



ELECTRICITY MARKET INTEGRATION IN SOUTH-EASTERN EUROPE: THE CASE OF GREECE

Dr. Sotirios MANOLKIDIS
Vice-President of RAE

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- There are various ways to couple markets, such as **tight or loose volume coupling, price coupling or market splitting**. Each has its own advantages and drawbacks, but all seek the same end, which is to allocate scarce cross border grid capacity in the most efficient way.
- Greek energy market is envisaged, within 2018, to be coupled with, first, Italy and, then, Bulgaria, under the Provisions of Act 4425/2016 for the Implementation of the Target Model (Article 6 § 3).
- Recent reports suggest that whilst gas and oil prices have decreased by 50 and 60% since 2013, household energy costs have risen slightly in the same period. The Commission wants to give consumers **greater control over energy choices and provide easier access to cross-border utilities, smart technologies for controlling and reducing consumption, new energy sources**. It is also hoped to make it less complicated for an energy consumer to become a small-scale energy producer, thus a “prosumer”. RAE will fully implement the proposed European Target Model and all Market Players, TSO,s and the still envisaged Greek PX will operate by 2019.

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- Currently the electricity interconnection with Bulgaria carries 3459 GWh in 2015 and, approximately, 3500 GWh in 2016 from, mainly, Bulgaria to Greece through the Thessaloniki – Blagoevgrad line of 400 Kv. The new Nea Santa – Maritsa East line is still under construction.
- Each market operator collects the corresponding bids for their market areas and sets its own area price based on the **merit-order rule**. When different market area prices occur, the operators calculate the **trading capacity between the two market areas necessary to equalize the price** between the two areas, thus creating a **system price**. To achieve this system price, the operator adds a 'price independent purchase' on the low price area corresponding to the size of the necessary trading capacity, and a 'price independent sale' in the high price zone. As a result, the area price is lowered in the high price zone, and is increased in the low price zone, both equalizing the system price between the coupled regions. This corresponds to the **price coupling model**.



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In relation to **energy poverty**: the Commission seeks to respond to the increasing difficulty many households experience in paying fuel bills. In 2007 the average energy bill made up 9% - 10% of the budget of the lowest-income households. Today **around 15% here in Greece**. This corresponds to a 50% increase as compared to ten years ago. The Commission therefore asks Member States to take action against energy poverty and increase initiatives to renovate low-income housing.

RAE, since June 2015, plays an active role in addressing the increased energy costs by taking steps to speed up the interconnection of the island micro-grids to the main continental grid and to reinforce existing interconnections with our northern neighbors in view of introducing a new market based on the proposed Target Model. Among them the envisaged construction of the Nea Santa – Maritsa East line.



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Market coupling brings several other important benefits besides the possibility that it will create a single price between coupled countries. In particular, market coupling:

1. Increases transparency. Automated allocation of interconnector capacity limits the ability of dominant market participants and national grid operators to manipulate capacity to hinder competition.

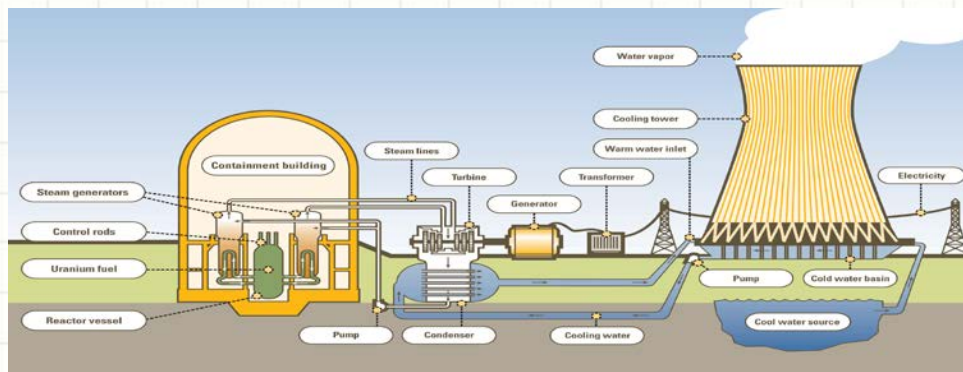


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2. **Lowers transaction costs.** Market participants no longer submit margins for interconnector auctions and do not pay auction and usage fees.

3. **Decreases time and administrative burden.** Market participants just trade power, not interconnector capacity in parallel.

All of the above decrease trading cost and risk, thereby attracting new entrants to the market. New entrants decrease the market power of incumbents, increase market efficiency and ultimately decrease consumer prices.



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- For a challenge such as the implementation of the **European Market Coupling**, it is needless to say that harmonization is definitely an issue, especially within the Energy Community. Countries have different energy regulations. TSOs and PX's, where yet in place, have different local system solutions dealing with scheduling, nomination, trading. The lack of enthusiasm for harmonization, here in Greece, forces our TSO to develop a one size fits all coupling solution which is able to deal with all local requirements and all products in both the Italian and Bulgarian markets. This causes a non-negligible complexity in the calculation process, leading to extended preparative time. Given the short operational time-schedule imposed on us by the EU Commission, this complexity may cause a threat to operational reliability. evolution.

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Two Market Time-Frameworks to be introduced:

'single day-ahead coupling' meaning a coordinated electricity price setting and cross-zonal capacity allocation mechanism, which simultaneously matches orders from the day-ahead markets per bidding zone, respecting cross-zonal capacity and allocation constraints between bidding zones; and

- **'single intraday coupling'** meaning an implicit cross-zonal capacity allocation mechanism which collects orders for each bidding zone from wholesale market participants and matches them continuously into contracts to deliver electricity while respecting cross-zonal capacity and allocation constraints, and is available in the intraday market timeframe once the day-ahead market allocation.

On February, 24th 2015, Italian borders (Italian–Austrian, Italian–French and Italian–Slovenian) have been coupled

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- The Greek TSO in a recently published study, on long-term electricity demand (2017 – 2027), envisages a power production shortage in the Greek market from the year 2020 – 2021 onward. This makes imperative to couple our electricity market with our neighboring EU and Energy Community Countries and to fully implement the proposed Target Model by 2020.
- Furthermore, with **energy management** we aim to optimize one of the most complex and important contemporary creations that we know: the energy system. While there is plenty of experience in optimizing energy generation and distribution, it is the demand side that receives increasing attention by research and industry. Demand Side Management (DSM) is a portfolio of measures to improve the energy system at the side of consumption.

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- A number of provisions dealing with **demand side participation** are stipulated in various EU policy documents, specifically the Electricity Directive (2009/72/EC) and the Energy Efficiency Directive (2012/27/EU). In an effort to increase public engagement with demand response (current estimates suggest that only 1% of demand response potential is being tapped in Greece), the Energy Efficiency Directive is calling on Member States of both the EU and the Energy Community to remove incentives in transmission and distribution tariffs that might hamper demand response participation. Member States should also ensure that national energy regulatory authorities encourage the participation of demand side resources, such as demand response, alongside supply in wholesale and retail markets.

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Market design is the ‘rulebook’ for all energy market players, both here in Greece and in the rest of the Energy Community. The implementation of the **Target Model** in the Greek energy market, by the year 2019, will provide us with more market tools such as an **intraday market, a day ahead market** and a **balancing market** allowing, thus, participants to recover their real operational costs and also permit electricity suppliers to hedge their risk via forward products in the stock exchange.

The design of the new market codes recently adopted by the Government (Official Gazette B’ 774/13.03.2017) **or under consideration by RAE, as provided in Act No 4425/2016**, will allow the submission of both simple and complex market orders (such as limit up, reserve or conditional, peg or “iceberg” orders).

Market response to any irregular situations, such as the gas fuel crisis of the past holiday season (January 2017), will, hopefully, be faster and more effective within a larger (coupled) electricity area.



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The way forward: Wholesale price caps, after the envisaged market coupling, must be removed, making **prices reflect the real value of electricity in time and location** (scarcity pricing) to drive investments towards the flexible assets most needed for the system, including demand-response and, of course, storage in the non-interconnected islands.

Expanding the national Grid will create interconnected (coupled) markets and, thus, increase trade opportunities between our countries. Rules on priority dispatch will however be maintained for small-scale renewable installations and emerging technologies to ensure their further development.

Finally, grid bottlenecks on the borders will have to be minimized, among other things by **re-investing congestion revenues into the interconnected grid**.





**Ευχαριστώ για την
προσοχή σας!**

Dr. Sotirios MANOLKIDIS
Vice - President of RAE

