

The Impact of the Regional Electricity Market's Coupling on the Romanian Day Ahead Market Prices

Andrei Covatariu

Bucharest University of Economic Studies, Romania

andrei.covatariu@gmail.com

Cosmin Dobrin

Bucharest University of Economic Studies, Romania

cdobrin@yahoo.com

Abstract

In November 2014, the Romanian DAM (Day Ahead Market) market for electricity coupled with the similar mechanisms in Hungary, Czech Republic and Slovakia. The paper analyzes the coupling mechanism, the procedures of establishing the prices and the impact of regional coupling of the electricity markets, between Romania, Hungary, Czech Republic and Slovakia.

Key words: energy market, coupling mechanism, Romania, day ahead market

JEL Classification: Q41, Q43

1. Introduction

On the 19th of November 2014, OPCOM, the central electricity market operator, joined the coupled mechanism of the electricity spot market (DAM - day ahead market) already available in Hungary, Czech Republic and Slovakia. The joint project is known as 4M MC.

The integration process of the Romanian market in this coupled mechanism was the result of a long-term collaboration between the operators of the electricity markets of member states and TSOs, which meant synchronizing the information systems and the management process of DAM markets (Romania also adopted the CET schedule for the spot market, after the integration into 4M MC). At the same time, a harmonization of the legal framework was necessary, for the change to be complete. (BizEnergy, 2014)

Figure 1 - 4M MC regional project



Source: (Opcom, 2016)

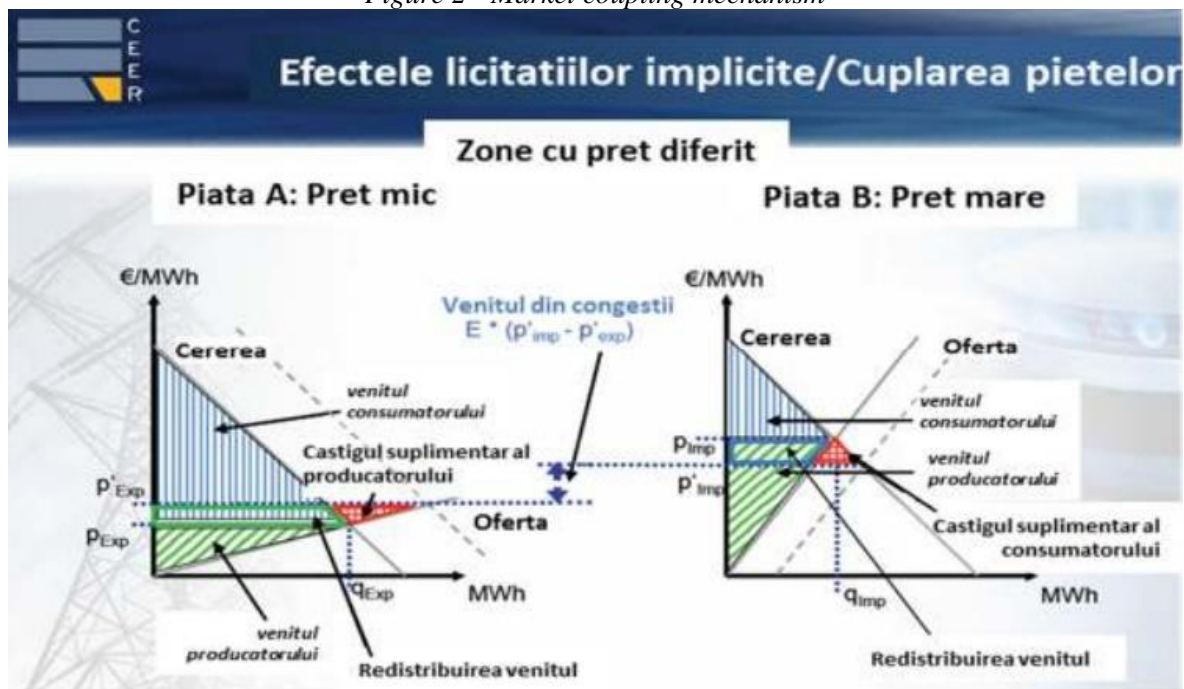
The development of this regional market is an exercise for a future common electricity market that the European Commission wants to implement, as one of the fundamental objectives of the Energy Union project.

2. The coupling mechanism

The operating principle of the market coupling is the correlation between demand and supply curves under a common mechanism. Thus, the market with the lower price will offer the surplus energy, if interconnection capacities (ATC) are available, to another market with a higher price.

According to definitions assumed by markets operators, the objective of the coupling is the "maximization of social welfare, defined as the sum of the additional gain of producer, the extra gain of the consumer and the revenue from congestion". (Opcom 2015)

Figure 2 - Market coupling mechanism



Source: (Opcom, 2016)

Interconnection capacities (ATC - available transfer capacity) are a component of which those interested to export electricity are obliged to bid. For the operators who can trade electricity in other countries as forward products (at the moment, only trading operators can perform these operations), this fee is added to the price of electricity sold.

Interconnection capacities which have not been purchased by after annual or monthly auctions are allocated to the 4M coupling process. Since these capabilities are bought in Romania by traders, the spot market operators have often complained about the lack the availability of ATC. (InvestEnergy, 2015)

The operation principle and the IT systems that are assuring the daily operations have fulfilled the participants' needs, almost without exception. Coupling was conducted daily, except March 20th, 2016, when a technical problem made it impossible to synchronize the four operators of the market. (Opcom 2016)

3. Coupling effects 4M MC

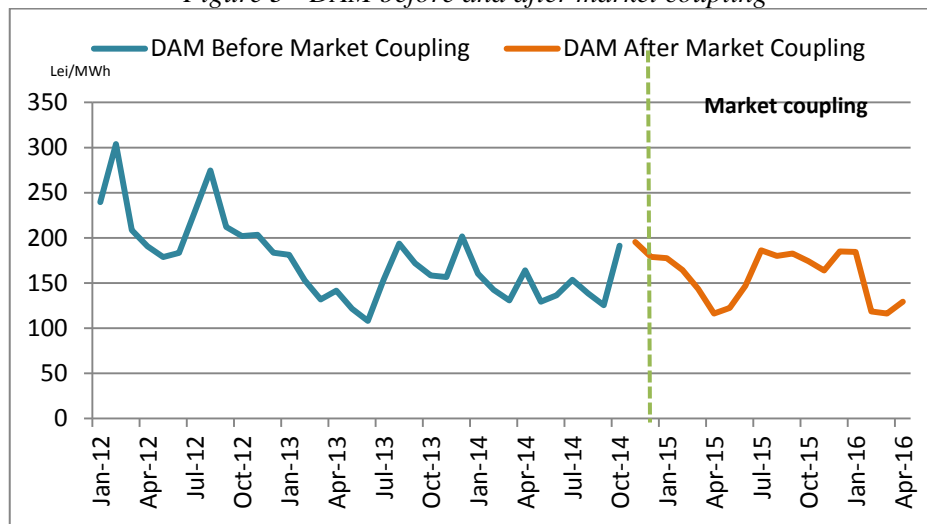
According to ANRE, the immediate effects of the coupling process were the increasing level of exports of electricity, by over 25%, for the first half of 2015, in comparison with the previous year. (Agerpres, 2015)

Available statistics on Transelectrica website reveal something else. In 2015, Romania exported 6.46 GWh, 13% less than in 2014 (7.3 GWh), but the total value of exports of electricity is determined by many other factors besides coupling mechanisms. (Transelectrica, 2016)

The evaluation drafted by OPCOM, a year after switching mechanisms, reveals a 6.4% increase in the amount of energy traded on the spot market and a significant increase of 37% in the number of market participants. (Opcom, 2015)

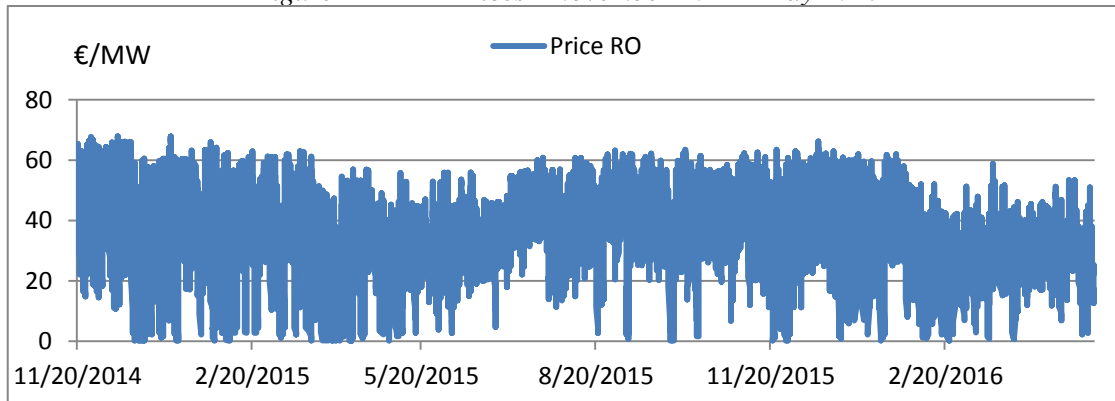
The accompanying charts show the price of electricity on the spot market. A decreasing trend of electricity prices can be observed:

Figure 3 - DAM before and after market coupling



Source: Transelectrica

Figure 4 - DAM Prices - November 2014 - May 2016



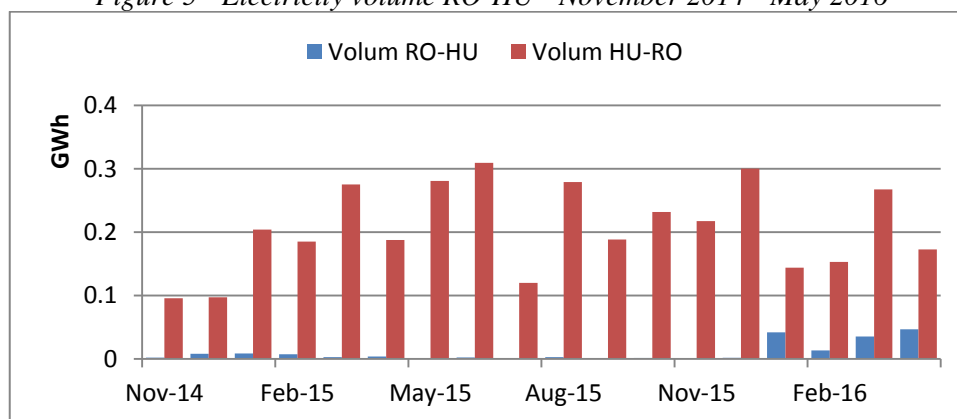
Source: Opcom

There were, on the other hand, some complaints made by other market participants, determining ANRE to issue a number of clarifications. They state that the allocation of production capacities is made through an auction organized by TSOs. According to ANRE, the capabilities are purchased largely for forward products, for the national production capacity is higher than in Hungary. ANRE asked Transelectrica to allocate a reservation capacity of 30% of the available amount.

Spot market prices in Romania are almost exclusively lower than in Hungary, a country with which we connect commercially and technically. For this reason, Romania is a net exporter of electricity (the amount exported is greater than the amount of energy imported within our borders).

However, due to the lack of connection capacity for the spot market, a problem mentioned above and signaled by various market participants, the quantity exported this way is significantly diminished. This explains the significantly higher volume that Romania imported from Hungary by spot auctions. Therefore, the forward contracts are higher than the electricity imported in Romania.

Figure 5 - Electricity volume RO-HU - November 2014 - May 2016

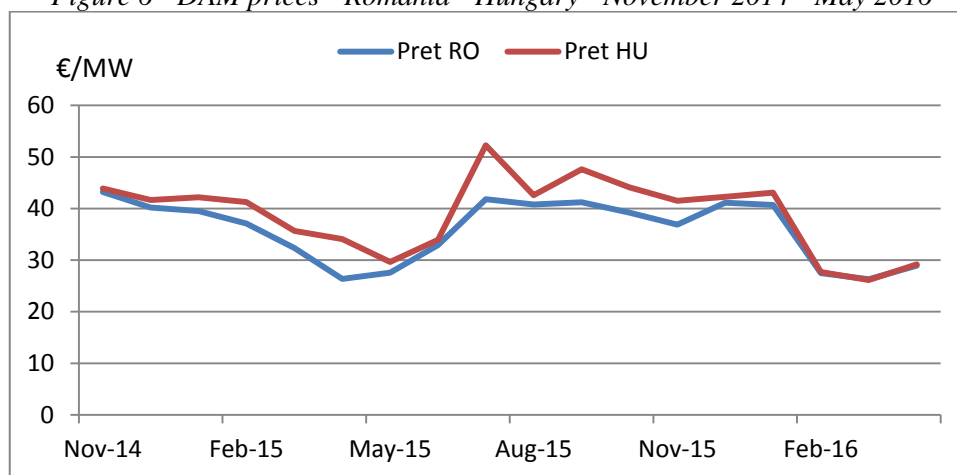


Source: Opcom

A big problem is, thus, revealed. Although traders operating in the market have the right to export electricity, the same rules do not apply to producers. In terms of alignment with European desires and in accordance with a common electricity market or the will to gain the position of regional supplier of energy security, this shortcoming must be urgently unlocked. (Pirvoiu, 2015)

The evolution of the two spot market prices is graphed in the following chart:

Figure 6 - DAM prices - Romania - Hungary - November 2014 - May 2016



Source: Opcom

The trading intervals on the spot market between Romania and Hungary have been registered for the analyzed period - November 2014 - May 2016 - a 73% degree of interconnection. For the entire coupling region (Romania, Hungary, Czech Republic and Slovakia), this indicator does not exceed 23%.

A feature made possible by the coupled trading was the appearance of negative prices for electricity. Although Romania has not met this situation before (even if the prices in some intervals were very low), other 4M MC members have managed such situations. For example, Hungary has had 3 trading intervals with negative rates (0.023% of trading time) and the Czech Republic and Slovakia have met with 118 such cases (representing 0.92% of the total trading time).

By definition, negative prices occur in the wholesale markets when a high inflexible power generation meets low demand. In order to keep operating (the shutdown and restart would cause more losses), the generation plant has to pay to maintain its production. If the producer is flexible and the costs of shutting down and restarting the facility are higher than “selling” their energy at negative prices, then they will stop activity. (EPEX SPOT, 2016)

4. Conclusions

In November 2014, the Romanian DAM (Day Ahead Market) for electricity has coupled with the similar mechanisms in Hungary, Czech Republic and Slovakia. The operating principle of the market coupling is the correlation between demand and supply curves under a common mechanism. Thus, the market with the lower price will offer the surplus energy, if interconnection capacities (ATC) are available, to another market with a higher price.

Spot market prices in Romania are almost exclusively lower than in Hungary, a country with which we connect commercially and technically. For this reason, Romania is a net exporter of electricity. However, due to the lack of connection capacity, the energy traded on the spot markets from Romania to Hungary is at a very low level.

The evaluation drafted by OPCOM, a year after switching mechanisms, reveals a 6.4% increase in the amount of energy traded on the spot market and a significant increase of 37% in the number of market participants. Also a decreasing trend of electricity prices can be observed since the market coupling.

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References

1. Agerpress, 2015, Exporturile de energieelectrică ale României au crescut cu 27% după cuplarea piețelor - Retrieved April 2016, from: <http://www.agerpres.ro/economie/2015/06/16/exporturile-de-energie-electrica-ale-romaniei-au-crescut-cu-27-dupa-cuplarea-pietelor-11-58-38>
2. Bizenergy, 2014, România, cuplată la bursa regională de energie. Atenție la noile reguli de tranzacționare! - Retrieved April 2016, from: <http://www.bizenergy.ro/romania-cuplata-la-bursa-regionala-de-energie-atentie-la-noile-reguli-de-tranzactionare/#.VzWGIdJ97tT>
3. Pirvoiu C., 2015, Hidroelectrică ar putea exporta energie, eliminând intermediarii, în urma unui proces câștigat împotriva ANRE - Retrieved April 2016, from: <http://economie.hotnews.ro/stiri-energie-20636301-hidroelectrica-putea-exporta-energie-eliminand-intermediarii-urma-unui-proces-castigat-impotriva-anre.htm>
4. EPEX SPOT, NEGATIVE PRICES - Retrieved April 2016, from: https://www.epexspot.com/en/company-info/basics_of_the_power_market/negative_prices
5. Investenergy, 2015, ANRE răspunde la atacul CE Oltenia: Exportul/importul de energie depinde doar de preț și de capacitatea de schimb disponibilă pe graniță - Retrieved April 2016, from: <http://www.investenergy.ro/anre-raspunde-la-atacul-ce-oltenia-exportulimportul-de-energie-depinde-doar-de-pret-si-de-capacitatea-de-schimb-disponibila-pe-granita/>
6. OPCOM, 2015, CUPLAREA PIETEI SPOT DE ENERGIE ELECTRICA DIN ROMANIA - Retrieved April 2016, from: http://energy-center.ro/wp-content/uploads/2015/11/2015-10-30_Cuplarea-pietelor_Palatul-Parlamentului_4MMC.pdf
7. www.opcom.ro – Press releases
8. www.opcom.ro – Database
9. www.transelectrica.ro - Database