the nature of this relationship and the required future market designs beyond 2014. This also brings the EU Emissions Trading System (ETS) into the equation, which was meant to be the principal tool of the EU to reduce its greenhouse gas emissions and thus to have significant impact on investment decisions in participating sectors (including the power sector). However, the ETS is currently characterised by over-allocation of emissions allowances resulting in allowance prices that are too low to drive low-carbon investment in Europe.

This discussion paper, which has been produced by three Brussels-based think tanks – Bruegel, CEPS and Ifri – highlight some of the key challenges and policy recommendations for the EU internal energy market, focussing on three separate – yet intertwined – issues: the EU electricity market, the EU gas market and the EU Emissions Trading System. The paper is meant as a basis for discussion at the Energy Chapter of the Annual Brussels Think Tank Dialogue 2013 to be held on 22 April 2013 in Brussels.

The EU electricity market

Georg Zachman, Research Fellow, Bruegel

More than 20 years after the 1992 proposal by the European Commission on the internal energy market, the ultimate scope of the European market for electricity is still unclear.

On the one hand, three legal packages on market liberalisation have been enacted. They contained important initiatives on restructuring the electricity sector, facilitating cross-border trade and creation of European institutions and processes. The full implementation of this legislation is expected to complete the internal electricity market by 2014.

On the other hand, the internal electricity market is – just one year before this deadline – still incomplete and at serious risk of disintegration. National transposition of European legislation is slow and harmonising seemingly minor technicalities proves complex in view of important redistributive consequences. At the same time, national sector rules increasingly determine investment, consumption and production decisions.

Numerous national policies targeted at domestic **investments** in specific technologies are distorting the internal market. National support schemes for electricity generated from domestic renewable energy sources, national mechanisms to motivate the availability of domestic generation capacity and national network development plans focused on domestic welfare will lead to costly over-redundancies and hence not result in a cost-effective European electricity system. Current and foreseen European legislation does not strive to coordinate, let alone harmonise, these national investment signals.

National policies targeted at altering the electricity cost for specific consumer groups strongly affect **consumption** decisions. Rules on network tariffs, energy taxation and the pass-through of costs related to (renewables) support schemes and capacity mechanisms vary markedly between member states. Thereby, different preferences in the individual member states with respect to industrial and social policy motivate different distribution of the cost of the electricity system between consumer groups. Consequently, European electricity wholesale price signals play only a minor role in triggering least-cost demand response or energy efficiency measures. The scope for a European coordination or harmonisation of electricity pricing is limited by a lack of member states' political will. Only rules that clearly discourage cross-border trade or constitute an undue state aid to domestic industries can be contested by DG Competition.

Even actual electricity **production** decisions are not fully based on European price signals. Several administrative reasons might be responsible for the counterintuitive effect that cheap power plants in one country might have to be switched off while more expensive power plants in well-connected neighbouring countries are still running. One reason is that important segments of the electricity sector such as ancillary services and balancing are not yet Europeanised. Hence, short-term deviations in the demand/supply balance cannot easily be resolved through purchases from neighbouring countries. Another reason is that the real-time operation of electricity systems typically occurs within national borders, even though national dispatch decisions strongly affect electricity flows through neighbouring countries. This requires unnecessarily high security margins that manifest themselves in artificial limits to cross-border trade and a suboptimal dispatch of available generation assets. Finally, in many countries wholesale electricity prices do not reflect the locational scarcity or abundance of electricity.

System operators have to revert to non-market interventions in order to maintain the system stability in view of limited transmission capacity. That is, when transmission lines become congested the operator administratively calls power plants to reduce/increase production or curtails imports/exports. Consequently, not only wholesale electricity market prices but also national sector rules are important determinants of electricity production decisions. The “target model” for the European electricity market foresees a higher degree of coordination and harmonisation of the rules governing balancing markets and cross-border trade. However, it is doubtful whether the inconsistencies arising from the fractioned operation of a meshed electricity system could be effectively resolved with more coordination alone.

In summary, the internal electricity market is at risk to end up as a hollow legal concept. At worst, electricity might *de jure* be traded at the wholesale level between Finland and Spain, while *de facto* national sector rules determine investment, production and consumption decisions. In this case the efficiency gains expected from increasing competition and a market-based European optimisation of investment, consumption and production decisions will not accrue.

Avoiding this scenario requires that the European legislator implements a European market design that meets the complexities of the electricity sector. This entails that: 1) responsibilities of the different actors reflect their physical capabilities and be harmonised across borders, 2) transmission networks are planned jointly, 3) the electricity system is operated jointly with price signals reflecting physical conditions and 4) technology support is harmonised. Finally, as it is unlikely that a fully consistent market design can be developed that is able to cope with all present and upcoming challenges, the sector needs a governance structure that ensures predictable decisions in a volatile environment.

All these elements potentially entail significant redistribution effects between actors and countries. Consequently, a substantive compromise will be very ambitious politically. As long as major actors – that are very active in lobbying individual governments and regulators for preferential treatment – are unwilling to actively advocate a deep internal market, such an ambitious overhaul of the internal electricity market is bound to fail.

Internal gas market

Laura Parmigiani, Research Fellow, Ifri

Largely unknown to the European public, the European gas market has been developing for several decades a network of hundreds of kilometres of pipelines connecting European, non-EU member countries and customers. With 77 internal cross-border points and 25 interconnections with third countries, the European gas market has always been characterised by a transnational dimension. With domestic production lowering each year, the European gas market has been increasingly relying on foreign imports. However, several disruptions in the gas supply due to political tension in transit and producing countries (and especially between them) have showed regional diversities and the need to further integrate the single gas market to answer these challenges.

Acting both at infrastructure level, through reverse flows and new pipeline projects implementation, and at market level, with the creation of common rules at cross-border interconnection points, the European gas market is creating the basis for a more reliant system.

With internal consumption plummeting (for several reasons: overall economic slowdown, use of cheap coal freed by the United States shale gas revolution for electricity production), competition for LNG increasing in the Asian market and the need for cheaper energy to boost the recovery of the European economy, the European gas market is facing deep challenges. These affect the **market model** behind the creation of a common gas market, making **regional differences** apparent and calling for a **stable framework** supported by political will.

The need for a liberalised European gas market should not be mistaken with the pursuit of a perfect **market model**. Gas disruptions underlined both the need for an internal market based on more solidarity and help mechanisms and the dependence on external gas supplies produced by few state-owned companies with political agendas. Taking into account the oligopolistic and geopolitical dimension of this sector is vital for the creation of a secured system.

The liberalisation process, through unbundling measures and push towards a system based on transparent wholesale markets, should not be seen as an end in itself but rather a mean towards more competitiveness. Creating liquid and transparent wholesale market can foster price signals and competition among different actors, but it should not be considered as the only way to supply the market. A too short-term vision (which is often connected to the creation of wholesale spot markets) might hinder the still fundamental need of long-term contracts to support a sector based on long-term investments. Plus, spot markets cannot entirely provide the security of supply and stability often requested by final consumers.

The current market situation (abundance of gas and low demand) makes contradictions apparent, in particular at **regional level**. The fact that gas does not flow from cheaper to more expensive locations (the most expensive gas is found in many south-eastern member states) shows two key realities.

The first one is that many barriers to market opening still exist. Different rules for capacity allocation are applied on both side of the same cross-border interconnection point and network tariff systems differ from system to system. Besides, reverse flow was not physically possible for many cross-border points, only offering a commercial solution (backhaul). The security of supply Directive (2009) fostered the creation of reverse-flow in many cross-border points (with investments in compressor stations and pipelines enhancement). With European Network codes setting common rules that

harmonize the use of capacities at interconnection points, reverse flows can now be effective and facilitate market access to national systems for all operators.

Regulatory intervention is thus helping to free up capacity at interconnection points in order to increase exchanges and therefore increase the offer in case of disruption.

However, although this process was much needed, it revealed that it is not sufficient to diversify actors and secure supply in some member states. South-eastern countries cannot entirely rely on the creation of a functioning internal market or market-only instruments to generate diversification, as most of these countries do not represent big enough markets to attract new private investors.

The need for a **stable and reliable regulatory framework** (with strong political support) is not only important for taking infrastructure investment decisions, but it could stir investments in domestic upstream too. A stable and common regulatory framework may then also increase the business case for exploiting indigenous gas resources in Europe, as the single market should ensure market access and investment protection.

Recently the prospects of potential exploitation of indigenous sources of natural gas in Europe, especially shale gas, have taken centre stage in a number of member state capitals. A strong political signal is required, however, to effectively trigger investments. The US shale gas revolution might not be reproduced, but gains in competitiveness and security of supply in countries where these resources are located should be considered.

Following the application of several directives and regulations, the structure of a more liberalised and integrated market is progressively taking shape. The resulting fluidity within and among countries, in particular at cross-border interconnections points, must then be able to answer key challenges, namely security of supply needs by easily handling reverse flow, a greater flexibility in an increasing intermittent demand (due to a change in the use of gas-fired power plants to support intermittent RES power generation) and the integration of potential domestic production coming from unconventional resources.

While these developments may somewhat mitigate the EU's rising import dependence on natural gas, in all of the mainstream energy scenarios the EU will continue to import most of its natural gas from third countries. Without adding this external component to the equation, the whole structure of the internal gas market might vacillate and eventually collapse.

The EU Emissions Trading System

Andrei Marcu, Senior Advisor and Head of the CEPS Carbon Market Forum

The end of 2012 represented an important moment with respect to the evolution of the carbon market. There have been changes in many dimensions, including a new direction for global climate change discussions, which will have a significant impact on carbon markets in general, including the functioning, and the future, of the EU ETS. Carbon markets will have to cope with this new reality, and adapt to it.

The COP in Doha represented the start of the final phase of the old, top-down style Kyoto Protocol (KP)-type agreement, which has now a finite life to 2020. At the same time, it also completed the process that started at the Montreal COP in 2005, which set the basis for developing countries to also get involved in mitigation action. The KP only required developed countries to take action. This should culminate with a new agreement in 2015, to be implemented starting in 2020, that will see all countries take some form of action.

At the macro level, January 2013 represented the start of the third trading phase of the EU Emissions Trading Scheme (EU ETS), and the start of the second commitment period of the Kyoto Protocol, with the Clean Development Mechanism (CDM) and JI continuing.

At the same time, new markets mechanisms, sectoral crediting and trading, are being developed internationally, under the impulse of the EU, which is seeking ways to go beyond offsetting, and ensure that all countries contribute to mitigation efforts. It also represents the start of the new pricing mechanism in Australia, the start of carbon trading regimes in California and Quebec, as well as the important announcement that Australia and the EU will link their respective ETSs.

While at the macro level things look positive in early 2013, we are also engaged in a deep reflection on the functioning, and in some cases, the future, of those mechanisms that have a track record: the EU ETS and the Kyoto market mechanisms (CDM and JI). This discussion must be based on the experience gained, and the emerging profile of the new climate change architecture, outlined above.

However, a fair question is: “What is the track record, and the state of the of the carbon market, seen from the perspective of the EU, and its flagship programme, the EU ETS?”

The thesis that we put forward is that we are in a **period of transition**, and that markets are unsettled, as the surrounding conditions are also unsettled. We are negotiating a new climate change regime, developing new mechanisms and new roles for existing mechanisms.

We are also still coming to grips with one of the most severe economic and financial crisis in the last 80 years, which has shaken all assumptions around which the carbon markets had been defined and built.

Finally we are witnessing a historical globalisation and economic and political re-alignment that has made the old definitions of North/South and developed/developing definitions obsolete.

CDM, has done better than expected, having registered 6,649 projects which resulted in almost 1.3 billion tonnes of reductions worldwide, according to the UNFCCC, 2013. Its role has been largely tied to the EU and EU ETS, which has provided the main market for its products – project-by-project reductions. Its products have produced a profound change in the developing world with respect to the value of mitigation efforts, but some of its projects have been challenged, including by EU policy-

makers and stakeholders. To some degree, it has managed to move beyond its difficult regulatory beginnings.

However, in keeping with the evolution of climate change, the EU feels that we have passed the phase of the ‘offset model’, and has severely limited the amount of offsets it will allow in the EU ETS post-2013. Sending money in the shape of carbon finance aid to help others develop was acceptable, but providing carbon finance to subsidise competition is not acceptable, especially in an era of economic stress.

It was expected that the carbon market would be, to some degree, a learning-by-doing exercise. This is where the EU ETS has taught many lessons that other ETSs have tried to apply. But the EU ETS itself is now under pressure to be a good pupil, and do a reality-check on itself.

The EU ETS is entering the third stage of its existence under severe stress. The cure is so much more difficult to prescribe, as there is no agreement if the patient is really sick. Different stakeholders cannot agree on the purpose of the EU ETS and this must be solved.

For some, the unstated objective of the EU ETS was to drive not only operational change, but also a technological revolution. For others, the GHG market is a technologically neutral instrument of price discovery, helping to minimise the overall societal costs of compliance with GHG obligations. In this view, lower carbon prices are a good outcome.

However, it must be emphasised that the problem referred to addresses the reduction of GHG emissions from anthropogenic sources by 90% in 2050, and not only the shorter term objectives.

The market created by the EU ETS has functioned well, as measured against some of the criteria that reflect good market functioning, including: a credible level of periodic scarcity in the market; the presence of liquidity in the market, with many market participants; a tight spread between bid and ask prices; the ability to enter and exit the market at all times; adequate market transparency and information; and the fact that the market is not driven by market power.

The apparent symptom is low carbon prices, which have tumbled to a record low of less than €3 earlier this year. The recent report of the European Commission (2012)¹ entitled “State of the Carbon Market” cites an accumulated surplus of 955 million allowances by early 2012 and the surplus at the start of phase 3 could be well over 1.5 billion, if not higher.

Moreover, a large inflow of new supply is expected in 2013-14, due to a number of factors, including early auctioning, national NER (new entrants’ reserve) that will likely be auctioned and some CERs (industrial gases) that will come in large quantities as their usefulness comes to an end in April 2013.

There are a number of **issues**, real or perceived, **that need to be addressed in the EU ETS:**

- a) A significant oversupply in the market that may linger beyond 2020,
- b) A large supply coming in 2013-14,
- c) An inflexible ETS on the supply side, which may require future interventions and the need to introduce some measure of flexibility,
- d) The cohabitation between the elements of the EU Climate and Energy Package that provide a much higher shadow price for carbon and overlapping incentives for GHG reduction and

¹ European Commission (2012), “The state of the European carbon market in 2012, Report to the European Parliament and the Council, COM(2012) 652 final, 14 November, Brussels.

- e) The need to provide for longer-term structural changes that will affect the EU ETS, including other policies and measures that may be needed to accompany the ETS in some areas.

Another issue that needs to be clearly defined is that of the time horizon for a price signal from the EU ETS. It is clear that the EU ETS provides a short-term price signal that will influence operational change and help with the deployment of existing technologies. Is however the EU ETS, or for that matter any GHG ETS, an appropriate instrument to provide the long-term price signal, which is so necessary for capital investment and innovation?

It is clear that, as in other commodities, the forward curve for carbon will only be visible for a few years in the future. But, also as in other commodities, it is the expectation that the future price, driven by a credible future scarcity and informed by current prices, will provide the long-term signal. The long-term scarcity is in doubt right now in many quarters.

We therefore can conclude that the ETS could provide a long-term price signal, but there needs to be increased political credibility attached to the EU ETS. This does not in any way negate the need for other complementary policies and measures.

Essential reading

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