

Regulating Energy Markets: A Regional Approach

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Schimbările structurale ce au loc pe piața energiei în ultimele decenii sunt de natură a spori rolul serviciilor din domeniu, de a stimula dezvoltarea unor piețe competitive pentru petrol, gaze, electricitate etc. și de a crea condiții favorabile pentru negocierea produselor energetice într-o bursă de energie. Cele mai importante provocări la care trebuie să răspundă o astfel de bursă, ca de altfel oricare altă instituție similară, sunt: identificarea categoriilor de produse ce pot fi introduse pe această piață și modalitatea de organizare, din punct de vedere procedural, a tranzacțiilor. Pentru construirea unui mecanism performant, e necesar ca aceste decizii să fie adoptate numai după consultarea cu toate categoriile de operatori ai domeniului.

Abordarea regională a ofertei de energie oferă avantaje semnificative, atât în termeni de îmbunătățire a utilizării capacităților de producție și a ofertei existente, cât și în ceea ce privește optimizarea unor investiții viitoare.

Prezintă o deosebită importanță stabilirea modalității corecte privind reglementarea domeniului, astfel încât să fie corectate imperfecțiunile piețelor, evitând, în același timp, adoptarea unor măsuri care ar putea crea disfuncționalități suplimentare.

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In the 1980s a combination of economic, political, and technological factors dramatically altered the market arrangements in the energy sector.

Through much of the twentieth century, state monopolies or private companies with exclusive franchises primarily supplied energy-related services. Many of those companies were vertically and horizontally integrated and were subject to restrictive regulation.

Under such market arrangements, buyers and sellers were constrained in domestic and cross-border trade. Energy tended to be sold on the basis of long-term contracts, with prices that were relatively stable but also opaque along the energy value chain, particularly for gas and power where consumers had little, if any, choice in how they contracted their energy needs.

Those conditions not only skewed incentives and limited competition but contributed to sizable economic welfare losses to countries that could not secure the most competitively priced energy to drive their economies.

By the end of the 1990s nearly all member-nations of the OECD and a growing number of developing countries had begun to restructure the energy sector: the initiatives aimed at privatizing some or all state-owned energy companies.

Many countries established new market rules designed to increase competition and provide consumers with greater flexibility in meeting their energy needs. The privatization and liberalization created incentives for outsourcing services on a competitive basis.

Thus, market players had incentives to expand trade in energy and abandon fixed long-term contracts in favor of shorter-term contracts linked to spot and futures markets.

And, as energy trading increased and markets became more liquid, more innovative pricing options and financial instruments developed to manage price risk over time.

Together, all those structural changes increased the international role of energy services, supported increasingly competitive physical markets for oil, gas, electricity, and other energy products and, consequently, created favorable prospects for energy trading on Energy Exchanges.

There are two important issues worth mentioning here:

the total business turnover of energy products in 2004 approximated 2.6 trillion USD, making energy the world's largest industrial sector.

at world level, it is becoming obvious that the most prominent issue related to the energy market is not connected with the physical shortage of supply any more, but with the challenges of ensuring, in a world where demand and supply are not co-located, that there will be sufficient traded energy products to meet rising demand.

This could be achieved through regulatory reform, that

contributes to the development of a competitive energy market. Domestic regulation often acts as a barrier to international trade and investment; removing trade-impeding price regulations, market entry barriers and other restrictive practices can generate significant economic benefits

and, based on this, provides opportunities for trading oil, gas and power in open markets. After markets are liberalized and barriers to accessing energy networks are reduced, trading volumes tend to increase dramatically.

We will shortly address those issues separately:

The issue of domestic regulation

The use of different types of energy (natural gas, gasoline, electricity, crude oil etc.) involves different market structures and different potential market failures (natural monopoly, negative externalities, asymmetric information). It is very important to

establish how to design regulations to address market failures in energy markets, while minimizing disruptions to the market.

The key points in this matter are:

- markets generally work well for energy products, which in most ways are like other products in the economy. While some aspects of energy markets may require regulation, most segments of these markets function well without regulation;
- EU and local regulations can have conflicting goals. If the conflicting goals are not balanced, competing regulations could lead to worse problems than the market failures the regulations attempt to address;
- regulations need to be updated as markets evolve over time to ensure that the original goals still apply and that these regulations are still the lowest-cost means of meeting those goals.

While a mix of market forces and well-designed regulation can lead a market with market failures to perform more effectively and efficiently, improper regulation can lead to worse outcomes than even an imperfect market without regulation. The market for electricity is a case in point.

Regulations in the electricity market continue to impose barriers to competition and, thus, to increased efficiency. The regulatory structure may not encourage regulators in one jurisdiction to take into account the full effects of their actions on the rest of the transmission grid because the regulatory system is based on an industry structure that no longer exists or will not exist in the future. For example, the transmission grid crosses state boundaries, so what happens in one state affects the residents of other states. However, state regulators might not consider the costs and benefits of their actions on citizens of other states. As a result, regulation of the transmission grid has not kept up with changes in the market.

The current mix of regulations has facilitated increased use of transmission capacity, but has not done enough to encourage companies to invest in building new capacity. For example, some state and local regulations have discouraged the construction of new local facilities, thus encouraging increased transmission from more distant locations.

State deregulation may also give local utilities the incentive to import lower cost electricity from generators in other states. The growth of interstate transmission of electricity has increased the need for EU and local governments to coordinate their regulations that affect the interstate transmission grid.

Another problem with existing regulation is that, usually, state and EU regulators approve transmission rates to provide the owners of transmission lines a fixed rate of return, but the chosen rate may not be high enough to encourage firms to invest in sufficient new transmission capacity. One factor that is not fully considered in rate-of-return calculations is the lengthy and uncertain permitting process that requires companies to deal with multiple regulators. Because these costs are not fully accounted for, the effective rate of return is often too low to attract investment. Such regulatory uncertainties are just one of many factors that make investing in new transmission capacity risky.

As a partial conclusion, regulations can improve the performance of energy markets by addressing market failures such as externalities and market power. However, it is essential to design regulations to address these potential market failures without reducing the benefits from markets. A supplementary complication occurs when the goals of state and EU regulators conflict. Regulators should adjust the rules as markets evolve and ensure that the regulations' goals are achieved. Finally, regulators should be careful not to adopt regulations that cause more harm than the potential market failure.

The issue of trading in energy products – regional aspects

Improving the balance between energy supply and demand is crucial to boost and sustain economic development in South Eastern Europe.

This requires a strong commitment by the countries of the region towards market oriented reforms in order to:

- improve overall energy conservation and efficiency;
- reduce an excessively high energy intensity of production compared to international standards;
- strengthen national institutional capacities and adapt legislation and regulation to EU norms and practices.

It also means that countries should be prepared to draw fully on the substantial gains which can result from energy trading among themselves and with their neighbors.

This implies that the current fragmentation of energy supply can be overcome through cooperation among the various entities concerned and through physical connection/reconnection of the network.

A regional approach to energy supply, therefore, offers significant advantages both in terms of improved utilization of existing supply and production capacities as well as optimizing future investments. Major steps have already been taken over the last couple of years towards achieving these objectives in both the electricity and natural gas sectors.

Building on the signed Memoranda of Understanding 2002 and 2003 (the so-called Athens Memoranda), the European Council invited the European Commission to enter into negotiations on a binding treaty establishing the Energy Community (that was known, until June 2004, as "The South Eastern Europe Regional Energy Market" and after October 26, 2005 as "Treaty establishing the Energy Community").

The Energy Community thus might include the territory of the European Community and the territories of the Republic of Albania, the Republic of Bulgaria, Bosnia and Herzegovina, the Republic of Croatia, the former Yugoslav Republic of Macedonia, Serbia - Montenegro, Romania, the Republic of Turkey, and the United Nations Interim Administration Mission in Kosovo pursuant to the United Nations Security Council Resolution 1244.

The development of the Regional Electricity Market is coordinated by the European Commission and the interim Energy Community Secretariat (iECS).

The electricity sector in South East Europe has a medium to long term regional reform plan, which is set out in the Athens Memorandum of Understanding, signed in November 2002.

Under this MoU, full members of the Energy Community were obliged to implement national legislation creating electricity regulators and transmission system operators by June 2003 and to open the market for all non-domestic consumers by June 2005.

This reform plan was extended to cover the natural gas market under the Athens 2003 Memorandum of Understanding, which obliges full members of Energy Community to implement national legislation in accordance with Directives 2003/54/EC (electricity), 2003/55/EC (gas), 85/337/EEC (environmental impact assessment) 1999/32/EC (reduction of sulphur content of fuels) and 2001/80/EC (Large Combustion Plants). Legislation was required to be adopted by 1 July 2005, though the timetables for implementation may be later than those applying to EU Members.

The major commitments were:

- to create a regionally integrated energy market for electricity and natural gas networks and to integrate that market into the wider EU market;
- to establish common rules for generation, transmission and distribution of electricity;
- to similarly establish common rules for the transmission, distribution, supply and storage of natural gas;
- to establish state level national energy authorities, regulators and transmission system operators;
- to establish compatible state and regional electricity and natural gas market action plans;
- to set up regional level dispute resolution mechanisms;
- to open the markets in line with EU commitments but with a suitable transition period (all non-domestic markets are projected to be open by 2005);
- to initiate unbundling of integrated utilities;
- to establish transparent authorization procedures for new infrastructure;
- to implement anti-corruption programmes;
- to implement grid codes and other technical and commercial codes that are necessary for the functioning of the market; and,
- to promote regulated third party access, tariff systems that encourage trade, and technical codes necessary for the operation of a trade based regional system.

Benchmarking this process is under way. Action Plans for long term implementation of the Regional Electricity Market are being drafted at regional level by the Council of European Energy Regulators and at national level by Europe Aid contractors on behalf of the European Commission for implementation from 2004.

The aim is to bring national legislation of the member countries in line with EU energy legislation as soon as possible, as a first (sectorial) integration of policy in line with the longer term full integration of all legal and economic policy.

The challenges of creating an Energy Exchange

The concept of an Energy Exchange is a consequence of the liberalized energy market. In fact, it is a forum, either physical or electronic, that brings together buyers and sellers of specific commodities and their derivatives, for purposes of matching them together (typically, an exchange acts as a third party guarantor for such deals by requiring the posting of collateral, while establishing and enforcing market rules that ensure liquidity and fairness).

The specificity of this kind of market is that in a transaction the receiver accepts delivery of energy for a supplier's account and returns energy later at times, rates, and in amounts as mutually agreed, according with the contract specifications. So this market is a special type of Commodity Exchange.

A primary condition for the establishment and functioning of an Energy Exchange is, as argued above, the existence of a fully liberalized primary market.

Then, access for all market players (domestic and foreign operators) should be granted: small electricity utilities, as well as big electricity traders and industrial consumers can use the advantages of trading at the exchange; thus, access should be ensured for any company that wants to take an active part in the national, regional or EU energy market.

There are other two important issues that must be considered: 1) which products should come onto the market, and 2) how the trading procedures should be organized. It is necessary for the performance of the mechanism that decision upon those aspects is taken after consultation with both domestic players and foreign electricity traders.

1) with respect to products, an interesting example might be that of electrical energy i.e. the generation or use of electric power by a device over a period of time, expressed in megawatt hours (MWh) or gigawatt hours (Gwh).

For the Exchange, each of the 24 hours of the day is defined as an hourly trading product. This means that market participants can balance their daily demand (purchasing or sales portfolio) in the best possible way by trading at the Exchange.

The minimum trading volume needs to be fixed, for example at 1 MWh. In this case, further volumes may be traded in 0,1 MWh-steps.

Some frequently utilized ways of buying/supplying electrical energy are:

Economy Energy - electrical energy produced and supplied from a more economical source in one system and substituted for that being produced or capable of being produced by a less economical source in another system.

Emergency Energy - electrical energy purchased by a member system whenever an event on that system causes insufficient operating capability to cover its own demand requirement.

Firm Energy - electrical energy backed by capacity, interruptible only on conditions as agreed upon by contract, system reliability constraints or emergency conditions, and where the supporting reserve is supplied by the seller.

Non-firm Energy - electrical energy that may be interrupted by either the provider or the receiver of the energy, by giving advance notice to the other party of the transac-

tion. This advance notice period is equal to or greater than the minimum period agreed upon in the contract. Non-firm Energy may also be interrupted to maintain system reliability of third-party transmission providers. Non-firm Energy must be backed up by reserves.

Off-Peak Energy - electrical energy supplied during a period of relatively low system demands, as specified by the supplier.

On-Peak Energy - electrical energy supplied during a period of relatively high system demands, as specified by the supplier.

2) in terms of trading procedures, the best solution would be to organize both cash (spot and forward) and derivatives trading in an open outcry and/or electronic system.

In case of the existence of cash contracts only, an OTC market could also be organized.

If the decision regarding trading procedures involves setting up derivatives, which is recommendable, there is a requirement to comply with regulated market conditions, in accordance with the national regulatory framework.

In the same time, in our opinion, the best trading proceeds can be obtained based on the Double-Auction-Bidding concept – that is to say buyers and sellers are equal trading participants and can place both buy and sell orders at the same time. Individual orders are recorded in a closed order book in such a way that the market participants cannot see each other's orders. An auction is held at a specific time on exchange days. The market participants are informed immediately after the auction on the prices per product calculated in the auction (market clearing price) as well as on their allocation of volumes. The physical fulfillment of deals takes place the next day (day-ahead-trading).

The main goal in setting up the trading system with an auction procedure is bundling liquidity. In addition, trading activities are more efficient because there is less work involved in closing deals than in bilateral trading.

The Energy Exchange's neutral position, the guaranteed anonymity of the orders and the immediate publication of price information ensure the fairness of the market as a whole.

In any of these cases, a viable clearing and settlement system as the Central Counter-party (to guarantee fairness and security, assuming the financial risk of default by sellers and buyers and assure the anonymity of deals concluded) should be created. Because it adheres to strict legal regulations and continually monitors all criteria, the Central Counter-party can and must be a reliable partner for each market participant in each deal concluded at the Exchange.

Hence, the Exchange should be an organized trading place with simple and strictly controlled procedures.

In our opinion, an electronic trading system based on Internet access would be the best solution in this context because:

the necessity of technical means for the participants is minimal: for the connection to the trading system they would only need a simple PC or workstation with Internet access; the trading system will then be accessed via the homepage, through an access point called "operator access", for example. In this respect, they can receive from the Exchange, before trading starts, a specific PIN code and/or key fob for access, which is necessary for an authorized login;

it is a quick, uncomplicated connection, which is independent from the location; implies low costs;

there is no need to install a specific exchange infrastructure at the traders' end;

it ensures reliable and safe communication with security tools;

an export function enables the electronic transfer of the confirmed trades at the user and further processing;

for the bid-submission, in order to participate in the daily auction, it is also possible to simply introduce the data into the trading system for a direct submission.

An Energy Exchange, in any jurisdiction, would normally require a license for business activities as Commodity Exchange. In the same time, it would need to have an authorized clearing and settlement party for energy products and also authorized operators.

If the Exchange decides to set up transactions with derivatives, it is compulsory to be organized like a regulated market, according with both EU and domestic legislation, in most cases.

In our view, if cash market is expected to be successful, it would be a loss not to launch derivatives, including options contracts, that could be extremely useful for the consumers during the on-peak periods, and spread contracts; both can be employed for hedging and investments alike.

Future challenges for regulators

The determination of challenges that the establishment of an energy market faces resides in the clarification of two important aspects

a. on one hand, the role of the independent regulator of the primary energy market, in case of full liberalization

b. on the other hand, the additional tasks of the Commodity Exchanges regulator, determined by the specific characteristics of an Energy Exchange.

a.) Energy sources have changed as society's needs have evolved over time. Wood was replaced by coal, which was replaced by petroleum. Eventually, the energy market may evolve to include substantial energy production from new sources, such as renewable energy, hydrogen, or nuclear fusion.

Government policy can help move this evolutionary process forward by encouraging research in new energy technologies. However, forcing the transition to new technologies before the market signals that old technologies should begin to be phased out could involve tremendous costs to society. There is a role for government in

subsidizing research and development into new energy sources. Thus, policy makers should avoid forcing commercialization of new energy sources before market signals indicate that a shift is required. One potential problem with forcing this process is that technological breakthroughs may lead to alternatives that are not seriously considered today.

Premature adoption of new technologies would raise energy costs before the need arises, causing society as a whole to spend more on energy than needed, a misallocation of resources that would hurt the economy.

b.) The regulator for Commodity Exchanges should fully cooperate with the primary market authority in order to, at least and for the moment:

- grant free access to the market for qualified and/or authorized operators;
- establish the products that are allowed to be traded;
- supervise transactions with derivatives;
- monitor the functioning of the clearing and settlement mechanism.

The competitive transformation of the energy industry holds the potential to meet the demand for energy more efficiently and cost-effectively. It also holds the potential for greater innovation in the way energy services are bundled and delivered, which can yield cleaner, more reliable, and more reasonably priced energy. Increasingly, developed and developing countries are recognizing that the benefits of market allocation depend on establishing fair and effective administrative rules and regulations not only in the domestic context but also for international trade.

As global demand for energy continues to grow over the next decade and as markets become more open and competitive, the role for energy trading will likewise continue to increase. The regional supply will be particularly important in oil and gas exploration, power generation, energy trading and marketing, transportation and transmission networks.

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