



FSR REGULATORY POLICY WORKSHOP SERIES 2018-2019

COUPLING THE SECTORS

Scientific Organiser:

Alberto Pototschnig | Florence School of Regulation/RSCAS/EUI

Sala Europa

Villa Schifanoia, Via Boccaccio 121 - Florence

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12 OCTOBER 2018

■ INTRODUCTION

The European Union is committing to a 32% share of renewables in final energy consumption by 2030, up from 20% in 2020. The electricity sector will contribute more than proportionately to both targets, with penetration of renewables reaching and possibly exceeding 50% by 2030. Already now, in some hours and markets, demand is fully met by renewables. Most of the additional renewable-based electricity generation will be provided by technologies – such as wind and solar PV – which are inherently more variable, if not less predictable, than conventional generation. Such an increasing variability will have to be met by a greater flexibility of the electricity system, in terms of being able to absorb larger, more rapid swings in the output of the increasing share of renewables-based technologies.

Most usefully, technological development means that new flexibility resources – e.g. demand response and electricity storage – are becoming available at a greater scale. However, by themselves, these new resources will not be able to provide all the flexibility that the electricity sector is expected to require and gas-fired generation will continue to be needed as back-up capacity. To play this role most effectively, gas-fired generation will have itself to become more flexible, which in turn may require more flexible arrangements in the gas market and system.

The recent regulatory developments⁽¹⁾ for the gas sector – promoting short-term cross-border trading and a move away from long-term contracts – and other international developments – such as the increase in LNG volumes – are allowing higher flexibility in the gas market. The issue is whether and to what extent the future “flexibility challenge” also requires a closer integration of the regulatory framework and a new market design for the electricity and gas sectors.

Current legislation already envisages cross-sectoral market and system modelling, through the development by the European Networks of Transmission System Operators (ENTSOs) of a “consistent

and interlinked electricity and gas market and network model including both electricity and gas transmission infrastructure as well as storage and LNG facilities"¹²¹. Such a model is currently envisaged as assisting in the cost-benefit analysis of project applying for Project of Common Interest status. However, more integrated modelling could also assist other areas in the future.

For example, since gas demand by gas-fired power stations depends on their generation level and, on a daily basis, on whether they are dispatched in the electricity market, would a closer integration of the short-term gas and electricity markets be beneficial? This might, for instance, provide the possibility for market participants to submit "conditional bids", i.e. bids in one market which are conditional on the outcome of the other market. If this were possible, the operators of gas-fired power stations would be able to bid to buy gas in the short-term gas market conditional on their generation offers in the day-ahead electricity market being accepted.

The opportunity and the benefits of ensuring greater coordination between different markets were at the basis of the development of cross-border market coupling in the energy sector. With electricity market coupling, market participants do not have to trade energy and cross-border capacity separately, avoiding the risk of inefficient outcomes¹³¹. It is now widely accepted that a similar form of cross-border coupling is not required in the gas sector¹⁴¹.

However, a different form of coupling between the short-term gas and electricity markets, allowing *inter-alia* for "conditional bids" as mentioned above, may well assist in increasing the efficiency of the energy sector. Such "sector coupling" may also take advantage of the fact that, alongside the traditional gas-to-power transformation available through gas-fired generation, power-to-gas technologies are developing. The gas-to-power and power-to-gas capabilities, combined with conditional bids, would allow some form of "arbitrage" between the electricity and gas markets, making sure that prices on these market develop in a consistent way and, potentially, allowing the smoothing of price volatility.

Cross-sector market coupling will also call on greater integration not only of network development (which is already envisaged), but also of system operation, as the constraints in the two markets might require coordinated management (electricity and gas transmission capacities may become substitutes to a greater extent than today).

Other sectors or activities - such as electro-mobility or heating and cooling - might also benefit from closer integration with the electricity (and possibly gas) sector(s), even though such integration will likely take a looser, or at least different, form.

The European Commission has recently proposed the "sector coupling" concept. The message is clear and reflects the requirement for greater integration between the electricity and gas sectors, and possibly other sectors and activities as well.

In this context, the Workshop aims at exploring to what extent and in which form(s) the electricity and gas markets and systems could be usefully coupled to meet the flexibility and other challenges facing the energy sector in the future. It will also consider which other sectors and activities could be "coupled", albeit in a different form.

Therefore, the Workshop will be structured in two sessions:

- the first session will focus on how the electricity and gas markets and systems could be coupled beyond the level of modelling integration currently envisaged;
- the second session will consider which other sectors/activities could be usefully coupled to the electricity and gas sectors, and, if so, in which form.

^[1] – For example, the CAM NC. [Regulation (EC) 2017/459 on 6 April 2017]

^[2] – Article 11(8) of Regulation (EU) No 347/2013 of the European Parliament and of The Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009.

^[3] – On those EU borders where market coupling is not yet implemented, electricity often flows in the wrong direction. Figure 19 (page 44) in the Electricity Wholesale Markets Volume of the ACER Annual Report on the Results of Monitoring the Internal Electricity and Gas Markets in 2016 presents the estimated social welfare losses in the absence of market coupling. In 2016, social welfare losses exceeded € 200 million.

^[4] – Such a conclusion was reached, *inter alia*, at a workshop organised by the Florence School of Regulation in December 2015.

■ 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
Ilaria Conti | Florence School of Regulation
- 09.15 - 09.30 Setting the Scene: Coupling the Sectors
Andris Piebalgs | Florence School of Regulation

SESSION I - ELECTRICITY AND GAS MARKET AND SYSTEM COUPLING

- Chair: **Alberto Pototschnig** | Florence School of Regulation
- 09.30 - 09.55 The flexibility paradigm: challenges, resources and opportunities in the electricity sector
Robert Schroeder | ENTSO-E
- 09.55 - 10.20 The flexibility paradigm: challenges, resources and opportunities in the gas sector
Jan Ingwersen | ENTSOG
- 10.20 - 10.45 Cross-sector trading
Christian Baer | Europex
- 10.45 - 11.10 *Coffee Break*
- 11.10 - 11.40 The industry perspective
Jesse Scott | Eurogas
Cyril Harry | Eurelectric
- 11.40 - 13.00 Roundtable of FSR Energy Donors
Olivier Lebois | GRTgaz
Torben Brabo | GIE & Energinet.dk
Ulrich Ronnacker | Open Grid Europe
Andrea Villa | ENEL
Ina Adler | Ontras
Christoph von dem Bussche | Gascade
Jacques Merley | EDF
Fabrizio Carboni | GME

13.00 - 14.00 *Lunch*

SESSION II - COUPLING BEYOND

Chair: **Andris Piebalgs** | Florence School of Regulation

14.00 - 14.25 Coupling beyond the electricity and gas sectors

Susana Paardekooper | Aalborg University

14.25 - 15.00 The policy and regulatory perspective

Dennis Hesselning | ACER

Sven Kaiser | E-Control

15.00 - 15.45 General Discussion

15.45 - 16.00 Concluding remarks

Andris Piebalgs | Florence School of Regulation

Alberto Pototschnig | Florence School of Regulation