

## MANAGEMENT OF ELECTRICITY MARKETS IN EUROPEAN UNION

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### ABSTRACT

The paper presents the main objectives of Europe's energy policy, the general measures necessary to complete the internal gas and electricity markets and the concrete measures to ensure that European Union's internal energy market guarantees security of supply and solidarity between Member States. There are also presented the guiding principles that the approach to information management and market transparency should be based on. To ensure that all Europeans enjoy access to energy at reasonable prices we think that it is necessary to establish integrated and competitive electricity and gas markets, promote efficient energy services and diversify the energy mix. We propose some measures that should be taken in order to achieve the goal of a genuine single market at European Union level, actions to stimulate investments in infrastructure and generation capacity and measures to prevent energy supply crises and to manage energy supply crises if they do occur. Further, we analyse the Romanian power market evolution since 2000 taking into consideration the fact that the strategic objective of the Romanian Government is to assume the role of Regional Exchange in the South-East European region.

### KEY WORDS

Management of electricity markets, energy policy, energy mix, integrated electricity markets, competitiveness.

### 1. Introduction

Europe is facing today a number of challenges in the energy field: the ongoing difficult situation on the oil and gas markets, the increasing import dependency and limited diversification achieved so far, high and volatile energy prices, growing global energy demand, security risks affecting producing and transit countries as well as transport routes, the growing threats of climate change, slow progress in energy efficiency and the use of renewable energy sources, the need for increased transparency on energy markets and further integration and interconnection of national energy markets with the energy market liberalization nearing completion (July 2007), the limited coordination between energy players while large investments are required in energy infrastructure. Leaving these challenges unaddressed has a direct impact on the European Union environment, jobs

and growth potential. [1] Therefore, a common approach to energy is needed to equip the European Union to play a full role in global markets, to improve sustainability in the EU and globally, internal market functioning, stability in the EU and neighboring markets, to reflect the strategic role of energy in achieving other political objectives.

### 2. Europe's energy policy

In a world of global interdependence, energy policy necessarily has a European dimension. **Europe's energy policy** should have **three main objectives** [2]:

- **Sustainability:** developing competitive renewable sources of energy and other low carbon energy sources and carriers, particularly alternative transport fuels, curbing energy demand within Europe and leading global efforts to halt climate change and improve local air quality;
- **Competitiveness:** ensuring that energy market opening brings benefits to consumers and to the economy as a whole, while stimulating investment in clean energy production and energy efficiency, mitigating the impact of higher international energy prices on the EU economy and its citizens and keeping Europe at the cutting edge of energy technologies;
- **Security of supply:** tackling the EU's rising dependence on imported energy through:
  - An integrated approach – reducing demand, diversifying the EU's energy mix with greater use of competitive indigenous and renewable energy and diversifying sources and routes of supply of imported energy;
  - Creating the framework which will stimulate adequate investments to meet growing energy demand;
  - Better equipping the EU to cope with emergencies;
  - Improving the conditions for European companies seeking access to global resources;
  - Making sure that all citizens and business have access to energy.

To achieve these objectives, it is important to put them in an overall framework. This could be augmented with a **strategic objective** which balanced the goals of sustainable energy use, competitiveness and security of

supply; for example, by aiming for a **minimum level of the overall EU energy mix to come from secure and low-carbon energy sources**. This would combine the freedom of Member States to choose between different energy sources and the need for the EU as a whole to have energy mix that, overall, meets its three core energy objectives.

The Green Paper „*A European Strategy for Sustainable, Competitive and Secure Energy*” puts forward a number of concrete proposals to meet these three objectives:

1. The EU needs to complete the internal gas and electricity markets;
2. The EU needs to ensure that its internal energy market guarantees security of supply and solidarity between Member States;
3. The Community needs a real Community-wide debate on the different energy sources;
4. Europe needs to deal with the challenges of climate change in a manner compatible with its Lisbon objectives;
5. A strategic energy technology plan;
6. A common external energy policy.

In order to **complete the internal gas and electricity markets**, action could include the following measures:

- The development of a European Grid, including through a European grid code. A European regulator and a European Centre for Energy Networks should also be considered. In order to develop a single European grid, a "European Grid Code" should contain in our opinion ***security rules, Balancing rules, capacity allocation rules (congestion management) and transparency rules***;
- Improved interconnections;
- Creating the framework to stimulate new investment;
- More effective unbundling;
- Boosting competitiveness, including through better coordination between regulators, competition authorities and the Commission.

Concrete measures to ensure that **European Union's internal energy market guarantees security of supply and solidarity between Member States** should include:

- A review of the existing Community legislation on oil and gas stocks, to focus them on today's challenges;
- A European energy supply observatory, enhancing transparency on security of energy supply issues within the EU;
- Improved network security through increased cooperation between network operators and possibly a formal European grouping of network operators;
- Greater physical security of infrastructure, possibly through common standards;

- Improved transparency on energy stocks at the European level.

At present, the level of market transparency - and the extent to which market information is made available to market participants and the general public - varies significantly across the different jurisdictions in the EU. So far no comprehensive minimum transparency criteria across the Internal Electricity Market have been established. In order to support the further development of the Internal Electricity Market, it is essential that a *consistent approach is defined to the provision of market related information* to wholesale market participants (and the general public) across Member States: suppliers, generators, energy traders, large customers and demand side participants. *Market information should be made available to all market participants and the public in general in a timely, simultaneous and non-discriminatory manner.* [3]

Market participants - generators, traders and retailers - base their commercial strategies on their expectations of demand and supply fundamentals (e.g. generation capacity and demand growth and fuel price developments), on an analysis of the impact of events (e.g. the unavailability of generating units) on market conditions and on the expected state of the transmission system (e.g. available transmission capacity between different areas). The availability of historical data on a consistent basis and the timely disclosure of current data are therefore essential in two respects. On the one hand, the analysis of past patterns can provide essential indications about the way in which specific events affect market conditions. On the other hand, timely availability of information is essential for predicting the future evolution of market fundamentals, and in revising such expectations. *Greater information availability improves participants' understanding of markets and their ability to predict future developments, thus reducing the uncertainty involved in market participation* [3].

*Greater information availability also reduces the information advantage that incumbents typically enjoy.* For example, the level of availability of power generation units may significantly impact the supply-demand balance in the market and therefore the equilibrium price. Each generator would have direct information on the current and expected availability of its units and larger generators would control information on several units, the availability of which may have a considerable effect on the market price. Substantial effort is currently being put into trying to overcome the information disadvantage of smaller players in electricity markets, through costly and inefficient means. The disclosure of information on operational conditions of power generating units on a timely and non-discriminatory basis is an effective way of preventing larger generators from enjoying a disproportionate information advantage over other participants.

Less uncertainty and a more level-playing field between different agents *promote market participation*,

especially by smaller players and new entrants, *increasing competition and liquidity of markets*.

*Greater information availability and market transparency also facilitate the monitoring of market developments* not just by regulatory entities, but also by a wider range of stakeholders. Therefore, greater transparency should increase the probability of detecting any abuse of market power or other forms of non-competitive behavior, thus discouraging these practices. It should also reduce opportunities for insider trading. The result is increased trust in markets and, again, the promotion of their liquidity.

**The approach to information management and market transparency should be based on a number of guiding principles.** First of all, in order for the information made available to market participants to be readily and effectively usable, *this information should be provided according to consistent minimum standards across all Member States* with respect to [3]:

- *Coverage* - the minimum set of information, which is made available in a Member State or control area, should not depend on the structure of its electricity sector. Individual Member States should then be allowed to require additional information being made available, taking into account the specific factors which may affect market developments in each jurisdiction;
- *Level of detail* – the information should be made available according to the same minimum standard of detail in all Member States, again irrespective of the structure of the electricity sector;
- *Definition* – the information should be published according to common definitions in all Member States so as to facilitate its use by market participants and other interested parties across the EU;
- *Time resolution and updating frequency* – similar information related to different Member States or control areas should be provided according to the same minimum standards of time resolution and updating frequency;
- *Format* – the information should be made available in a format, which makes it readily usable by IT systems.

In order to **prevent energy supply crises**, the Community should *develop smart electricity networks, demand management and distributed energy generation, bearing in mind their potential to help at times of sudden shortage, establish an observatory mechanism to identify likely shortfalls in supply and infrastructure at an early stage and cooperate on network security among transmission system operators, including the development of common security and reliability standards*.

In our opinion, the measures need to be taken at Community level to manage energy supply crises if they do occur are: a solidarity mechanism to assist a Member State facing difficulties following disruptions of its energy supplies under emergency circumstances, A coordinated mechanism for emergency demand restraint, and a

coordinated mechanism to provide early notice and monitoring and to enhance response capabilities.

To ensure that all Europeans enjoy access to energy at reasonable prices we think that is necessary to ***establish integrated and competitive electricity and gas markets, promote efficient energy services and diversify the energy mix***.

**The Community needs a real Community-wide debate on the different energy sources**, including costs and contributions to climate change, to enable us to be sure that, overall, the EU's energy mix pursues the objectives of security of supply, competitiveness and sustainable development. To ensure that Europe, taken as a whole, promotes the diversification of energy supplies, the EU should use more indigenous energy sources and more renewable energy sources.

**Europe needs to deal with the challenges of climate change in a manner compatible with its Lisbon objectives.** Therefore, the following measures are necessary [2]:

- A clear goal to prioritize energy efficiency, with a goal of saving 20% of the energy that the EU would otherwise use by 2020 and agreeing a series of concrete measures to meet this objective, including: efficiency campaigns, harnessing financial instruments and mechanisms to stimulate investment, a renewed effort for transport, a Europe-wide "white certificates" trading system, better information on the energy performance of some appliances, vehicles, and industrial equipment and possibly, minimum performance standards.
- Adopt a long-term road-map for renewable energy sources, including: a renewed effort to meet existing targets, consideration of which targets or objectives beyond 2010 are necessary, a new Community Directive on heating and cooling, a detailed plan to stabilize and gradually reduce the EU's dependence on imported oil, initiatives to bring clean and renewable energy sources closer to markets.

A common European energy strategy best address climate change, balancing the objectives of environmental protection, competitiveness and security of supply by keep Europe at the forefront of energy technology and the policies needed to encourage change and consolidate Europe's position at the forefront of progress on efficiency and renewable energy sources.

For the further development of clean and renewable energy sources in the EU is important to define long term targets and an action plan to promote renewable energy and increase research and development efforts within a strategic European energy technology plan.

**A strategic energy technology plan**, making best use of Europe's resources, building on European technology platforms and with the option of joint technology initiatives or joint undertakings to develop leading markets for energy innovation. To ensure that Europe remains a world leader in energy technologies, at both Community and national level is necessary to

establish a strategic European energy technology plan and consider ways to finance a more strategic approach to energy research and innovation programs and budget.

In order to react to the challenges of high and volatile energy prices, increasing import dependency, strongly growing global energy demand and global warming, the EU needs to have a clearly defined a **common external energy policy** and to pursue it, at the same time at both national and Community level, with a single voice. The *common energy policy goals* are:

- *Competitiveness*: internal market, competition, interconnections, European electricity grid, research and innovation (clean coal, carbon sequestration, alternative fuels, energy efficiency, nuclear);
- *Environment*: renewable energy, energy efficiency, nuclear, innovation & research, emission trading;
- *Security of supply*: international dialogue, European stock management (oil/gas), refining capacity and storage of energy, protection against terrorism.

The main measures for a common external energy policy are [2]:

- Identifying European priorities for the construction of new infrastructure necessary for the security of EU energy supplies;
- Developing a pan-European Energy Community Treaty;
- A new energy partnership with Russia;
- A new Community mechanism to enable rapid and co-ordinated reaction to emergency external energy supply situations impacting EU supplies;
- Deepening energy relations with major producers and consumers;
- An international agreement on energy efficiency.

### 3. Power market in Romania

Implementing the regulatory framework, The Romanian Power Market Operator (OPCOM) assumed the mission to provide an organized, reliable and efficient environment for the deployment of the electricity wholesale commercial trades concluded in conditions of impartiality, transparency and equidistance. In order to realize this mission, OPCOM goals are: institutional consolidation and definition of the development strategy of the company according to the strategic documents provisions (Energy Law, Road Map) in order to implement the European Directives in the energy field.

The strategic objective of the Romanian Government is to assume the role of Regional Exchange in the South-East European region. In this respect, OPCOM develops attractive mechanisms and conditions for the Exchange trades in the region.

During August 2000-April 2005, OPCOM administered the electricity and ancillary services trades totalising a volume of approximately 285 TWh, with a value of 248,862 bill. ROL (see table no. 1).

**Table 1 Electricity and ancillary services administered by OPCOM during August 2000-April 2005**

Year	Volume (GWh)	Value (bill. ROL)
2000	22,521	14,537
2001	56,686	37,231
2002	57,731	50,290
2003	61,603	57,583
2004	63,474	64,655
2005	22,800	24,566

Source: OPCOM, [www.opcom.ro](http://www.opcom.ro)

The evolution of the Romanian power market structure, determined by the subsequent restructuring of the energy sector, imposed the adaptation of the regulatory framework according to the practices of the European Union. “The New Trading Platform” entered into commercial operation, commissioned by CN Transelectrica S.A. and OPCOM, at the beginning of July 2005. As an active participant in the process of commissioning of the “New Trading Platform”, OPCOM assures, in parallel, the design and the implementation of the financial market of derivatives, as a complementary market, offering the participants in the physical market the possibility to transfer the risk towards new participants, for the business community, that would identify the trades in the financial market as a new investment and profit opportunity.

Starting with 1st of July 2005, the rules for the power market are established according to the Commercial Code of the Wholesale Electricity Market issued by ANRE and approved by Order 25/22.10.2004 and the Order 30/29.06.2005. Transactions between licensed parties in the energy sector are made on the following markets:

- **Bilateral contracts market for electricity**, regulated/negotiated,
- **Day Ahead Market**, operated by S.C.OPCOM S.A., is a voluntary market, where the transactions are made one day before the delivery day, based on sell/buy offers (price-quantity pairs for each hour). In the Day Ahead Market the following parties can trade: producers, suppliers, and network operators.

In the second year of its trading products operation, both volume and quota values demonstrate a consolidated position of OPCOM within the European electricity trading field. The total traded volume in 2006 is 4.11 TWh. The other representative numbers for the year 2006 are: 468.714 MW hourly traded in average and 7.74% as market share. A comparison of trades for the last six months of the year 2006 with similar months of 2005 (since July, date of the new Day Ahead Market mechanisms launch, until the end of 2005) demonstrates an increase of 26.96% (2.18 TWh vs. 1.72 TWh).

The relevant figures for January 2007 regarding the transactions on the Day Ahead Market are the following:

- Number of registered participants on Day Ahead Market: 95

- Average number of active market participants: 52 per day
- Maximum number of active market participants: 55 per day (registered on January 20, 2007)
- Average price: 47.11 EURO/MWh
- Total traded volume: 374,451.102 MWh
- Average traded volume: 503.294 MWh/h
- DAM quota of net forecasted consumption: 18,166,676.82 EURO
- Value of transactions: 18,166,676.82 EURO.

During its operation, OPCOM followed the evolutions registered by the European Power Exchanges (as example, the share accounted by the Day Ahead Market in October 2006 was of 10.40% of the total consumption, that is placing OPCOM on the fourth place in Europe following Nord Pool-Oslo, EEX-Leipzig and APX-Amsterdam).

OPCOM assures, according to the primary and secondary legislation being in force, an organized, viable and efficient framework for the commercial trades' deployment, complying with the consistency, correctness, impartiality, independence, equidistance, transparency and non-discrimination conditions. These principles, that are common for all Power Exchanges, are applied by OPCOM in its tasks fulfilment according to the applicable legal provisions and for all administered markets, respectively for the services that provides the participants on these markets.

#### 4. Conclusion

We agree that there is a need to develop a new, common European strategy for energy. The core principles of European energy policy should be sustainability, competitiveness and security of supply.

As part of a growth strategy and through open and competitive markets, energy policy prompts investment, technological development, domestic and foreign trade. It is strongly linked with environment policy and is closely connected with employment, regional policy and particularly transport policy. In addition foreign and development policy aspects are gaining increasing importance to promote the energy policy objectives with other countries.

The Romanian Power Market Operator OPCOM should assume the role of Regional Exchange in the South-East European region.

This European energy policy should be developed with adequate knowledge and understanding of Member States' energy needs and policies, bearing in mind the strategic role of the energy sector. The European energy policy should therefore be based on shared perspectives on long term supply and demand and an objective, transparent assessment of the advantages and drawbacks of all energy sources and contribute in a balanced way to its three main objectives: increasing security of supply, ensuring the competitiveness of European economies and

the affordability of energy supply to the benefit of both businesses and consumers, in a stable regulatory framework and promoting environmental sustainability. We also think that greater attention to energy at both EU and Member State level can substantially help to achieve the goals of the strategy for growth and jobs (Lisbon process).

#### References

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