European University Institute
ROBERT SCHUMAN CENTRE FOR ADVANCED STUDIES

FSR ENERGY
Florence School of Regulation

FSR Regulatory Policy Workshop Series 2018-2019

Zonal VS Nodal Pricing for the Electricity Market

Scientific Organiser:
Alberto Pototschnig | Florence School of Regulation/RSCAS/EUI

Teatro

Badia Fiesolana, Via della Badia dei Roccettini 9 - San Domenico di Fiesole (Fiesole, Florence)

Event under Chatham House rules. Please do not tweet speakers' names, but use our event hashtag: #FSRPolicyWorkshop

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Introduction

The electricity market design in the European Union is based on a zonal structure. Currently, market zones are of very different sizes. Some of them cover one or more Member States [1], while other Member States (e.g. Italy and Sweden [2]) are divided in several market zones. The current price zone configuration is mostly the legacy of national markets and political borders [3].

The geographical structure of the EU electricity market has been widely discussed in recent years and its less-than-optimal configuration is increasingly becoming a limiting factor for the efficiency of the market integration process.

At the moment, the EU electricity sector suffers from high levels of Unscheduled Flows (UFs), which reduce tradable cross-zonal capacity, market efficiency and network security. UFs are partly due to the suboptimal geographical (zonal) configuration of the market.

The Guideline on capacity allocation and congestion management [4] envisages the possibility of reviewing the current market (bidding) zone configuration. In fact, a review was launched by the Agency for the Cooperation of Energy Regulators in December 2016. The review, conducted by 15 TSOs and facilitated by ENTSO-E, produced "inconclusive results of the quantitative analyses [showing] a heterogeneous picture where no configuration is clearly classified as superior to any other" [5][6].

Therefore, the problem of a sub-optimal zonal configuration of the electricity market remains, at a time when the increasing penetration of variable renewable-based generation will likely increase the level of UFs and the associated losses of social welfare.

It is thus appropriate to consider whether, in the medium-term, Europe should move from a zonal market structure to a nodal pricing structure. Nodal pricing would avoid UFs by design. However,

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such pricing might pose other challenges, for example in terms of market liquidity and the hedging of the risk created by the variability of nodal price differences.

Nodal pricing has been used for many years in several regional markets in the US and therefore significant experience exists on how properly design it and how to address its challenges.

An additional aspect worth considering is whether a mix structure – with some areas adopting a nodal approach while others maintaining a zonal configuration – would be feasible and what additional challenges it would pose.

While any decision to change the geographical structure of the EU electricity market would have to be based on a sound cost-benefit analysis, including the transition costs, this Workshop will aim at mapping out the main pros and cons of implementing a nodal market structure for the electricity sector in Europe, referring to the relevant international experience.

The Workshop will be structured in two sessions:

- the first session will review the experience with the implementation of nodal pricing for the electricity market, including its impact on market price and basis risk hedging and liquidity;

- the second session will use the results of the first session to discuss the potentials for moving the EU electricity market design towards a nodal price structure, as well as the associated challenges.

[1] E.g. Germany and Luxembourg are part of the same market zone, which currently still includes Austria as well; Ireland and Northern Ireland are together in the single-zone 'Single Electricity Market'.

[2] The same applies to Norway, which is not a Member State.

[3] In most cases, market-zone borders correspond to political borders.

[4] Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management.

[5] ENTSO-E, First Edition of the Bidding Zone Review: Final Report, March 2018.

[6] The inconclusiveness of the results was mostly due to the fact that the review considered 20 different dimensions in the areas of network security (3 dimensions), market efficiency (13 dimensions) and stability and robustness of bidding zones (4 dimensions), without any weighting. In this context, it would have been very difficult for any configuration to score higher than the current one on all dimensions.

Programme

08.30 – 08.45	*Welcome Coffee*
08.45 – 09.00	Welcome address **Jean-Michel Glachant** | Florence School of Regulation
09.00 – 09.15	Introduction to the Workshop **Alberto Pototschnig** | Florence School of Regulation

Session I – International Experience with Nodal Pricing (Opportunities and Challenges)

Chair: **Jean-Michel Glachant** | Florence School of Regulation

09.15 – 10.10	Zonal – vs Nodal-Pricing: the Academic Perspective **Carlos Batlle** | Florence School of Regulation, Comillas Pontifical University and MIT **Thomas-Olivier Léautier** | Florence School of Regulation and Toulouse School of Economics **Karsten Neuhoff** | DIW Berlin
10.10 – 11.00	The International Experience with Locational Marginal Pricing **Vincent Duane** | PJM **Lars Ekern** | NVE
11.00 – 11.20	*Coffee Break*

Session II – Zonal- vs Nodal Pricing for the EU Electricity Market

Chair: **Alberto Pototschnig** | Florence School of Regulation

11.20 – 12.00	Zonal – vs Nodal-Pricing in the EU Electricity Market: the Industry Perspective **Ioannis Retsoulis** | Eurelectric **Regina Mandic** | EFET
12.00 – 12.40	Managing a Nodal-Pricing System: the Market and System Operators Perspective **Zoltan Gyulay** | ENTSO-E **Rickard Nilsson** | Europex and Nord Pool
12.40 – 13.30	*Lunch*

13.30 – 14.10	Zonal – vs Nodal-Pricing in the EU Electricity Market: Contributions from FSR Energy Donors **Philippe Vassilopoulos** | EPEX Spot **Stefano Alaimo** | GME **Yannick Phulpin** | EDF **Gerard Doorman** | Statnett
14.10 – 15.20	Zonal – vs Nodal-Pricing in the EU Electricity Market: the Regulatory Perspective **Klaus-Dieter Borchardt** | European Commission **Christophe Gence-Creux** | ACER **Francesco Cariello** | ARERA **Christine Materazzi-Wagner** | E-Control **Małgorzata Kozak** | URE
15.20 – 15.50	General Discussion
15.50 – 16.00	Concluding Remarks **Alberto Pototschnig** | Florence School of Regulation **Jean-Michel Glachant** | Florence School of Regulation