

ENERGY MARKET AND POWER EXCHANGE IN ROMANIA

Author: PhD student, engineer Mihai DÂRZAN, Technical University of Cluj-Napoca
 Address: Bucharest, Mureşana street no. 8,
 mihai.darzan@ringhel.ro, +40 744 151 324

Abstract - This paper is structured into six parts. In the first part of the paper is presented the importance of the topic and relevant issues. In the second part is analyzed the energy market and power exchange from Romania in terms of trends. In the third part is presented the current situation in Hungary, the Czech Republic and Slovakia. In the fourth part are presented the exchange coupling mechanisms. In the fifth part are analyzed the implications of the coupling of energy market from Romania with the stock from Hungary, Czech Republic and Slovakia. In the sixth part of the paper are presented the conclusions.

Keywords: energy stock, OPCOM, transactions, liberalization, participants of energy market, transparent pricing, competition, energy industry.

1. INTRODUCTION

Given the current market situation of the energy market and power exchange from Romania, this paper *analyzes the development of the energy market and power exchange in Romania, how the coupling with the European Energy Market (Czech Republic, Hungary and Slovakia) will be achieved and which will be the implications.*

In February 2011, the European Council has committed to finalize the objective of creating the Internal Energy Market (IEM - Internal Energy Market) by the end of 2014.

In September 2012, the Czech Republic (CZ), Slovakia (SK) and Hungary (HU) achieved the coupling of the Day Ahead Markets. At the new coupled market CZ-SK-HU can be coupled any new markets. The coupled market CZ-SK-HU is achieved and developed after EPEX SPOT model, EPEX Spot SE being the operator of spot markets for France, Germany, Austria and Switzerland. EPEX, respectively the new coupled markets uses a Prices Coupling System (PCS) with COSMOS algorithm for the correlation [1].

Poland and Romania, being members of EU and having interconnections to the Czech and Slovak Republics, Hungary respectively, decided to couple to the the CZ-SK-HU market by the end of 2014. In the official documents, to this markets coupling it is referred using the term Price Coupling of Regions (PCR - Price Coupling of Regions).

The desired effect of markets coupling is to harmonize the markets organization, increase of competition in the concerned markets and more stable prices to final consumers [2].

The Price Coupling of Regions is an initiative of

seven European Power Exchanges (APX, Belpex, EPEX SPOT, GME, Nord Pool Spot, OMIE and OTE) [3].

The romanian energetic sector has reached a turning point in its evolution and tries to find its balance between the wishes of consumers affected by liberalization and the need to replace the production of electricity on competitive basis [4].

The experience in the implementation of Directive 96/92/EC shows the benefits that can result from the existence of the internal electricity market in terms of efficiency, lower prices, higher standards of services and greater competition.

There are still significant shortcomings and possibilities for improving the functioning of the market, notably concrete provisions are needed to establish “rules of the game” to reduce the risks of market dominance and speculator behavior, ensuring the protection of consumer rights.

Regarding the electricity market in Romania, it is regulated by the Commercial Code, the primary legislation and secondary legislation, and the market operator SC OPCOM SA serves as administrator of electricity market.

At the end of 2013, OPCOM launched the intra-day market, following that on the energy power exchange to be opened a new platform for trading PC-OTC [5]. Such platforms, used throughout Europe, facilitates the completion of transactions between eligible participants but in Romania, the legislation creates a monopoly position for OPCOM.

2. THE ENERGY MARKET AND POWER EXCHANGE IN ROMANIA

In order to identify certain trends and specific aspects of market, the historical data related to the power exchanges from Romania have been analyzed. The data used in this chapter are taken from the website www.opcom.ro [6].

For the Day Ahead Market (DAM), as shown in Figure 1, the closing market price has a complex correlation depending on the traded quantity and the number of participants, but is also influenced by other events (weather, important events at national level, etc.).

In Table 1 it can be seen highlighted the highlighted correlation between the fluctuations of traded quantity, the number of participants and the closing market price.

Tab. 1. Influence on the price in the DAM

Quantity	▲	▲	▼
Participants	▲	▼	▲
Price	▼	▲	▲

As shown in the above table, to obtain the closing market price decrease, it is necessary to increase the number of participants in the power exchange and also increase trading volumes.

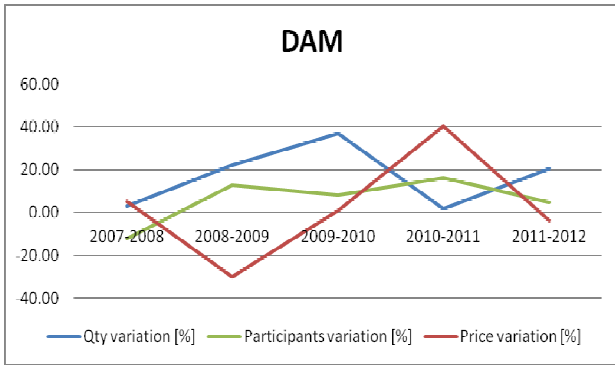


Fig. 1. Annual variations in the DAM

In Figure 2 are presented the annual variations related CMBC (Centralized Market of Bilateral Contracts), and in Table 2 is highlighted the correlation between trading volume, number of contracts and the power price.

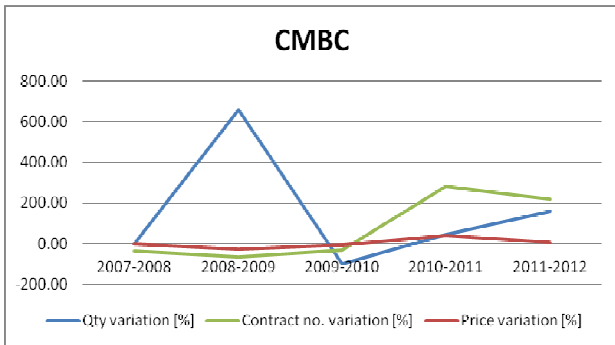


Fig. 2. Annual variations in CMBC

Tab. 2. Influences in the CMBC on the price

Quantity	▲	▼	▲
Participants	▼	▲	▲
Price	▼	▲	▲

As shown, in the CMBC, the price is in direct correlation with the number of signed contracts on CMBC.

In Figure 3 are presented the annual variations related to CMBC-CN (Centralized Market for Bilateral Contracts with Continuous Negotiation) and in Table 3 is shown the correlation between traded volume, number of contracts and the power price.

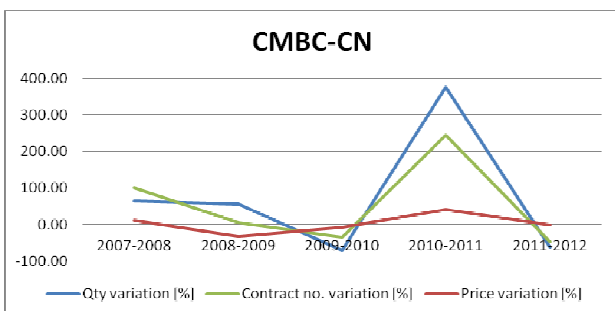


Fig. 3. Annual variations in the CMBC-CN

Tab. 3. Influence within CMBC-CN on the price

Quantity	▼	▲
Participants	▼	▲
Price	▼	▲

As shown in the CMBC-CN, the price is in direct correlation with the traded volume and the number of contracts signed on CMBC-CN.

At price setting on CMBC and CMBC-CN there are a number of other factors such as: power demand on the retail market, domestic/internal power production, etc.

In Figure 4 are presented the annual variations related to CMGC (Centralized Market for Green Certificates) and in Table 4 is highlighted the correlation between the traded volume, number of participants and the green certificate price.

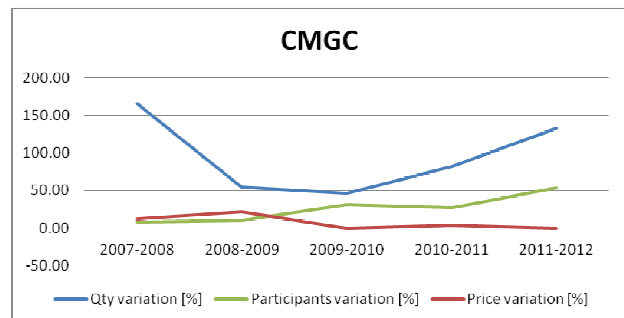


Fig. 4. Annual variations in the CMGC

Tab. 4. Influence within the CMGC on the price

Quantity	▼	▲	▲
Participants	▲	▼	▲
Price	▲	▲	▼

As shown in the table above, to obtain the lower prices for green certificates, it is necessary to increase the number of participants in the power exchange and also increase the number of traded green certificates.

Other influences which must be taken into account in the energy market and power exchange from Romania are [7]:

- The launch of OTC platform by OPCOM in March 2014 in order to facilitate the energy trading, after the government banned in 2012 the trading outside OPCOM;
- Changes to intra-day market which includes the trading with up to 2 hours before delivery;
- Decrease of the cogeneration tariff from 01.01.2014 under the ANRE commitment, as a result of the agreement coupling with CZ-SK-HU markets;
- Future decreases of export tariffs as Romania is preparing to join the project for coupling with neighboring markets by the end of 2014;
- Are anticipated RES additional connections (Renewable Energy Sources) in national network, despite decreasing support for green power producers;
- The possibility of introducing by ANRE of injection tariffs in the network for the small units of production from renewable sources.

ACER (Agency for the Cooperation of Energy

Regulators), in the Markets Monitoring Report 2013 [8] highlights a number of important aspects of the energy market from Romania, as follows:

- The energy demand decreased with 2.7% in 2011-2012;
- The number of active electricity suppliers is decreasing;
- The change rate of power supplier by the consumers is constant as a result of application of regulated tariff for domestic consumers;
- Frequent legislative changes as a result of government intervention according to priorities and electoral cycle, creates uncertainty for power suppliers;
- Only five EU countries (including Romania) have regulated prices in all segments (domestic and industrial consumers);
- The entering in the market of a new power suppliers is very difficult or unattractive due to legislation (including licensing process).
- The main barrier for the retail market integration is the consumer behavior regarding to change of supplier, retail price regulation and legislative framework.

Although are made efforts to integrate the energy exchanges from Romania with the European energy exchanges, there is still major problems as it was described above.

The major trends are:

- The coupling of European markets for the next day with the replacement of the explicit auctions for cross-border capacity;
- Increasing price convergence between EU countries;
- Using only one platform for trading day-ahead and intra-day;
- The gradual renunciation of the regulated tariffs;
- The uniformization of the legislation at European level.

3. THE CURRENT SITUATION IN CZECH REPUBLIC, SLOVAKIA AND HUNGARY

Compared to the Romania's situation, the energy markets and power exchanges from the CZ-SK-HU countries, looks as follows [8]:

- Hungary and the Czech Republic registered a decrease energy demand in 2011-2012 of 1.4% respectively 0.1%;
- The number of active power suppliers is growing in Hungary;
- The rate of changing the supplier by the consumer is increasing in the CZ-SK-HU;
- In Czech Republic there are no regulated tariffs and in Hungary and Slovakia there are only regulated tariffs for domestic consumers and SMEs.

As shown in Figure 5, the price convergence between Czech Republic, Hungary and Slovakia increased since September 2012, after being implemented market coupling [8,9,10].

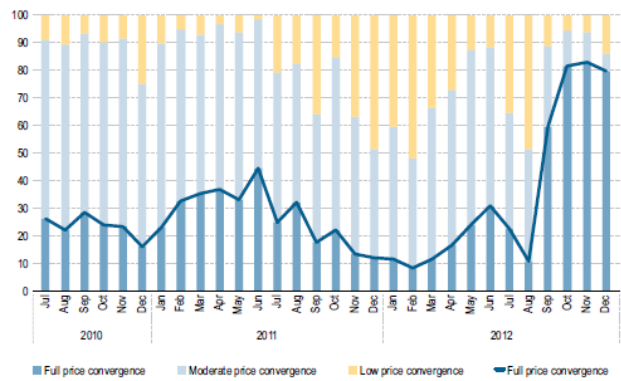


Fig. 5. The price convergence between Czech Republic, Hungary and Slovakia - November 2010 - December 2012 (%)

In Figure 6 is shown DAM price evolution in Romania compared to Czech Republic, Hungary and Slovakia in the period 01.01.2012 - 31.03.2014 [11-14].

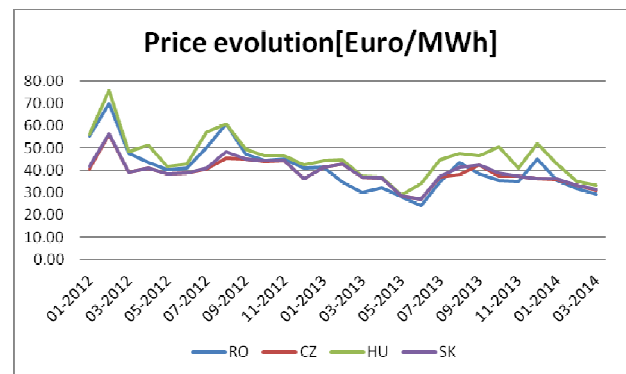


Fig. 6. Price evolution on DAM – RO, CZ, HU, SK

In Figure 7, is shown the price deviation on DAM compared to the average RO-CZ-HU-SK during the period 01.01.2012 - 03.31.2014 [11-14].

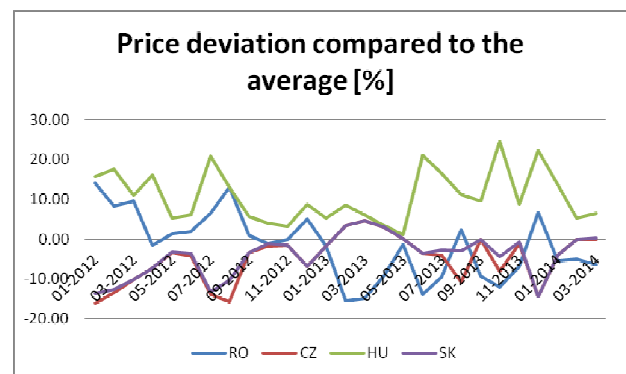


Fig. 7. The prices deviation on DAM compared to the average RO-CZ-HU-SK

In Figure 6 and 7 it is noted that in Hungary the prices are highest compared to other countries, even after coupling CZ-HU-SK, although there is a slight decrease which shows that between Hungary and other coupled countries there is not enough cross-border capacity.

The price in Romania is among the lowest prices of the four countries, which suggests a potential price increase after coupling with CZ-HU-SK.

In Slovakia there are the lowest price fluctuations amongst the four countries.

4. POWER EXCHANGES COUPLING

For calculating the daily results of markets coupling it is used the COSMOS algorithm. Market coupling is a mechanism both for correlating the power exchanges and for implicit allocation of cross-border capacity [15].

The market coupling optimizes the economical efficiency of the coupled markets. The correlation results of the offers is subject to capacity constraints calculated by the Transmission and System Operators (TSOs), which may limit transactions between coupled markets.

The coupling is based on the principle that the markets with the lowest price exports power to the markets with the highest price. If there is sufficient capacity between the two markets, the prices of the two markets are equalized (price convergence), otherwise prices can not be equalized and there will be price differences between them.

To illustrate the functioning of COSMOS algorithm, we take two cases:

- a) Suppose that initially, the market price A is lower than market price B. Market A will export to market B such as, the market price A will increase and the market price B will decrease. If the ATC (Available Transfer Capacity) from market A to market B is large enough, a common price in the market can be achieved ($PA^* = PB^*$). The first case is illustrated in Figure 8;

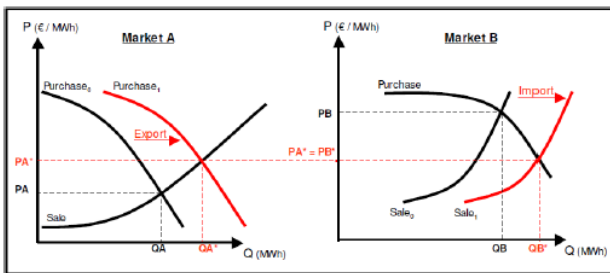


Fig. 8. The coupling of two markets without congestion

- b) The second case, illustrated in Figure 9, happens when the ATC is not sufficient to ensure price harmonization between the two markets.

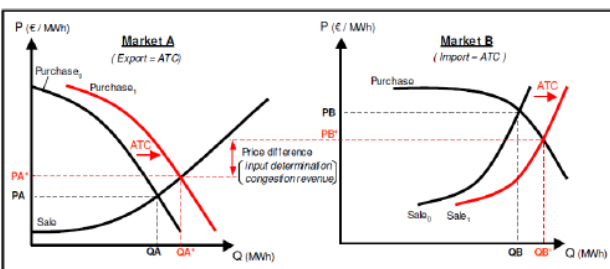


Fig. 9. The coupling of two markets with congestion

The amount of electricity exchanged between the two countries is then equal to the ATC and the prices PA^* and PB^* are given by the intersection of the purchase and sale curves. Exported electricity is bought in the export area at a price of PA^* and is sold in the import area at a price of

PB^* . The difference between the two prices multiplied by the exchanged volume – i.e. the ATC – is called “congestion revenue”, and is collected and used pursuant to article 6.6 of the Regulation (EC) N° 1228/2003 of the European Parliament and of the Council of 26 June 2003 on condition for access to the network for cross-border power exchanges [16].

In other words, the power circulates from the low price to high price area in order to balance the market price, having the constraint of cross-border capacity between the two zones, as shown in Figure 10 [17].

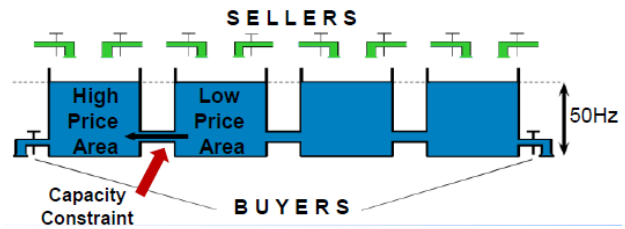


Fig. 10. The functioning of coupled markets

To implement a coupled market is necessary the cooperation of TSO - PXs and the Regulatory Authorities support.

The main characteristics of the coupled markets [17,18,21]:

- The market participants will be in contact only with Power Exchanges (PXs) to which they are registered as members;
- To participate in the coupled market it is not necessary to be registered on all PXs, but only on the local one;
- All PXs keep their current platform for transmitting the offers and provide the market outcomes in their current format;
- The daily auctions for cross-border capacity is abolished together with the launch of coupled market;
- The trading volumes are expected to grow, but in the same time the transactions become more transparent;
- Is scalable and it is based on three basic principles: a single algorithm, robust operations and individual responsibility.

5. COUPLING IMPLICATIONS OF RO-CZ-HU-SK

The main implications of market coupling RO-CZ-HU-SK are as follow:

- Increase the price convergence for the power exchanges of those countries;
- Decreasing price for the power exchange that have high prices and rising price for the power exchange that have low prices;
- A new funding source for creation of new cross-border capacity, for the markets with congestion;
- Increasing of trading volumes and number of participants, fact which leads to a additional price decrease, as it can be seen in Table 1 and Figure 6 (the effect of markets coupling of CZ-HU-SK was an additional price decrease);

- Increasing the transparency of transactions and implicitly increase the confidence of participants in the power exchange;
- Supporting the renunciation of regulated tariffs;
- Increasing the security in power trading;
- Decrease (and even eliminate) the cost of participants with the cross-border capacity;
- Creating a single trading platform for the day-ahead and intra-day;
- Expanding the Market Coupling to other countries from Central and Eastern Europe (CEE) and South-Eastern Europe (SEE) [21];
- Prices values from DAM and intra-day market will affect other markets.

6. CONCLUSIONS

Analyzing the data presented above, we can draw the following conclusions about the future effects of RO-CZ-HU-SK market coupling, for Romania:

1. The market closing prices on DAM will increase given that Romania is physically interconnected with Hungary, this country having the highest prices amongst the four interconnected;
2. Power exports to Hungary will increase, in the limit of available capacity;
3. The effects of internal events will decrease (eg, weather conditions, etc.).
4. The prices fluctuation will be reduced, decreasing the risk for energy suppliers to operate on various markets;
5. Gradually, regulated tariffs will be renounced, fact that will increase the value invoiced to final consumers;
6. The legislation will change in the sense of creating new tariffs which will increase the pressure on the final energy consumers;
7. Gradually, the change rate of suppliers by the power consumers will increase, due to the effects mentioned above;
8. As a result of the interconnection of energy exchanges, some regulated tariffs will decrease;
9. The new trading mechanisms will offer suppliers the necessary tools to reduce costs, fact which allow them to be more competitive;
10. Although the new mechanisms will stimulate the competitiveness, there is a risk that through various regulations, that the domain attractiveness be reduced for the new potential suppliers, which may create monopoly situations in the market.

In the author's opinion, interconnecting of energy markets from Romania with other European markets is necessary, having generally positive effect.

However there are risks on market coupling, but they can be avoided through appropriate action and regulation.

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