FLORENCE SCHOOL OF REGULATION

ROBERT SCHUMAN CENTRE

FSR Regulatory Policy Workshop Series 2024-2025

SMARTENING THE ENERGY NETWORKS AND CYBERSECURITY

16 May 2025

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

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Join Zoom Meeting
https://eui-eu.zoom.us/j/93199246200?pwd=ftUxrJvfBJRG9XEG5nVE1o4Tcch5Vj.1
Meeting ID: 931 9924 6200
Passcode: FSRPW

Introduction

Interconnected and stable energy networks are the backbone of the EU's internal energy market and key to enable the green transition. Smarter grids would deliver benefits in at least two respects. First, they will make the system more flexible and therefore able to support the transistion at lower costs. Secondly, smarter grids would enable the connection and management of flexibilioty resources, which are increasingly needed to support the greater penetration of intermittent renewable-based generation. A snarter network is however more prone to be cyber-attacked. A Network Code on Cybersecurity for the EU electricity network (NCCS) was adopted last year, setting a European standard for the cybersecurity of cross-border electricity flows. This Workshop will look at which grid enhancing technologies and other smart network solutions are available for the EU transmission and distribution networks and the way in which their adoption could be effectively and efficienctly enabled. It will also look at the cybersecurity framework being developed as a result of the adoption of the NCCs.

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Interconnected and stable energy networks are the backbone of the EU's internal energy market and key to enable the green transition. To help deliver the European Green Deal, in November 2023, the European Commission proposed a Grid Action Plan1 to make sure that the EU's electricity grids will operate more efficiently and will be rolled out further and faster. Overall, the Commission estimates that EUR 584 billion in investments2 are necessary for the electricity grids this decade. This represents a significant part of the overall investment needed for the clean transition in the electricity sector.

The Plan highlights two areas in which action will be needed in the years to come: cross-border interconnections and transmission and distribution grids within borders. In this latter respect, the Plan foresees that distribution grids will have to grow and change to connect large amounts of decentralised renewable generation, and new flexible demand ("loads") such as heat pumps and charging stations for electric vehicles. These grids are gaining new roles, becoming facilitators of a range of new solutions that the system requires. They will need to turn into smart grids, becoming digital, monitored in real-time, remotely controllable and cybersecure. Research and innovation play an important role in supporting this transformation. Moreover, around 40% of Europe's distribution grids are over 40 years old and need to be modernised. Industry estimates that around EUR 375-425 billion of investment in distribution grids is necessary by 20303.

Smarter grids would deliver benefits in at least two respects. First, they will make the system more flexible and therefore able to support the transistion at lower costs. Smarter grids or smarter grid solutions can, at least in some cases, replace the need for network capital investments. Secondly, smarter grids would enable the connection and management of flexibility resources, which are going to be increasingly needed to support the greater penetration of intermittent renewable-based generation.

Smarter grids and smarter grid solutions should become an essential part of network development planning at all levels, transmission and distribution. Network operators should be encouraged and possibly incentivised to opt for smart grid solutions every time they represent a more effective and cheaper alternatives to traditional network investments. Regulators should make sure that the regulatory regime in place for grids does not directly or indirectly create a bias in favour of infrastructure investments and against smart solutions. Regulators may even consider promoting the adoption of grid-enhancing technologies or other smart grid solutions through appropriate incentives4.

A smarter network is however more prone to be cyber-attacked. A Network Code on Cybersecurity for the EU electricity network (NCCS)5 was adopted last year. It sets a European standard for the cybersecurity of cross-border electricity flows and includes rules on cyber risk assessment, common minimum requirements, cybersecurity certification of products and services, monitoring, reporting and crisis management.

In this context, this Workshop will look at which grid enhancing technologies and other smart network solutions are available for the EU transmission and distribution networks and the way in which their adoption could be effectively and efficienctly enabled. It will also look at the cybersecurity framework being developed as a result of the adoption of the NCCs.
Therefore, the Workshop will be structured in three sessions:
– Session I, in the morning, will look at the technologies available to improve the performance of the EU transmission and distribution networks and to make them smarter, both in their operations and in the way resources, such as decentralised and flexibility resources, could be integrated;
– Session II, also in the morning, will focus on the regulatory instruments which could be used to support and promote the adoption of smarter network solutions,
– Session III, in the afternoon, will review the main cyberthreats facing the EU energy networks and how the NCCS sets the framework to counter them.

Sustainability assessment
The FSR assesses the sustainability and carbon footprint of all its Workshops of the Regulatory Policy Workshop Series. This Workshop is run 'in presence' to promote more effective interaction and discussion. Participants travelling to Florence by car or by air will be encouraged to offset any carbon emissions related to their travel. It is considered that, in this way, a suitable balance is achieved between the effectiveness of the policy dialogue and the net carbon footprint of the event.

Programme

09.00 – 09.15 Welcome and introductory remarks
Leonardo Meeus | Florence School of Regulation
Alberto Pototschnig | Florence School of Regulation

09.15 – 09.30 Keynote address: the policy perspective
Tom Howes | Advisor on green transition and Market regulation, EC DG ENER

SESSION I – SMARTENING THE ENERGY GRIDS: THE TECHNICAL POTENTIAL

Moderator: **Catharina Sikow-Magny** | Florence School of Regulation

09.30 – 09.45 Opening address
Gianluca Fulli | Acting Head of Unit, Energy Security, Distribution and Markets, Joint Research Centre

09.45 – 10.15 The Industry Perspective
Uroš Salobir | Chair, Research Development and Innovation Committee, ENTSO-E
Guro Grøtterud | Markets & Networks Committee Chair, SmartEn

10.15 – 10.40 Roundtable of representatives of FSR Donors and general discussion

10.40 – 11.00 *Coffee Break*

SESSION II – SMARTENING THE ENERGY GRIDS: THE REGULATORY PERSPECTIVE

Moderator: **Lucila De Almeida**| Florence School of Regulation

11.00 – 11.15 Opening address
Jan Kostevc | Team Leader, Energy Infrastructure, ACE

11.15 – 11.50 The national experience
Riccardo Vailati | Team Leader, Investment Plans and Quality of Energy Infrastructure, ARERA
Fréderic-Michael Foeteler | Energy Services and Network Infrastructure Security Solutions, Institut Luxembourgeois De Régulation
Øyvind A. Toftegaard | Senior Adviser, NVE and CEER

11.50 – 12.15 Contributions from FSR Donors and general discussion

12.15 – 13.15 *Lunch Break*

SESSION III – SMARTENING THE ENERGY GRIDS AND CYBERSECURITY

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

13.15 – 14.00 Cybersecurity in the energy sector
Fabrizio Zucca | Cyber Security Specialist, SNAM and Gas Infrastructure Europe
Gabriele De Luca | Representative in the Cybersecurity Group of the EC's Smart Energy Expert Group, Eurelectric

Emilio Maria Papalini | EU DSO Entity

14.00 – 14.20 The regulatory perspective
Øyvind A. Toftegaard | Senior Adviser, NVE and CEER
Fréderic-Michael Foeteler | Energy Services and Network Infrastructure Security Solutions, Institut Luxembourgeois De Régulation

14.20 – 14.45 Roundtable of representatives of FSR Donors and general discussion

14.45 – 15.00 Concluding remarks
Leonardo Meeus | Florence School of Regulation
Alberto Pototschnig | Florence School of Regulation