Network Codes and Cross-Border Interconnectors: Analysing the Legal Framework for Achieving the Aims of European Electricity Market Integration

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List of Abbreviations

Organisations and Entities

ACER	Agency for the Cooperation of Energy Regulators
BoA	Board of Appeal
CEER	Council of European Energy Regulators
DSO	Distribution System Operator
ECJ	European Court of Justice
ENTSO-E	European Network of Transmission System Operators for Electricity
EU	European Union
GC	General Court (formerly: Court of First Instance)
MCO	Market Coupling Operator
NEMO	Nominated Electricity Market Operator
NRA	National Regulatory Authority
TSO	Transmission System Operator

Technical Abbreviations and Measurements

(HV)AC	(High Voltage) Alternating Current
(HV)DC	(High Voltage) Direct Current
kV	Kilovolt
kW(h)	Kilowatt(hour)
MW(h)	Megawatt(hour)
GW(h)	Gigawatt(hour)

Other Concepts and Terms

CCM	Capacity Calculation Methodology
CCR	Capacity Calculation Region
DA	Day-ahead
ID	Intraday
IEM	Internal Energy Market
MACZT	Margin Available for Cross-Zonal Trade
PCI	Project of Common Interest
RCC	Regional Coordination Centre

RES	Renewable Energy Source

Legislation

ACER Regulation	Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 Establishing a European Union Agency for the Cooperation of Energy Regulators (Recast)
CACM Guideline	Commission Regulation (EU) 2015/1222 of 24 July 2015 Establishing a Guideline on Capacity Allocation and Congestion Management
EB Guideline	Commission Regulation (EU) 2017/2195 of 23 November 2017 Establishing a Guideline on Electricity Balancing
Electricity Regulation	Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the Internal Market for Electricity (Recast)
Electricity Directive	Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on Common Rules for the Internal Market for Electricity (Recast)
FCA Guideline	Commission Regulation (EU) 2016/1719 of 26 September 2016 Establishing a Guideline on Forward Capacity Allocation
Governance Regulation	Regulation 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action
OJ	Official Journal of the European Union
SO Guideline	Commission Regulation (EU) 2017/1485 of 2 August 2017 Establishing a Guideline on Electricity Transmission System Operation
TEN-E Regulation	Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on Guidelines for Trans-European Energy Infrastructure
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union

Abstract

This thesis constitutes a study of EU legislation related to electricity market integration. For three decades, the EU has worked on creating a pan-European internal electricity market that provides a secure, affordable and sustainable supply of electricity over an interconnected power system. In recent years, the EU has labelled this endeavour as a European Energy Union. The fulfilment of the EU's energy policy aims under the Energy Union umbrella is vital for social, economic and environmental welfare in the Member States. In turn, sufficient interconnection is a prerequisite for attaining all of the EU's energy policy aims and unlocking the associated societal gains. Therefore, it is puzzling that cross-border connections between the national electricity systems in Europe remain insufficient.

This article-based dissertation addresses this puzzle through a dogmatic analysis of EU legislation on electricity interconnectors under the EU's Third Energy Package and the Clean Energy Package. The demands on the regulatory framework for electricity interconnectors are high. To remedy the current scarcity in cross-border capacity, EU legislation must ensure both the optimal utilisation of existing interconnectors and investment in new interconnectors. At the same time, the sheer technical complexity, as well as the presence of powerful conflicting interests complicate regulation of electricity interconnectors further. To meet the high demands on EU electricity regulation, the EU has set in motion an unprecedented and unparalleled endeavour to harmonise EU regulation of electricity interconnectors through an intricate web of delegated legislation—the network codes, guidelines and methodologies. This dissertation refers to this approach as the Network Code Strategy.

The extensive use of delegated legislation in EU electricity regulation is an important focus of this dissertation. While the Network Code Strategy raises pressing questions for legal scholarship, surprisingly few studies engage with the complicated and highly technical legislation that has developed during the past decade under this regulatory approach. This thesis closes this gap and examines the novel EU legislation on the electricity sector that aims to attain these requirements. Whereas the overarching research question is how the EU uses legislation to increase the level of electricity interconnection, the aforementioned requirements inform three more specific subquestions: (1) how EU legislation pursues the optimal use of electricity interconnectors; (2) how EU legislation promotes investment in electricity interconnectors; and (3) how EU legislation responds to the inherent challenges of technical complexity and conflicting interests. This dissertation comprises five Papers, each of which analyses the EU's legislative framework on electricity interconnectors from the perspective of one or several of the subquestions.

The key findings of the Papers in relation to the three subquestions are as follows. (1) EU regulation of interconnector utilisation is very detailed, but prioritises technical concerns, in particular the operational security of the grid; in the end, this gives the network operators opportunities and even incentives to understate interconnector capacity. (2) By contrast, interconnector investment is not harmonised extensively in EU legislation; investment decisions are thus taken (or not taken) on the

basis of the national energy policy preferences of the involved Member States. This is problematic because the Member States' margin of discretion generally remains unclear. (3) The extensive delegation under the Network Code Strategy does not overcome conflicting interests, while the complexity of the resulting legal framework makes regulatory oversight more challenging. Moreover, it is uncertain whether this new degree of delegation is in line with the legal boundaries of the EU Treaties. In addition to the individual Papers, the Enveloping Discussion discusses the findings of the Papers from an overarching perspective to gain additional insights. This further analysis finds that the Network Code Strategy adds additional—and genuinely new—layers of complexity to EU electricity regulation and acts as a 'complexifier', however without resolving the issue of insufficient interconnection.

These findings improve our understanding of EU legislation on electricity interconnectors and point to legal issues and other factors that contribute to insufficient interconnection. This dissertation thus contributes to legal scholarship, but also other research interested in EU regulation of the electricity sector, as it reveals aspects that necessitate further investigation and highlights the need for a critical debate on the merits of the Network Code Strategy. On a general level, the thesis adds to the academic discussion a critical voice on the direction that EU electricity regulation is currently taking. At the time of writing, the Network Code Strategy is a unique approach the EU uses in the electricity sector, but this approach could readily be adapted for use in other sectors. This makes this dissertation particularly relevant for legal and other scholars, but also for practitioners, regulators and policymakers concerned with European economic integration in technical sectors.

List of Papers

Paper 1

Julius Rumpf and Henrik Bjørnebye, 'Just How Much Is Enough? EU Regulation of Capacity and Reliability Margins on Electricity Interconnectors' (2019) 37 Journal of Energy & Natural Resources Law 67-91. https://doi.org/10.1080/02646811.2018.1471802

Paper 2

Julius Rumpf, 'Congestion Displacement in European Electricity Transmission Systems—Finally Getting a Grip on It? Revised Safeguards in the Clean Energy Package and the European Network Codes' (2020) 38 Journal of Energy & Natural Resources Law 409-436. https://doi.org/10.1080/02646811.2019.1707441

Paper 3

Julius Rumpf, 'Statutory Transmission Monopolies in EU and EEA Law – Why a European Energy Union Cannot Tolerate National Transmission Monopolies' (2023) 48 European Law Review 167-186. Available for download at https://www.jus.uio.no/nifs/english/people/aca/juliusr/rumpf_2023_48_elrev_issue_2_offprint.pdf*

Paper 4

Julius Rumpf and Catherine Banet, 'Energy Law' in Miroslava Scholten (ed), *Research Handbook on the Enforcement of EU Law* (Edward Elgar Publishing 2023) 365-380. https://doi.org/10.4337/9781802208030.00033

Paper 5

Julius Rumpf, 'Quaternary Law in EU Electricity Regulation: Stretching *Meroni* too Far?' (2024) 33 European Energy and Environmental Law Review 2-15. https://doi.org/10.54648/eelr2023021

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Part 1

Enveloping Discussion

1. Introduction

This article-based doctoral thesis consists of two main parts. This Enveloping Discussion constitutes Part 1, while Part 2 comprises a total of five Papers. The Enveloping Discussion establishes and elaborates on the issues, methods and conclusions presented in the Papers, thus documenting the coherence of the thesis and setting the findings of the dissertation in a comprehensive perspective. This first part of the thesis also includes necessary updates to the Papers and key new insights, so that the thesis as a whole appears academically up-to-date. The second part contains the individual Papers in their respective state of publication at the time of submission.

This first chapter sets the scene for the Enveloping Discussion by introducing the topic of this dissertation (section 1.1), the object of study, ie EU energy law (section 1.2) and the overarching aim of this thesis, as well as the research question it addresses (section 1.3). The chapter concludes with methodological remarks (section 1.4) and by setting out the structure of this Enveloping Discussion (section 1.5).

1.1. Interconnectors: the Keystones of a European Energy Union

The topic of this dissertation is the regulation of electricity transmission infrastructure at EU level, with a focus on cross-border interconnectors.[1] The overarching legal question this dissertation seeks to answer is how the EU uses its legislative competences to increase the level of interconnection, which currently is insufficient for reaching the EU's energy policy aims.[2] These aims are typified through the Energy Union programme, which was devised in 2015 by the European Commission.[3] To answer the overarching legal question, this thesis examines three legal subquestions, ie how the EU uses legislation (1) for optimising the utilisation of existing interconnectors; (2) for ensuring investment in new interconnectors; and (3) for meeting certain inherent challenges to the regulation of the electricity sector, viz technical complexity and conflicting interests. One development this dissertation is especially interested in is the expansive use of legally binding, highly detailed and technical delegated legislation in the regulation of electricity interconnectors. The scope of delegation in EU electricity regulation[4] currently exceeds that of other sectoral frameworks, which raises numerous pressing questions.

[1] The relevant definition of interconnector for this thesis stems from Art. 2(1) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the Internal Market for Electricity (Recast) [2019] OJ L158/54 (ElReg-2019), where an interconnector is described as '*a transmission line which crosses or spans a border between Member States and which connects the national transmission systems of the Member States*'.

[2] Note that the term EU in this sense also includes the European Communities for the sake of more convenient reading. Note further that this thesis does not aim to determine the required amount of interconnection.

[3] Also denoted as 'the Commission' in the following. On the Energy Union programme, see European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy' [2015] (COM(2015) 80 final).

[4] In this dissertation, 'EU electricity regulation' means intervention by the EU in the electricity sector through legislation, implementation and enforcement in order to achieve the underlying policy aims. Similarly Volker Roeben, *Towards a European Energy Union: European Energy Strategy in International Law* (1st edn, Cambridge University Press 2018) 5. For a conceptual discussion, see Christel Koop and Martin Lodge, 'What Is Regulation? An Interdisciplinary Concept Analysis' (2017) 11 Regulation & Governance 95; Giandomenico Majone (ed), 'The Rise of

This thesis focuses on legislation that concerns interconnectors because these cross-border cables are the physical keystones of a European Energy Union.[5] The Energy Union programme is a policy initiative representing the EU's diverse energy policy aims. According to Article 194(1) TFEU,[6] these aims are (1) a competitive, pan-European internal electricity market (IEM);[7] (2) security of supply; (3) environmental protection and (4) further interconnection of the European power networks. On the one hand, the Energy Union thus continues the EU's long-standing endeavour to fully integrate the European electricity markets.[8] On the other hand, the Energy Union is meant to provide access to secure, affordable and sustainable energy and thus also serves wider societal aims.[9] For instance, the Commission's 'Green Deal' project and its ambitious environmental objectives are closely intertwined with the Energy Union.[10] This makes the Energy Union one of the most important policy endeavours of our time. It is clear that such diverse and important aims need to be balanced carefully, raising the stakes for successful electricity regulation.[11]

At the same time, there is no alternative to increasing the current level of interconnection in order to realise the Energy Union.[12] For physical reasons, electricity supply depends on dedicated grids with sufficient capacity. Interconnectors couple the national electricity systems and thus allow for the integration of the underlying electricity markets.[13] In doing so, interconnectors further all of the EU's energy policy aims as set out in the Treaties; they promote competition on the electricity markets, increase security of supply and contribute to sustainability by improving the integration of

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Statutory Regulation in Europe', *Regulating Europe* (Routledge 1996) 49–50. On the related concept of governance, see Steven K Vogel, *Marketcraft: How Governments Make Markets Work* (Oxford University Press 2018) 10; Christian Joerges and Christian Kreuder-Sonnen, 'European Studies and the European Crisis: Legal and Political Science between Critique and Complacency' (2017) 23 European Law Journal 118, in particular 120-122; Tanja A Börzel, Yasemin Pamuk and Andreas Stahn, 'Good Governance in the European Union'; Christoph Möllers, 'European Governance: Meaning and Value of a Concept' (2007) 43 Common Market Law Review 313.

[5] Cf Adina Crisan and Maximilian Kuhn, 'The Energy Network: Infrastructure as the Hardware of the Energy Union' in Svein S Andersen, Andreas Goldthau and Nick Sitter (eds), *Energy Union* (Palgrave Macmillan UK 2017).

[6] Treaty on the Functioning of the European Union [2012] OJ C326/47.

[7] The parallel endeavour to create a European internal market for natural gas is outside the scope of this thesis. Note that the IEM extends beyond the borders of the EU by virtue of multilateral treaties with non-EU states. EU electricity regulation may thus apply even outside the EU. The most relevant example for this dissertation is Norway as a Contracting Party to the EEA Agreement (Agreement on the European Economic Area [1994] OJ L1/3). The Energy Community Charter is another example, which however falls outside the scope of this thesis.

[8] Of course, the IEM is part of the EU's general endeavour of European (economic) integration. On the internal market in general, see Art. 26(2) TFEU and Art. 3(3) of the Treaty on European Union [2012] OJ C326/13 (TEU).

[9] Cf Rafael Leal-Arcas, *The European Energy Union: The Quest for Secure, Affordable and Sustainable Energy* (Claeys & Casteels 2016).

[10] European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: The European Green Deal' (2019) COM(2019) 640 final. For more information, consult https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en (accessed 13 October 2023).

[11] Roeben (n 4) 22–23.

[12] Gonzalo Escribano and others, 'An Energy Union Without Interconnections? Public Acceptance of Cross-Border Interconnectors in Four European Countries' (2023) 266 Energy 126385; ACER, 'Cross-Zonal Capacities and the 70% Margin Available for Cross-Zonal Electricity Trade (MACZT) 2023 Market Monitoring Report' (2023) 5. See also recital (23) ElReg-2019.

[13] See recitals (6) and (17) of Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on Common Rules for the Internal Market for Electricity (recast) [2019] OJ L158/125 (ElDir-2019).

renewable energy sources (RES).[14] The Commission recognised in 2015 in a dedicated communication on interconnectors published together with the Energy Union programme that attaining the EU's energy policy aims depends on sufficient interconnection.[15] Indeed, the very concept of a European energy policy—as opposed to a multitude of individual national energy policies in the Member States—would be inconceivable without interconnectors.[16] At the same time, this effect of interconnectors creates considerable potential for conflict, as the Member States are reluctant to surrender autonomy in energy matters to the EU.

Despite their importance and benefits, physical interconnections between the national electricity systems remain insufficient, and electricity markets in Europe still rarely transcend national borders.[17] Existing interconnectors are frequently underutilised, and investment in cross-border infrastructure is insufficient. This dissertation strives to find answers to this puzzle. To be certain, the aim of this dissertation is not to determine criteria for the completion of the Energy Union. It is doubtful that the Energy Union—which, as stated, is an umbrella term and a label for the EU's energy policy aims—has a clearly defined point of completion. Likely, the objectives of EU energy policy will evolve further in time with future progress towards the Energy Union. However, there is no doubt that this progress hinges on increasing the current level of interconnection.[18]

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[14] Recital (38) in Regulation 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action [2019] OJ L 328/1 (GovReg); recital (1) in Commission Regulation (EU) 2015/1222 of 24 July 2015 Establishing a Guideline on Capacity Allocation and Congestion Management [2015] OJ L197/24 (CACM-GL). For examples, see Abishkek Shivakumar, 'An Analysis of Factors Influencing Renewable Energy Deployment in the EU's Electricity Sector' (KTH Royal Institute of Technology 2018) 54–59.

[15] European Commission, 'Communication from the Commission to the European Parliament and the Council: Achieving the 10% Electricity Interconnection Target—Making Europe's Electricity Grid Fit for 2020' (2015) COM(2015) 82 final; The significance was reiterated in the 'Clean Energy Package', see European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: Clean Energy For All Europeans' [2016] (COM(2016) 860 final).

[16] For instance, the Cypriote electricity market is only currently being liberalised due to the first interconnection to the European mainland—almost three decades after continental Europe. For a discussion of this process, see Costas Michail, 'The Advent of Electricity Liberalization in Cyprus. Critical Analysis of the Current State and Charting a Path to Liberalization' (2022) 31 European Energy and Environmental Law Review 116. In the EEA, Iceland illustrates the opposite case: since its grid is completely autonomous, Iceland has reserved itself against the application of EU energy regulation, see https://commission.europa.eu/news/joint-understanding-application-third-energy-package-towards-iceland-2019-03-22_en (accessed 13 October 2023). This point is also raised by Knops HPA and De Jong HM, 'Regulated vs. Merchant Transmission Investment' in Martha M Roggenkamp and Ulf Hammer (eds), *European Energy Law Report*, vol IV (Intersentia 2007) 294–295.

[17] Recital (27) ElReg-2019. See also Ringa Raudla and Aneta Spendzharova, 'Challenges to the European Single Market at Thirty: Renationalisation, Resilience, or Renewed Integration?' (2022) 44 Journal of European Integration 1. Exceptions include the 'Integrated Single Electricity Market' for Ireland and Northern Ireland (the latter no longer forming part of the EU) and the joint German-Luxemburgish electricity market. The German-Luxemburgish market used to include Austria, but was reduced to its current scope due to a lack of interconnection, see for a discussion of the issue Heinrich Kühnert, Philipp Böhler and Stephan Polster, 'A Tale of Delegation and Power: ACER and the Dichotomy of the Non-Delegation Doctrine and the Creation of a Genuine Internal Market in Electricity' (2017) 1 European Competition and Regulatory Law Review 47. This enforced 'market splitting' illustrates the dilemma that motivates this dissertation at a smaller scale.

[18] Cf the speech titled '*Check against Delivery*' of 20 September 2023 by European Commissioner for Energy Kadri Simson at the European Forum for Manufacturing, Brussels, available at https://ec.europa.eu/commission/presscorner/detail/en/speech_23_4561 (accessed 13 October 2023).

The current lack of interconnection will remain a pressing issue in the future, since the ongoing 'energy transition' has produced new and ambitious energy policy aims that require an even higher degree of interconnection.[19] Examples include the implementation of the Paris Agreement, the electrification of the transport sector, or the independence from energy imports.[20] To quote from the programme of the latest European Electricity Regulatory Forum (the Florence Forum):[21]

> '*The Forum is currently addressing the cross-border trade of electricity, in particular the management of scarce interconnection capacity and how to organise electricity markets to meet our decarbonisation objectives and facilitate the integration of renewable electricity.*'[22]

As the ever-more urgent climate crisis and the energy price crisis following Russia's invasion of Ukraine underscore, access to secure, affordable and sustainable energy is decisive for the economic and social wellbeing of the EU and its citizens.[23] The unique impact of interconnectors on both the European power systems and European energy policy makes the study of these cross-border cables a magnifying glass for the challenges related to creating the Energy Union. Therefore, related EU legislation constitutes an ideal research focus for this dissertation. Thus, the purpose of this dissertation is to understand how EU electricity regulation—meaning the intervention by the EU in the electricity sector through legislation, implementation and enforcement—endeavours to increase the insufficient interconnection of the European electricity networks.

1.2. EU Energy Law: the European Approach to Electricity Regulation

This section discusses the current state of EU electricity regulation, which helps understand the research approach chosen for this dissertation. After a comparatively late start in the 1990s, EU electricity regulation has bloomed into a vast and firmly established field of EU legislation over the course of the past three decades. This development will be reviewed in detail in chapter 2. This

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[19] On the relationship between interconnection and the ongoing energy transition, see Nikolaos Vasilakos, 'Enhancing the Public Acceptance of Crossborder Electricity Interconnection Projects: A Crucial Step in the EU Energy Transition Process' [2018] RSC Policy Briefs 10; on the current energy transition in general, see Demetrio Panarello and Andrea Gatto, 'Decarbonising Europe—EU Citizens' Perception of Renewable Energy Transition amidst the European Green Deal' (2023) 172 Energy Policy 113272.

[20] Art. 48 ElReg-2019 tasks the European Network of Transmission System Operators for Electricity (ENTSO-E) with identifying investment needs in cross-border electricity infrastructure as part of a non-binding Ten-Year Network Development Plan (TYNDP). The last TYNDPs identified significant investment needs, see the respective reports: ENTSO-E, 'Completing the Map—Power System Needs in 2030 and 2040' (2020) recommends an increase of 93 GW by 2040, *inter alia* in the context of implementing the Paris Agreement; ENTSO-E, 'High-Level Report TYNDP 2022' (2023) recommends a cross-border capacity increase of 64 GW by 2030, *inter alia* to help Europe to achieve its Green Deal objectives. See also the Commission's estimate that 29 billion € of investment in the grids are required until 2030 in the context of the RePowerEU Plan: European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: REPowerEU Plan' (2022) COM(2022) 230 final 14–17.

[21] For a discussion of the Florence Forum, see Floris Gräper and William Webster, 'The Establishment of Common Network Rules' in Christopher Jones (ed), *EU Energy Law*, vol I (4th edn, 2016) 604–605; Burkard Eberlein, 'Regulating Cross-Border Trade by Soft Law? The "Florence Process" in the Supranational Governance of Electricity Markets' (2003) 4 Competition and Regulation in Network Industries 137.

[22] European Commission, '38th Meeting of the European Electricity Regulatory Forum' https://energy.ec.europa.eu/events/38th-meeting-european-electricity-regulatory-forum-2023-06-08_en accessed 13 October 2023.

[23] European Commission, 'REPowerEU Plan' (n 20) 1–2.

section focuses, on the one hand, on discussing the inherent challenges that EU electricity regulation needs to meet, and why these challenges affect interconnectors particularly strongly (subsection 1.2.1); and on the other, on canvassing the unique, four-tiered structure that differentiates EU legislation on electricity from other instances of sectoral EU regulation (subsection 1.2.2).

1.2.1. Electricity Regulation: Challenged by Technical Complexity and Conflicting Interests

The solution to the current lack of interconnection seems straightforward: EU legislation should ensure that enough electricity interconnectors are built and used to their maximum potential. Yet if the solution is so easy, why is this is not happening?[24] Among the numerous challenges inherent in electricity regulation, two are likely to contribute to the current inadequacy of interconnection: the sheer technical complexity of the sector and the presence of powerful conflicting interests.[25]

First, electricity supply requires not only sufficient production capacities, but also dedicated networks with sufficient transmission capacity.[26] The operation of these grids is technically highly complex: according to Laloux and Rivier, '*[e]lectric power systems are generally regarded to be the largest and most complex industrial systems ever built.*'[27] Simply building more interconnectors would not resolve the current lack of interconnection. Since internal capacity bottlenecks in the 'national' electricity grids also limit the amount of electricity that can be transmitted across borders, the current insufficiency of interconnection is the combined result of inadequate cross-border *and* internal transmission infrastructure.[28] EU electricity regulation must reflect this interdependence. Moreover, interconnectors exacerbate the complexity of electricity regulation. Further interconnection of the European power system increases the need for harmonisation and coordination between the different stakeholders of the power sector—and thus the technical complexity.

Second, the operation of electricity grids is a high-stake activity. Electricity is a coveted commodity, and yet perceived as a public good to a certain degree, considered necessary for a dignified life[29]

[24] On the continuing inadequacy of interconnection levels throughout Europe, see ACER, '2023 70 Per Cent Report' (n 12).
[25] Sandra Eckert, 'Supranational Authorities and Private Actors as Drivers of Single Market Integration? The State of the Union in Electricity and Banking' (2022) 44 Journal of European Integration 19, 32; Frank A Wolak, 'Wholesale Electricity Market Design' in Jean-Michel Glachant, Paul L Joskow and Michael G Pollitt (eds), *Handbook on Electricity Markets* (Edward Elgar Publishing Limited 2021) 75–76; James M Griffin and Steven L Puller (eds), *Electricity Deregulation: Choices and Challenges* (University of Chicago Press 2005) 5; Nils-Henrik M von der Fehr and Lise Sandsbråten, 'Water on Fire: Gains from Electricity Trade' (1997) 99 The Scandinavian Journal of Economics 281, 281.
[26] Alberto Pototschnig, 'Infrastructure Planning in the Energy Sector' (2021) 23 Network Industries Quarterly 3; Jean-Arnold Vinois, 'The Security of Energy Supply, One of the Three Pillars of European Energy Policy' in Jean-Arnold Vinois (ed), *EU Energy Law: The Security of Energy Supply in the European Union*, vol VI (Claeys & Casteels 2012) 30.
[27] Damián Laloux and Michel Rivier, 'Technology and Operation of Electric Power Systems' in Ignacio J Pérez-Arriaga (ed), *Regulation of the Power Sector* (Springer London 2013) 1.
[28] See Art. 16(8) and recital (27) ElReg-2019.
[29] For a review of the relation between access to energy and human development, see Mikel González-Eguino, 'Energy Poverty: An Overview' (2015) 47 Renewable and Sustainable Energy Reviews 377, in particular 378-379.

and even the survival of the state.[30] If the capacity limits of the grid are violated, a blackout can occur that affects hundreds of thousands of system users[31] and causes tremendous costs.[32] Moreover, maximising interconnection despite internal grid bottlenecks leads to unscheduled 'loop flows' that take up capacity and cause additional costs in adjacent grids, causing tension between Member States and system operators.[33] In this high-stake setting, various public and private actors endeavour to protect their own interests, which oftentimes results in conflict.[34] In particular, the Member States have always been wary of surrendering too much of their energy sovereignty to the EU.[35] Especially investment in interconnectors is a politically awkward subject, as is discussed in depth in chapter 4.

1.2.2. The Four Tiers of EU Electricity Legislation

The need to overcome these challenges has sparked the development of a dense web of legislation in the European electricity sector. Hence, even though the EU has always pursued the liberalisation the electricity sector, this sector is now subject to extensive and meticulously detailed regulation.[36] Especially the past decade has witnessed an unprecedented sprawl of delegated EU legislation under the EU's current regulatory strategy, a topic that chapter 4 will discuss in depth.[37] Under this

[30] As recognised by the European Court of Justice (ECJ) in Case C-648/18 *Hidroelectrica* [2020] ECLI:EU:C:2020:723 (ECJ) [36]. See also Roeben (n 4) 1–2; Hamilcar PA Knops, *A Functional Legal Design for Reliable Electricity Supply: How Technology Affects Law* (Intersentia 2008) 18.

[31] EU energy law jointly addresses customers and producers as 'system users', cf Art. 2(36) ElDir-2019.

[32] Michael G Pollitt, 'The European Single Market in Electricity: An Economic Assessment' (2019) 55 Review of Industrial Organization 63, 77; Peter D Cameron, *Competition in Energy Markets: Law and Regulation in the European Union* (2nd ed, Oxford University Press 2007) 22–24. On a recent incident, see https://www.entsoe.eu/news/2021/01/26/system-separation-in-the-continental-europe-synchronous-area-on-8-january-2021-2nd-update/ (accessed 13 October 2023). For historical examples, see International Energy Agency, 'Learning from the Blackouts' (2005).

[33] Lidia Puka and Kacper Szulecki, 'The Politics and Economics of Cross-Border Electricity Infrastructure: A Framework for Analysis' (2014) 4 Energy Research & Social Science 124, 128.

[34] The prevalence of strong conflicts in well-established in energy research. The following studies provide examples with relevance to electricity: Simon Fink and others, 'Konflikte und Handlungsspielraum von Akteuren in der Implementation europäischer Energiemarktrichtlinien—Das Beispiel Sicherheit der Stromnetze / Actor Conflict and Customization in the Implementation of European Energy Market Directives—the Example of System Security of Power Grids' (2022) 15 dms—der moderne staat—Zeitschrift für Public Policy, Recht und Management 311, 319–344; Pierre Bocquillon and Tomas Maltby, 'EU Energy Policy Integration as Embedded Intergovernmentalism: The Case of Energy Union Governance' (2020) 42 Journal of European Integration 39, 46; Laura Ammannati, 'The Governance of the Energy Union: An "Intricate System" Unable to Achieve the European Union Common Goals' (2019) 17 Oil, Gas & Energy Law Intelligence 19, 4; Marc Ringel and Michèle Knodt, 'The Governance of the European Energy Union: Efficiency, Effectiveness and Acceptance of the Winter Package 2016' (2018) 112 Energy Policy 209, 218; Vicki L Birchfield, 'The Role of EU Institutions in Energy Policy Formation' in Vicki L Birchfield and John S Duffield (eds), *Toward a Common European Union Energy Policy: Progress, Problems, and Prospects* (Palgrave Macmillan 2011) 235; Griffin and Puller (n 25) 5–10. For a country study on the situation in Germany with regard to electricity infrastructure investment, consult Simon Fink, Hendrik Teichgräber and Mareike Wehling, 'Der Ausbau der deutschen Stromnetze: Kohärente Parteienideologie oder Sollbruchstelle entlang lokaler Interessen?' (2022) 15 Zeitschrift für Vergleichende Politikwissenschaft 617.

[35] Max Münchmeyer, 'The Principle of Energy Solidarity: Germany v. Poland' (2022) 59 Common Market Law Review 915, 915; Bocquillon and Maltby (n 34) 41; Sebastian Heselhaus, 'Energy Transition Law and Economics' in Klaus Mathis and Bruce R Huber (eds), *Energy Law and Economics* (Springer International Publishing 2018) in particular 38; Puka and Szulecki (n 33) 131; Adrien de Hauteclocque and Yannick Perez, 'Law & Economics Perspectives on Electricity Regulation' (2011) EUI Working Paper 2011/21 14.

[36] According to Vogel (n 4) 4–8, liberalisation generally requires not less, but more regulation, or re-regulation.

[37] Note that for reasons of readability, the designation of a rule, act or legislation as 'delegated' is not intended as a reference to Art. 290 TFEU in the following, but as a general reference to rules that are adopted by executive bodies outside the ordinary legislative procedure. Maciej M Sokołowski and Raphael J Heffron, 'Defining and Conceptualising

strategy, which this dissertation refers to as 'the Network Code Strategy', the overarching principles of EU law and the EU's energy policy aims are passed down along an increasingly intricate chain of delegated legislation. As a result, EU electricity legislation today covers no less than four tiers of interdependent legislation, with each tier serving a distinct function and interacting with the others to form a complex regulatory framework. In general, the acts on each of the lower three tiers have the purpose of implementing the acts of the respective superior tier. Figure 1 below depicts the four-tiered structure and the relationship between the different tiers.

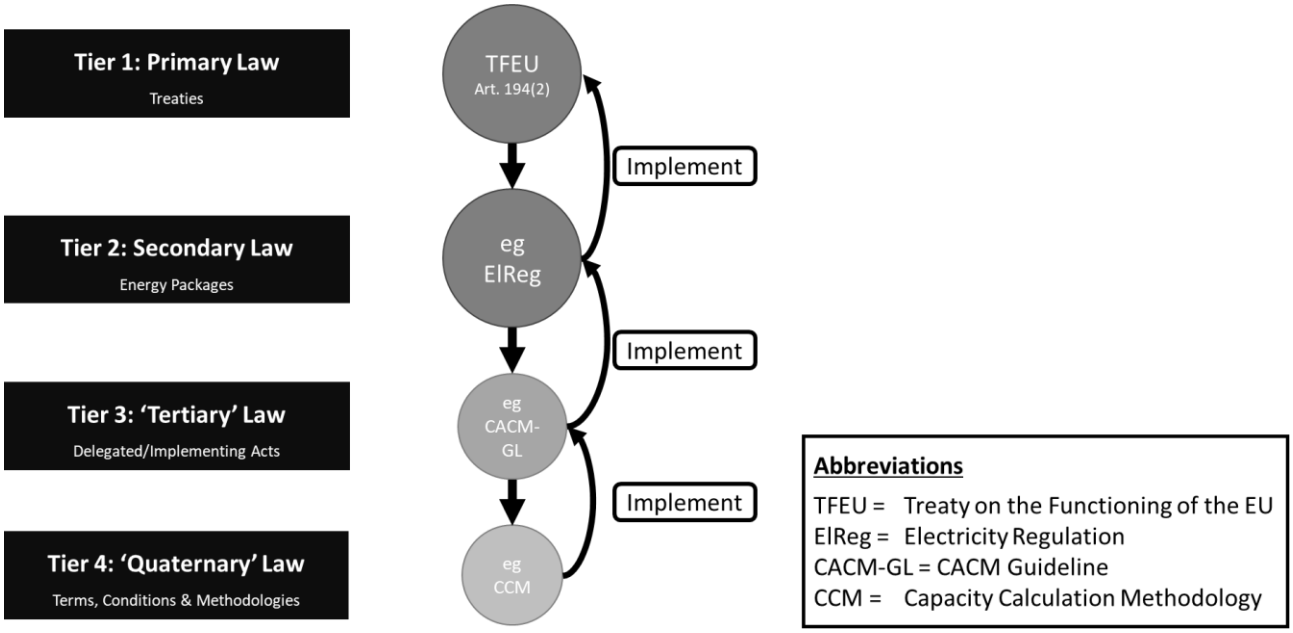

Figure 1: The Four Tiers of EU Electricity Legislation

Primary law—in the form of the Treaties—defines the EU's competences in the field of energy and sets the aims of EU energy policy. Since Lisbon, Article 4(2)(i) TFEU establishes a shared EU competence in the field of energy.[38] In turn, Article 194(1) TFEU establishes the EU's environmental and energy policy aims, ie (1) a competitive IEM; (2) security of supply; (3) environmental protection and (4) further interconnection. Conflicts between such diverse aims are inevitable, and the need to balance competition, security and sustainability is often described as a trilemma.[39] Moreover, the Treaties establish important general principles that determine how

Energy Policy Failure: The When, Where, Why, and How' (2022) 161 Energy Policy 112745, 3 define a strategy as '*a plan—some sort of consciously intended course of action, a guideline (or a set of guidelines) to deal with a situation*'. According to Roeben (n 4) 4, strategy '*has mostly been understood in an instrumental sense to align objectives with resources and a time frame*' and serves to '*[connect] the political system of society with its legal system.*' Both approaches capture the Network Code Strategy as defined above.

[38] The interaction between the EU's competences in energy and the subsidiarity principle are discussed by Roeben (n 4) 119–120; Johann-Christian Pielow and Britta Janina Lewendel, 'Beyond "Lisbon": EU Competences in the Field of Energy Policy' in Bram Delvaux, Michaël Hunt and Kim Talus (eds), *EU Energy Law and Policy Issues* (Intersentia 2012).

[39] World Energy Council, 'Energy Trilemma Index 2022' (2022), available at https://www.worldenergy.org/transition-toolkit/world-energy-trilemma-index (accessed 13 October 2023); Kaisa Huhta, 'The Coming of Age of Energy Jurisprudence' (2020) 39 Journal of Energy & Natural Resources Law 199, 208; Roeben (n 4) 133; Graeme Hawker, Keith Bell and Simon Gill, 'Electricity Security in the European Union—The Conflict between National Capacity Mechanisms and the Single Market' (2017) 24 Energy Research & Social Science 51, 51. Interestingly, there does not

sectoral legislation is interpreted and implemented, in particular the principle of non-discrimination,[40] or the principle of proportionality.[41] Similarly, the free movement rules have been employed successfully to further underlying policy aims.[42] This is also true for the Commission's competences in the field of competition law.[43] These Treaty provisions remain directly applicable—also in the Member States[44]—alongside the intricate sectoral legislation, since in the view of the European Court of Justice (ECJ, or simply 'the Court'), the transmission of electricity is not harmonised exhaustively in secondary EU legislation.[45]

The second tier encompasses acts of secondary EU legislation, adopted on the basis of the mandate in Article 194(2) TFEU to '*establish the measures necessary to achieve the objectives*' of EU energy policy.[46] So far, the EU institutions have adopted four consecutive legislative 'packages' of secondary legislation over the course of almost three decades. These packages are bundles of separate acts of EU legislation that pursue the same policy goals and are highly interrelated and interdependent. Sector inquiries frequently preceded these packages, providing input for the further development of EU electricity regulation.[47] All packages to date share the explicit goal of ensuring sufficient interconnection to 'complete' the IEM. Chapter 2 will review the different packages and their respective contributions to EU electricity regulation. It is worth noting that whereas the 'Clean Energy Package' was adopted as recently as 2018 and 2019, further reforms are already on the horizon.[48]

seem to be a 'tetralemma' with regard to the fourth aim, ie increasing interconnection. Presumably, this is because interconnection furthers all remaining aims, so that there is no potential for conflict.

[40] Art. 18 TFEU; for further reading, see Hannah Kruimer, *The Non-Discrimination Obligation of Energy Network Operators: European Rules and Regulatory Practice* (Intersentia 2014). See also the numerous references to the principle of non-discrimination throughout the ElReg-2019 and ElDir-2019, in particular Art. 3 ElDir-2019.

[41] Case C-331/88 *FEDESA and Others* [1990] ECLI:EU:C:1990:391 [13]; Tor-Inge Harbo, 'The Function of the Proportionality Principle in EU Law' (2010) 16 European Law Journal 158 provides a comprehensive review of the principle.

[42] For examples, see the 'energy monopoly' cases, Case C-157/94 *Commission v the Netherlands* [1997] ECLI:EU:C:1997:499; Case C-158/94 *Commission v Italy* [1997] ECLI:EU:C:1997:500; Case C-159/94 *Commission v France* [1997] ECLI:EU:C:1997:501; Case C-160/94 *Commission v Spain* [1997] ECLI:EU:C:1997:502. These decisions by the ECJ facilitated the liberalisation of the European energy sectors reviewed in s 2.3.2 below. For a discussion, see Sirja-Leena Penttinen, 'The Treaty Freedoms in the Energy Sector—Overview and State of Play' in Ioanna Mersinia and Sirja-Leena Penttinen (eds), *Energy Transitions, Regulatory and Policy Trends* (Intersentia 2017) 81–85.

[43] Art. 101-106 TFEU. For details, see below at s 2.2.1

[44] See Case C-26/62 *Van Gend en Loos v Administratie der Belastingen* [1963] ECLI:EU:C:1963:1.

[45] See Case C-31/18 *Elektrorazpredelenie Yug* [2019] EU:C:2019:868 [50]. Along the same lines, Penttinen (n 42) 77–78.

[46] As the further discussion will show, the statement that '*[o]ne can assume without doubt that this new enabling clause brings clarity and transparency by enhancing the EU's ability to act in the field of energy*' by Pielow and Lewendel (n 38) 267 was overly optimistic.

[47] European Commission, 'Final Report of the Sector Inquiry on Capacity Mechanisms' (2016) COM(2016) 752 final; European Commission, 'Communication from the Commission: Inquiry Pursuant to Article 17 of Regulation (EC) No 1/2003 into the European Gas and Electricity Sectors (Final Report)' (2007) COM(2006) 0851 final.

[48] European Commission, 'Proposal for a Regulation of the European Parliament and of the Council Amending Regulations (EU) 2019/943 and (EU) 2019/942 as well as Directives (EU) 2018/2001 and (EU) 2019/944 to Improve the Union's Electricity Market Design' [2023] (COM(2023) 148 final) (Proposal for a Regulation to Improve the Union's Electricity Market Design).

Tiers 3 and 4 are what differentiates EU electricity regulation from other sectoral legal frameworks. The European network codes and guidelines constitute the third tier of EU electricity legislation.[49] These delegated regulations are adopted by the Commission.[50] Delegated legislation adopted by the Commission is also referred to as 'tertiary law' to differentiate it from the delegating secondary law act.[51] However, since the Commission lacks the knowledge and resources to adopt detailed, harmonised and technical legislation on its own,[52] proposals for the network codes and guidelines are developed by the operators of the high-voltage electricity grids, the transmission system operators (TSOs).[53] The network codes and guidelines aim at furthering the cooperation and coordination between TSOs.[54] They complement and flesh out the basic acts of the packages. Generally speaking, the acts on tier 3 provide a higher degree of detail than the packages. However, this no longer holds true across the board, and there is a trend towards greater complexity also at the level of the packages. It is crucial to distinguish between the network codes, on the one hand, and the guidelines, on the other. Most importantly, whereas the network codes are exhaustive, the guidelines merely set out criteria for the development of more detailed rules and require further implementation.

The implementation of the guidelines takes place on tier 4, where we find the so-called terms, conditions and methodologies (in the following referred to as methodologies in the interest of brevity).[55] The methodologies are a unique feature of the Network Code Strategy.[56] Each methodology constitutes a building block for the IEM—a piece of the puzzle, so to speak. In contrast

[49] For an extensive discussion of the network codes and guidelines, see Leigh Hancher, Anne-Marie Kehoe and Julius Rumpf, 'The EU Electricity Network Codes and Guidelines: A Legal Perspective (Second Edition)', available at https://cadmus.eui.eu//handle/1814/69718 (accessed 13 October 2023).

[50] It is worth recalling that term 'delegated acts' as used here is not intended as a reference to Art. 290 TFEU. Network codes and guidelines can be adopted as delegated or implementing acts according to Art. 59(1) and (2), 61 ElReg-2019.

[51] On delegated legislation in the EU, see Eljalill Tauschinsky and Wolfgang Weiß (eds), *The Legislative Choice Between Delegated and Implementing Acts in EU Law* (Edward Elgar Publishing 2018); Gianni Lo Schiavo, 'A Judicial Re-Thinking on the Delegation of Powers to European Agencies under EU Law? Comment on Case C-270/12 *UK v. Council and Parliament*' (2015) 16 German Law Journal 315; Herwig Hofmann, 'Legislation, Delegation and Implementation under the Treaty of Lisbon: Typology Meets Reality' (2009) 15 European Law Journal 482.

[52] Raudla and Spendzharova (n 17) 5–6; Burkard Eberlein and Edgar Grande, 'Reconstituting Political Authority in Europe: Transnational Regulatory Networks and the Informalization of Governance in the European Union' in Edgar Grande and Louis W Pauly (eds), *Complex Sovereignty* (University of Toronto Press 2005) 157.

[53] See Art. 59 ElReg-2019. The TSOs develop these proposals through the European Network of Transmission System Operators for Electricity, or ENTSO-E, established according to Art. 28 ElReg-2019. According to Art. 2(35) ElDir-2019, TSOs are the entities responsible for '*operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity*'. TSOs are introduced in greater depth in s 2.2.3 below.

[54] See recital (61) ElReg-2019.

[55] The abbreviation 'TCM' (short for 'terms, conditions and methodologies') is also used to denote the methodologies. This description represents the typical relation of these tiers. However, some exceptions apply. Certain provisions in the ElReg-2019 are implemented directly through (atypical) methodologies, see Art. 14(5), 19(4), 23(6), 26(11), 35(5) 61(2) ElReg-2019. In addition, some network codes require further implementation following a procedure that resembles the development of methodologies. However, these exceptions raise the same issues that arise under the typical model and thus require no specific discussion.

[56] Eva Ruffing, Selma Schwensen Lindgren and Torbjørg Jevnaker, 'Electricity in Perspective—Comparing the TCM Procedure with Other Sectors' (Fridtjof Nansen Institute 2022) 5, available at https://www.fni.no/publications/electricity-in-perspective-comparing-the-tcm-procedure-with-other-sectors (accessed 13 October 2023).

to most other instances of delegated sectoral decision-making, the methodologies are legally binding and thus functionally similar to 'classical' delegated EU legislation. However, unlike tertiary law, methodologies are not adopted by the Commission, but by the European Agency for the Cooperation of Energy Regulators (ACER) or NRAs.[57] The typical content of a methodology consists in specific obligations related to topics such as the calculation and allocation of interconnector capacity,[58] the setting of grid reliability margins,[59] the configuration of electricity price zones,[60] or the sharing of the costs arising from maximising interconnector capacity.[61] Whereas the methodologies may appear 'purely technical', the subjects they address have significant political implications, which chapter 4 will expand upon.

While some methodologies apply throughout the EU (pan-European methodologies), many only apply in a certain geographical ambit (regional methodologies). The CACM Guideline provides the possibly most important example in the form of capacity calculation regions (CCRs), each of which uses a harmonised methodology to calculate the available interconnector capacity—the capacity calculation methodologies (CCMs).[62] Due to the regional approach, implementing the guidelines requires the adoption of hundreds of methodologies.[63] While numerous methodologies have been adopted at the time of writing, the process is far from finished. However, it is surprisingly difficult to keep track of the current stage of development. On the one hand, no single entity has the responsibility for maintaining an up-to-date overview over the methodologies adopted thus far. Pan-European and some regional methodologies are formally adopted by ACER and thus listed on the Agency's website. Nevertheless, the bulk of regional methodologies is adopted through decisions under national law; the most reliable source for these decisions are the websites of the competent regulatory authorities in each respective Member State, which are often in the official language of that Member State. In addition, existing methodologies are frequently amended to account for subsequent legal and factual developments.[64] Thus, there is no easy way to gain an overview over the state of implementation of the methodologies at a glance.

[57] Cf Art. 288(2), 290, 291 TFEU and Art. 9 CACM-GL.
[58] Art. 21 CACM-GL.
[59] Art. 22 CACM-GL. Reliability margins are explained in the context of Paper 1, see s 3.1.1 below.
[60] Art. 32, 33 CACM-GL. EU legislation denotes these price zones as 'bidding zones', which are introduced in s 2.2.3.
[61] Art. 74 CACM-GL.
[62] Art. 2(3) CACM-GL defines a CCR as '*the geographic area in which coordinated capacity calculation is applied*'. On the determination of CCRs, see Art. 15 CACM-GL and Case T-332/17 *E-Control v ACER* [2019] ECLI:EU:T:2019:761.
[63] The European Network of Transmission System Operators for Electricity (ENTSO-E) provides an overview over the methodologies adopted in the context of the CACM-GL at https://www.entsoe.eu/network_codes/cacm/ (accessed 13 October 2023). Note that the overview was not entirely up-to-date at the time of writing; however, it illustrates the scope of the endeavour of implementing even the CACM-GL.
[64] For example, the CCRs have been redefined several times, inter alia due to Brexit and because of the implementation of the CACM-GL in Norway. For the latest decision on the CCRs, see Decision No 08/2023 of the European Union Agency for the Cooperation of Energy Regulators of 31 March 2023 on the Amendment to the Determination of Capacity Calculation Regions.

At present, the 'Russian doll' structure of the four tiers is unique to the electricity sector and raises highly interesting questions that energy law scholarship has only just begun to address.[65] The evaluation of the novel and complex framework within the four-tiered structure of EU electricity legislation is an important contribution of this dissertation. This thesis argues that the expansive reliance on delegated rule-making is part of a coherent regulatory strategy to address the inherent challenges to electricity regulation, ie technical complexity and conflicting interests. Since the strategy initially only foresaw the adoption of network codes, it seems apt to refer to this strategy as 'the Network Code Strategy'. That said, this thesis is especially concerned with the impact of the guidelines and methodologies on EU electricity regulation. In particular, this thesis assumes that we are currently witnessing a sprawl of EU electricity legislation due to the way the Network Code Strategy addresses interconnector regulation. On the one hand, the Network Code Strategy leads to a vertical sprawl, as represented by the four tiers of EU electricity legislation. Moreover, the steep increase in the volume of legislation on interconnectors entails a horizontal sprawl of EU legislation on electricity. The resulting jump in complexity of the regulatory framework may well create challenges for future research and practice in the field of EU electricity regulation.

1.3. Aim and Research Questions

The general problem this dissertation addresses is that the current state of interconnection of the European electricity grids is inadequate for achieving the Energy Union and, indeed, all of the EU's energy policy objectives.[66] The overarching legal question is thus how the EU uses its legislative competences to increase the interconnection of the European electricity systems. However, since the legislation of relevance for this question has become too comprehensive for an exhaustive study, the overarching question is broken down into three subquestions, each of which relates to a different requirement for remedying the current lack of interconnection. The first two requirements concern the procurement of the necessary 'hardware' for the Energy Union and are (1) optimising the utilisation of existing interconnectors, which are frequently underutilised; and (2) promoting investment in new interconnectors where required.[67] The third requirement this thesis discusses is (3) managing the inherent challenges to the regulation of the electricity sector. These three requirements are addressed in the different Papers as depicted in Table 1 below.

[65] For some examples, see Hancher, Kehoe and Rumpf (n 49); Sandra Eckert and Burkard Eberlein, 'Private Authority in Tackling Cross-Border Issues. The Hidden Path of Integrating European Energy Markets' (2020) 42 Journal of European Integration 59; Charikleia Vlachou, 'New Governance and Regulation in the Energy Sector: What Does the Future Hold for EU Network Codes?' (2018) 9 European Journal of Risk Regulation 15; Thomas Kohlbacher and Saskia Lavrijssen, 'Good Governance in the Development of Network Codes for the EU Internal Electricity Market' (2018) 11 Review of European Administrative Law 27; Torbjørg Jevnaker, 'Pushing Administrative EU Integration: The Path towards European Network Codes for Electricity' (2015) 22 Journal of European Public Policy 927; Andreas Pointvogl, 'A New Dimension in the Legitimacy Debate—Network Codes in the Energy Community' (2014) 12 Oil, Gas & Energy Law Intelligence.

[66] Escribano and others (n 12) 2; ACER, '2023 70 Per Cent Report' (n 12) 5.

[67] Recital (6) ElDir-2019; recital (23) ElReg-2019.

Table 1: Relation Between the Aim of the Dissertation, the Research Questions and the Papers

Aim of the dissertation: Understanding how EU electricity regulation endeavours to increase the insufficient interconnection of the European electricity networks.

Main research question: How does the EU use legislation to increase the level of electricity interconnection?

		↓	↓	↓	↓	↓		↓	
						Paper			
	Subquestions	①	②	③	④	⑤			
①	How does EU law pursue to optimise the utilisation of existing interconnectors?	✓	✓		✓	✓			
②	How does EU law promote investment in new interconnectors?	✓		✓	✓				
③	How does EU law manage technical complexity and conflicting interests as inherent challenges in electricity regulation?		✓		✓	✓			

The three subquestions posed in Table 1 have been chosen because the three aspects of interconnector regulation they relate to—utilisation, investment, and challenge management—engage in a way that if any of them lacks, progress towards the Energy Union will be encumbered or even fail altogether. Simply prescribing the full utilisation of interconnectors or additional investment in cross-border infrastructure in EU energy law is not enough; otherwise, the IEM—as a core building block or even synonym of the Energy Union—would presumably have been finished by 2014, as postulated by the European Council in 2011.[68] Thus, the way in which EU energy law addresses the inherent challenges to electricity regulation is just as important for the completion of the Energy Union as providing rules that aim at increasing interconnection more directly. The Papers confirm this assumption and show that even where sensible rules on interconnector regulation are in place, implementing and enforcing them remains challenging due to technical complexity and conflicting interests.

Therefore, this dissertation is particularly concerned with the expansive use of delegated legislation pursuant to the Network Code Strategy. Each of the Papers informing this dissertation examines certain aspects of this strategy and thus contributes to shedding light on the different subquestions. This Enveloping Discussion combines the findings of the Papers to discuss the Network Code Strategy from a more encompassing angle in Chapter 4. This discussion shows that the Network Code Strategy focuses mainly on improving the utilisation of existing interconnectors, while it hardly addresses issues of interconnector investment. Also, rather than resolving the inherent

[68] European Council, 'Conclusions on Energy' (2011).

challenges of electricity regulation, the Network Code Strategy helps pinpointing remaining points of contention. However, this discussion also reveals an 'upstream' impact of the strategy, with repercussions on EU electricity regulation on a more general level and posing new challenges. This discussion shows how the Network Code Strategy 'complexifies' EU electricity regulation. The various implications of these findings for future research, policy and practice in the field of EU electricity regulation are discussed in chapter 5.

1.4. Methodology

To answer the underlying research questions, this thesis uses legal doctrinal method for interpreting EU legislation on interconnectors from all four tiers introduced previously.[69] This section describes the method used in this thesis (subsection 1.4.1), positions the thesis within the discipline of energy law (subsection 1.4.2) and gives reasons for the scope of research, ie the focus on EU electricity interconnector regulation, as well as the choice of sources (subsection 1.4.3).

1.4.1. Legal Doctrinal Research as a Base

The method used in this thesis is a legal doctrinal analysis of EU law. The point of departure of legal doctrinal research (also called legal dogmatic research) is a hermeneutical interpretation of positive law.[70] The doctrinal study of law is concerned with certain authoritative sources—in the first place, legislation and court decisions.[71] Given that this dissertation focuses on EU law, it follows the systematic method of interpretation applied by the ECJ.[72] This approach is 'second nature' to scholars of EU law and thus not discussed explicitly in the Papers. The ECJ describes its approach as follows:

[69] See above, at s 1.2.2.

[70] For an overview over several variants of legal doctrinal studies, as well as other approaches to legal science, consult Terry Hutchinson, 'Doctrinal Research: Researching the Jury' in Dawn Watkins and Mandy Burton (eds), *Research Methods in Law* (Second edition, Routledge 2018); Ibolya Losoncz, 'Methodological Approaches and Considerations in Regulatory Research' in Peter Drahos (ed), *Regulatory Theory* (1st edn, ANU Press 2017); Rob van Gestel and Hans-Wolfgang Micklitz, 'Why Methods Matter in European Legal Scholarship' (2014) 20 European Law Journal 292; Álvaro Núñez Vaquero, 'Five Models of Legal Science' [2013] Revus 53; Rob van Gestel, Hans-Wolfgang Micklitz and Miguel Poiares Maduro, 'Methodology in the New Legal World' (2012) No. 2012/13 EUI Working Papers; Jan M Smits, *The Mind and Method of the Legal Academic* (Edward Elgar 2012); Edward L Rubin, 'Law and the Methodology of Law' [1997] Wisconsin Law Review 521; Eugenio Bulygin, 'Legal Dogmatics and the Systematization of the Law' in Torstein Einang Eckhoff, Lawrence M Friedman and Jyrki Uusitalo (eds), *Vernunft und Erfahrung im Rechtsdenken der Gegenwart* (Duncker & Humblot 1986).

[71] Denoted as '*law texts*' by Bulygin (n 70) 222; See also Sanne Taekema, 'Theoretical and Normative Frameworks for Legal Research: Putting Theory into Practice' [2018] Law and Method 1–2.

[72] See Karl Riesenhuber (ed), *European Legal Methodology* (Intersentia 2021) ch 7 on the interpretation of primary EU law and ch 10 on the interpretation of secondary EU law; Angus Johnston and Eva van der Marel, 'Ad Lucem? Interpreting the New EU Energy Provision, and in Particular the Meaning of Article 194(2) TFEU' (2013) 22 European Energy and Environmental Law Review 181, 185; Catherine Banet, 'Tradable Green Certificates Schemes under EU Law: The Influence of EU Law on National Support Schemes for Renewable Electricity Generation' (University of Oslo 2012) 50–51; an in-depth discussion can be found in Anthony Arnull, *The European Union and Its Court of Justice* (2nd ed, Oxford University Press 2006) ch 16.

> '*According to settled case-law, when interpreting a provision of EU law, it is necessary to consider not only its* ***wording*** *but also the* ***context*** *in which it occurs and the* ***objects*** *of the rules of which it is part.*'[73]

These three approaches to interpretation are used throughout this dissertation. However, the subject of this thesis had certain repercussions on the application of the dogmatic method. Due to the novelty of the numerous acts of secondary and delegated legislation in EU electricity regulation this thesis examines, there is usually no case law or wealth of literature to rely on. Therefore, the literal mode of interpretation is an especially important starting point for the analyses forming part of this dissertation. According to the Court, the wording of EU legislation should be interpreted according to the '*usual meaning in everyday language*' of the relevant terms.[74] Since EU legislation on electricity uses a distinct and very technical language, this is often not very helpful.[75] Legal definitions are therefore an important aid in the literal interpretation.[76] In addition, particular regard must be paid to the equivalence of different language versions of the same act, so that the '*interpretation of a provision of [EU] law thus involves a comparison of the different language versions.*'[77] This was, for example, relevant in the context of Paper 1.

While an important starting point, the literal interpretation of EU legislation on electricity interconnectors seldom provides exhaustive answers. Therefore, it is usually necessary to submit EU electricity legislation to a contextual and teleological interpretation guided by the principle of *effet utile*.[78] There is no clear dividing line between the contextual and teleological modes of interpretation.[79] The recitals in the preamble to EU legislation are referenced frequently by the

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[73] See, in the context of electricity regulation, Case C-46/21 P *ACER v Aquind* [2023] ECLI:EU:C:2023:182 54; Case C-17/03 *VEMW, APX & Eneco NV v DTE* [2005] ECLI:EU:C:2005:362 [41]; my emphases. In general, see Case C-283/81 *CILFIT v Ministero della Sanità* [1982] ECLI:EU:C:1982:335.

[74] Cited from Case C-201/13 *Deckmyn and Vrijheidsfonds* [2014] ECLI:EU:C:2014:2132 [19]. For a discussion of this rule, see Karl Riesenhuber, 'Interpretation of EU Secondary Law' in Karl Riesenhuber (ed), *European Legal Methodology* (Intersentia 2021) 258.

[75] This issue is discussed in the context of interdisciplinarity below, at s 1.4.2. The literal interpretation must consider that EU legislation uses a specific and distinct terminology, see *CILFIT* (n 73) para 19.

[76] For an extreme example, see Art. 3(2) of Commission Regulation (EU) 2017/1485 of 2 August 2017 Establishing a Guideline on Electricity Transmission System Operation [2017] OJ L220/1 (SO-GL), which contains no less than 159 definitions. Also the ElDir-2019 and the ElReg-2019 are impressive in this regard, comprising 57 and 41 legal definitions, respectively.

[77] *CILFIT* (n 73) para 18; Case T-631/19 *BNetzA v ACER* [2022] ECLI:EU:T:2022:509 [41]. On related problems, consult Riesenhuber (n 74) 257–258. Already Bulygin (n 70) 194 emphasised the logical challenges following from such an approach.

[78] Riesenhuber (n 74) 271–272; Rudolf Streinz, 'Interpretation and Development of EU Primary Law' in Karl Riesenhuber (ed), *European Legal Methodology* (Intersentia 2021) 170; Arnull (n 72) 608. This is especially the case where different language versions diverge from each other, see *Julius Sabatauskas and Others* (ECJ) [39].

[79] For an example of a doctrinal analysis by the General Court (GC) 'by the book' with explicit reference to the contextual and teleological interpretation of EU law, see Case T-684/19 *MEKH v ACER* [2022] ECLI:EU:T:2022:138 [102–135]. For a discussion of a decision building on teleological interpretation, see Julius Rumpf and Leigh Hancher, 'Baltic Cable AB v Energimarknadsinspektionen (C-454/18): The CJEU Decides on Congestion Income Regulation of Single Electricity Interconnector Companies and Applies Classic Remedies for Modern Issues' (2021) 46 European Law Review 242; available for download at https://www.jus.uio.no/nifs/english/people/aca/juliusr/rumpf_2021_46_elrev_issue_2_offprint.pdf (accessed 13 October 2023). The following disclaimer applies: This material was first published by Thomson Reuters, trading as Sweet & Maxwell, 5 Canada Square, Canary Wharf, London, E14 5AQ, and is reproduced by agreement with the publishers. Note that the paper may not be distributed further after download and copies may only be printed for own internal use.

European Courts and throughout this thesis, since they shed light on the context as well as the objective of the legislative act, or norm, in question.[80] Further insights as to the context and the objective of an EU norm can be gathered from its immediate context—the act, article, sentence or even paragraph it is part of—as well as the overall system of which the concerned legislative act forms part. Given that EU legislation for electricity is adopted in consecutive packages, the interpretation may include a comparison with previous iterations of the act or norm in question, where they exist. Given that EU electricity legislation comprises several tiers of delegated legislation, the internal hierarchy between the relevant acts must also be considered.[81] That said, the fact that the ECJ considers the further integration of the EU's Member States '*the raison d'être of the EU itself*', suggests that integration is the overarching context and objective of EU electricity legislation, which hence should generally be interpreted in a way that furthers the IEM.[82]

1.4.2. Positioning the Thesis within Energy Law Scholarship and Interdisciplinary Legal Research

However, a purely legal dogmatic approach on its own would not offer satisfactory answers to the questions that motivate this thesis. In a field so exposed to technical, economic and political considerations as interconnector regulation, a purely dogmatic 'snapshot' of the state of positive law would risk overlooking the deeper implications. Therefore, the dogmatic analysis needs to be modified and enhanced with an interdisciplinary perspective. This subsection will define energy law as a discipline, with a view to positioning this thesis within this field of legal study. Furthermore, it discusses the challenges arising from the choice of discipline, most importantly the need to engage in interdisciplinary legal research.

Although by now an established field within legal scholarship and practice, there is no generally accepted definition for energy law.[83] The study of energy law often overlaps with other legal disciplines,[84] in particular European administrative and competition law. Nevertheless, energy law possesses its own 'logic', a distinct set of values that guide the application of the established legal

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[80] For an example, see Case C-439/06 *citiworks AG v Flughafen Leipzig/Halle GmbH and Bundesnetzagentur* (ECJ) [37–44].

[81] Note, however, that the interpretation of primary law may be influenced by formally inferior EU legislation, as Paper 3 points out. See also Case C-573/12 *Ålands Vindkraft AB v Energimyndigheten* [2014] ECLI:EU:C:2014:2037 [104]; Case C-379/98 *PreussenElektra* [2001] ECLI:EU:C:2001:160 [81]. For a discussion, refer to Phil Syrpis, 'The Relationship between Primary and Secondary Law in the EU' (2015) 52 Common Market Law Review 461.

[82] See the ECJ's Opinion 2/13 *EU Accession to the ECHR* [2014] ECLI:EU:C:2014:2454 [172]. See also Art. 1(2) TEU. Similarly, Streinz (n 78) 168. Note that this general primacy does not resolve the trilemma introduced above, at s 1.2.1, in favour of market integration in all cases. In fact, other aims, such as security of supply and sustainability, are important elements of the IEM, cf recital (17) ElDir-2019.

[83] Conservative voices lament a '*fragmentation and hyperthrophy*' (my translation) and oppose the dissection of public or administrative law into numerous subdisciplines—including energy law—see Josef Franz Lindner, 'Desiderate an die deutsche Staatsrechtslehre' (2015) 70 JuristenZeitung 589, 595–596. However, the existence of energy law as a field of legal research can hardly be denied given the existence of dedicated research institutes and scientific journals, see Huhta, 'The Coming of Age of Energy Jurisprudence' (n 39) 201–204; Raphael J Heffron and others, 'A Treatise for Energy Law' (2018) 11 The Journal of World Energy Law & Business 34, 34–35. This notwithstanding, Raphael J Heffron and Kim Talus, 'The Development of Energy Law in the 21st Century: A Paradigm Shift?' [2016] The Journal of World Energy Law & Business 189, 190, recently called for a '*debate around what energy law should be*'.

[84] See, Huhta, 'The Coming of Age of Energy Jurisprudence' (n 39) 206–207, who notes that '*[…] energy can be viewed from the perspective of almost any legal discipline.*'

instruments of, for instance, competition law.[85] Bradbrook provided the first survey of these values at the time of the adoption of the First Energy Package, emphasising numerous features of energy law that are valid now as then.[86] Among the characteristics identified by Bradbrook, the most relevant for this thesis are interdisciplinarity, the interface between law and technology, and the significance of energy for the security of society as well as states.[87] These characteristics reflect the sector-specific challenges identified in the previous subsection 1.2.1.

Building on Bradbrook's findings, Heffron and others identify seven '*principles of energy law*' that guide the regulation of this sector.[88] Among these, the Principle of National Resource Sovereignty[89] and the Energy Security and Reliability Principle[90] have a clear impact on the issues discussed in this dissertation.[91] While the former principle is codified in Article 194(2) TFEU to reserve the Member States' discretion in energy policy matters,[92] the latter principle emphasises that market integration can only occur within the limits of a reliable electricity grid. Most recently, Huhta has pinpointed five '*common denominators*' that resonate with the perspective and approach of this thesis and illustrate some of the particular challenges that the choice of subject posed during its writing.[93] Of these denominators, the '*prevalence of balancing interests*'[94] has already been introduced as an inherent challenge of EU interconnector regulation.[95] Moreover, Huhta's reference to '*multilevel governance and institutional fragmentation*'[96] appositely captures the increased complexity resulting from recent changes under the Network Code Strategy, such as the creation of ACER, but in particular the extensive reliance on several tiers of delegated legislation. Doing

[85] For an illustrative example, see the discussion on the delimitation of electricity markets—based on the technical and economic characteristics of electricity—in *Commission Decision of 14.04.2010 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case 39351—Swedish Interconnectors)*; *Commission Decision of 7.12.2018 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case AT.40461—DE/DK Interconnector)*. For a general overview, consult Christian Bergqvist and Ignacio Herrera Anchustegui, 'Uses and Abuses of EU Competition Law in Energy' in Tina Soliman Hunter and others (eds), *Routledge Handbook of Energy Law* (Routledge, Taylor & Francis Group 2020).

[86] Adrian Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14 Journal of Energy & Natural Resources Law 193. On the First Energy Package, see below at s 2.3.2

[87] On the latter point, cf already Case 72/83 *Campus Oil* [1984] ECLI:EU:C:1984:256 [34–35]. For discussions of the case, see Penttinen (n 42) 90–93; Dirk Vandermeersch, 'Restrictions on the Movement of Oil In and Out of the European Community: The Campus Oil and Bulk Oil Cases' (1987) 5 Journal of Energy & Natural Resources Law 31.

[88] Heffron and others (n 83) tbl 3.

[89] ibid 39–41.

[90] ibid 45–46.

[91] Other principles are less relevant in the immediate context of interconnector regulation, but highly relevant for the achievement of the Energy Union's wider aims, such as the '*Principle of Prudent, Rational and Sustainable Use of Natural Resources*' and the '*Principle of the Protection of the Environment, Human Health & Combatting Climate Change*'; see ibid 43–45. See also Brian J Preston, 'The Right to a Clean, Healthy and Sustainable Environment: How to Make It Operational and Effective' [2023] Journal of Energy & Natural Resources Law 1; Alison Hardiman, 'Climate, Energy—and Environment? Reconciliation of EU Environmental Law with the Implementation Realities of EU Climate Law' (2022) 12 Climate Law 242.

[92] The caveat in Art. 194(2) TFEU is examined in depth by Kristín Haraldsdóttir, 'The Limits of EU Competence to Regulate Conditions for Exploitation of Energy Resources: Analysis of Article 194(2) TFEU' (2014) 23 European Energy and Environmental Law Review 208. See also below, at s 2.2.2.

[93] See Huhta, 'The Coming of Age of Energy Jurisprudence' (n 39) 211.

[94] ibid 208–209.

[95] See above, at s 1.2.1.

[96] Huhta, 'The Coming of Age of Energy Jurisprudence' (n 39) 205–206.

research on and within this complicated regulatory landscape posed another challenge during the writing of this thesis.

Another relevant denominator is that energy law is interdisciplinary and exhibits close ties to other scientific areas.[97] Oftentimes, this concerns the very wording of the relevant legal norms. Under the Network Code Strategy, EU electricity regulation routinely relies on concepts from the field of power system engineering.[98] Other examples stem from economic theory, such as efficiency; the Electricity Regulation aims to '*set the basis for an efficient achievement of the objectives of the Energy Union*'.[99] Given that the systematic and teleological approaches to interpretation are especially important within energy law,[100] researching interconnector regulation requires a solid 'working knowledge' of extra-legal terminology and concepts.[101] Therefore, this thesis follows a 'law in context' approach, seeking to examine the subject of EU interconnector regulation from a broader perspective and making use of extra-legal sources and concepts where these help shed light on the legal issues at stake. This approach—which can also be described as a systemic perspective—is well-established in legal scholarship concerned with EU electricity regulation, as numerous previous works illustrate.[102] As a result, the research underlying the Papers also touches upon theory and terminology from engineering, economics or political science. However, it does not aspire to conduct a fully-fledged multidisciplinary 'law and' study.[103]

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[97] ibid 207–208.

[98] For example, see the reference to the concept of '*rotor angle stability*' in Art. 3(2)(59) SO-GL, or '*subsynchronous torsional interaction damping capability*' in Art. 31 of Commission Regulation (EU) 2016/1447 of 26 August 2016 Establishing a Network Code on Requirements for Grid Connection on High Voltage Direct Current Systems and Direct Current-Connected Power Park Modules [2016] OJ L244/1.

[99] Art. 1(a) ElReg-2019.

[100] Huhta, 'The Coming of Age of Energy Jurisprudence' (n 39) 210.

[101] Raphael J Heffron and Kim Talus, 'The Evolution of Energy Law and Energy Jurisprudence: Insights for Energy Analysts and Researchers' (2016) 19 Energy Research & Social Science 1, 1–2.

[102] To name just some recent examples, see (in order of submission) (1) Kanerva Sunila, *Regulating the Change in the EU Electricity Markets—Finding the Balance between Tomorrow and Yesterday* (Aalto University 2023). Sunila emphasises the need for innovative regulatory solutions to meet the emerging challenges in EU electricity regulation; (2) Henri Van Soest, 'Design for Control: The Regulation of Cybersecurity in the European Electricity System' (University of Cambridge 2021). With cybersecurity, Van Soest's thesis addresses an aspect that has long been neglected by EU electricity regulation, but for which a network code is currently being developed. (3) Ceciel Nieuwenhout, 'Regulating Offshore Electricity Infrastructure in the North Sea: Towards a New Legal Framework' (University of Groningen 2020). Nieuwenhout focuses on offshore electricity, which is an important building block in the EU's decarbonisation efforts. (3) Hannah Katharina Müller, *A Legal Framework for a Transnational Offshore Grid in the North Sea* (Intersentia 2016). Müller's scrutiny encompasses questions of international public law that are outside the scope of this thesis. (4) Carsten König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* (Nomos Verlagsgesellschaft 2013). It should be noted that König covers the entirety of European and German electricity infrastructure regulation at the time, making his analysis exceptionally comprehensive. (5) Banet (n 72). In her thesis, Banet examines how EU law influences the regulatory design of certain RES support schemes, which contribute to the growing share of RES in the European electricity mix. (6) Henrik Bjørnebye, *Investing in EU Energy Security: Exploring the Regulatory Approach to Tomorrow's Electricity Production* (Wolters Kluwer 2010). Note than Bjørnebye focuses on investment in electricity *generation* capacity instead of *transmission* capacity, the latter being the focus of this dissertation.

[103] On 'law and economics', see Albert Sanchez-Graells, 'Economic Analysis of Law, or Economically Informed Legal Research' in Dawn Watkins and Mandy Burton (eds), *Research Methods in Law* (Second edition, Routledge 2018); Erling Eide and Endre Stavang, *Rettsøkonomi: analyse for privatrett og miljørett* (Cappelen Akademisk Forlag 2001); some 'law and' approaches are discussed in Robert Cryer and others, *Research Methodologies in EU and International Law* (Hart Publishing 2011) ch 6.

1.4.3. Scope of the Study

The following subsections give reasons for the research focus of this thesis (subsection 1.4.3.1), which informs the choice of sources used in the legal doctrinal research (subsection 1.4.3.2).

1.4.3.1. Research Focus

This subsection explains the research focus of this dissertation, giving reasons for each delimitation of scope. This dissertation focuses on (1) the EU; (2) market integration under the Energy Union umbrella; (3) electricity, as opposed to natural gas; (4) legislation on electricity transmission networks and the spot market for electricity; and (5) regulative norms, as opposed to incentive rules.

First, while the issue of interconnection arises in many regions and countries worldwide,[104] a focus on the EU provides an especially insightful perspective on the topic of interconnector regulation. Despite a strict division of competences between the EU and its Member States under the principle of conferral,[105] no other region in the world has reached a comparable level of supranational integration. Even in the US, electricity markets are only integrated regionally.[106] While much remains to be done, the EU has achieved a relatively high degree of electricity market integration, making the European electricity sector a particularly interesting field of study for the regulation of a vital commodity in a liberalised market setting.[107] In addition, the EU aims to be a forerunner among the world's economic superpowers concerning decarbonisation.[108] These considerations render the Energy Union a unique and highly important project on a global scale.

Second, at the same time, the Energy Union's aims are too broad to be fully covered in this dissertation. The literature refers to the Energy Union as '*a transformative political-legal project*',[109] or simply '*mega project*'.[110] In the words of the Commission and the Governance Regulation, the Energy Union covers '*five closely interrelated and mutually-reinforcing*

[104] The US, South America and Australia provide important examples. Studies on these and other countries or regions are provided by Mark C Christie, 'It's Time to Reconsider Single-Clearing Price Mechanisms in U.S. Energy Markets' (2023) 44 Energy Law Journal 1; Carola Antonini and others, '"The Future of Electricity": A Panel of Experts Considers What Lies Ahead in Canada, Colombia, Egypt, Germany, Italy and Japan' (2022) 40 Journal of Energy & Natural Resources Law 501; William Webster, 'An Introduction to Energy Market Law in the United States of America' in Christopher Jones (ed), *EU Energy Law*, vol I (4th edn, Claeys & Casteels 2016); Griffin and Puller (n 25).

[105] Art. 5 TEU. The principle is discussed by Pielow and Lewendel (n 38) 264; Bram Delvaux and Alice Guimaraes-Purokoski, 'Vertical Division of Competences between the European Community and Its Member States in the Energy Field—Some Remarks on the Evolution of Community Energy Law and Policy' in Bram Delvaux, Michaël Hunt and Kim Talus (eds), *EU Energy Law and Policy Issues* (Euroconfidentiel 2008) 9–13.

[106] Webster (n 104) 759.

[107] Hermann-Josef Blanke, 'Article 26 [Establishing the Internal Market]' in Hermann-Josef Blanke and Stelio Mangiameli (eds), *Treaty on the Functioning of the European Union—A Commentary: Volume I: Preamble, Articles 1-89* (Springer International Publishing 2021) para 8 describes the internal market as building on the concept of market economy, in particular price formation based on supply and demand, a high degree of private autonomy and a reservation against state interference. According to Spyros Economides and Peter Wilson, *The Economic Factor in International Relations* (IB Tauris 2001) 19, these are also the broad distinguishing characteristics of economic liberalism. These reverberate in the IEM; see eg Art. 5 ElDir-2019, which is built on the principle of market-based electricity price formation. In a similar vein, Kaisa Huhta, 'Trust in the Invisible Hand? The Roles of the State and the Markets in EU Energy Law' (2020) 13 The Journal of World Energy Law & Business 1, 5.

[108] European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions "Fit for 55": Delivering the EU's 2030 Climate Target on the Way to Climate Neutrality' (2021) COM(2021) 550 final 1–3.

[109] Roeben (n 4) 3.

[110] Blanke (n 107) para 40.

dimensions'. These dimensions are '*energy security; the internal energy market; energy efficiency; decarbonisation; and research, innovation and competitiveness*'.[111] The Energy Union thus specifically addresses challenges of the 21st century through a strong focus on decarbonisation and sustainability. Clearly, the Energy Union is about more than 'mere' energy market integration.[112] At the same time, the EU considers a competitive, liberalised and integrated electricity market to be the best vehicle to achieve security, affordability and sustainability.[113] Therefore, the IEM continues to be the core building block or even synonym of the Energy Union,[114] and this dissertation focuses on the dimension of market integration.

Third, whereas the Energy Union covers both electricity and gas, it is necessary to delimit the scope of this thesis to the electricity sector to adequately capture the specificities of electricity as a commodity.[115] In particular, the physical characteristics of electricity, which currently impede large-scale storage, entail a higher degree of complexity.[116] The electricity sector also appears to be subject to more unresolved conflicts than the gas sector. From a legal point of view, these characteristics lead to different regulatory frameworks for electricity and gas. Most importantly, the use of guidelines and methodologies is an exclusive feature of EU electricity regulation.

Fourth, to achieve a balance between depth and complexity, this thesis refrains from an all-encompassing study of EU legislation on electricity market integration, restricting the scope in two ways. On the one hand, this thesis focuses on the transmission grid. Electricity is transmitted at different voltage levels for technical reasons; the transmission grid encompasses the highest voltage levels and constitutes the 'backbone' of the European electricity system.[117] Electricity market integration takes place at transmission level, since EU energy law only recognises cross-border transmission lines as interconnectors.[118] This makes the transmission system a natural focal point for this dissertation. In the following, terms such as 'electric power system', 'grid', or 'network'

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[111] European Commission, 'The Energy Union Programme' (n 3) 4. and recital (2) GovReg.

[112] Christian Calliess, 'Art. 194 [Energiepolitik]' in Christian Calliess and Matthias Ruffert (eds), *EUV/AEUV: Das Verfassungsrecht der Europäischen Union mit Europäischer Grundrechtecharta: Kommentar* (6th edn, CH Beck 2022) para 7. Interestingly, EU energy policy pursued diverse aims from the very start. As already Piet Jan Slot and Andrew Skudder, 'Common Features of Community Law Regulation in the Network-Bound Sectors' (2001) 38 Common Market Law Review 87, 120–121 pointed out, '*Liberalization and the single market are not goals in themselves.*'

[113] Art. 1 ElDir-2019; Art. 1(b), (c), 3(a), (b) ElReg-2019. See also Huhta, 'Trust in the Invisible Hand?' (n 107) 5; Bjørnebye (n 102) ch 5.

[114] In this vein also David Schönheit and others, 'Toward a Fundamental Understanding of Flow-Based Market Coupling for Cross-Border Electricity Trading' (2021) 2 Advances in Applied Energy 100027, 1; Rafael Emmanuel Macatangay and Volker Roeben, 'Managing the Threat of Regulatory Capture under the European Energy Union' in Peter D Cameron, Xiaoyi Mu and Volker Roeben (eds), *The Global Energy Transition: Law, Policy, and Economics for Energy in the 21st Century* (Hart Publishing, an imprint of Bloomsbury Publishing 2020) 172.

[115] While the Energy Union programme encompasses specific strategies for the natural gas sector, the approach is fundamentally different and mainly concerns the diversification of natural gas sources to ensure sufficient gas supply and reducing dependence on Russia.

[116] Along the same lines, Kruimer (n 40) 31. Storage of electric energy is currently subject to massive conversion losses, see Shivakumar (n 14) 54.

[117] For a discussion, see Catharina Sikow-Magny, 'The Energy Infrastructures, the Backbone of the Internal Market' in Jean-Arnold Vinois (ed), *EU Energy Law: The Security of Energy Supply in the European Union*, vol VI (Claeys & Casteels 2012). According to Art. 2(34) ElDir-2019, the transmission system comprises '*extra high-voltage and high-voltage*' infrastructure, however EU legislation does not provide numerical thresholds to distinguish between different voltage levels.

[118] See Art. 2(1) ElReg-2019.

thus refer to transmission systems unless noted otherwise.[119] On the other hand, this dissertation focuses on the day-ahead and intraday timeframes (also called spot market), where market integration is most advanced.[120] Electricity is traded in different timeframes to account for the need to balance electricity grids in real-time. Because production and load patterns are constantly changing, market participants sell and buy electricity at different points in time before physical delivery according to their updated demand. This provides the TSOs with information for recalculating the available network capacity and ensures that any unused capacity remains available in subsequent timeframes.[121] The forward market (before the spot market) and the balancing market (after the spot market) constitute directions for future research.[122]

Fifth, the abundance of relevant legislation requires a further reduction of scope according to the instruments used to promote an increase in interconnection. This dissertation focuses on legal norms that establish orders or prohibitions to be enforced, which Mayntz denotes as '*regulative norms*'.[123] Other instruments, such as incentive rules, are not covered.[124] While such instruments could also help shed light on the questions that motivate this dissertation, they raise a host of new issues that cannot be addressed within the scope of this thesis. Examples include the 'Inter-TSO Compensation Mechanism',[125] or the incentives provided to privileged interconnector investments that obtain the status of 'Projects of Common interest' (PCIs),[126] for example in the form of access to funding through the 'Connecting Europe Facility',[127] or through fast-track permit procedures and other

[119] Therefore, the distribution system, which ensures the transportation of the electricity from the transmission level to the majority of consumers connected at lower voltage levels, remains outside the scope of this thesis. However, structural capacity bottlenecks also occur at distribution level, where they may encumber the EU's energy policy aims; see EURELECTRIC, 'Power System of the Future: Keys to Delivering Capacity on the Distribution Grid' (2023).

[120] The day-ahead timeframe ends on 12:00 noon of the day preceding physical delivery, while the intraday timeframe covers the remaining time until up to one hour before physical delivery. See also Art. 7 and 8 ElReg-2019. For more background information, consult https://www.nordpoolgroup.com/en/the-power-market/Day-ahead-market/ and https://www.nordpoolgroup.com/en/the-power-market/Intraday-market/ (both accessed 13 October 2023).

[121] Art. 17 ElReg-2019. For details, see Wolak (n 25); Leonardo Meeus, *The Evolution of Electricity Markets in Europe* (Edward Elgar Publishing 2020) fig 0.1; Carlos Batlle, 'Electricity Generation and Wholesale Markets' in Ignacio J Pérez-Arriaga (ed), *Regulation of the Power Sector* (Springer London 2013).

[122] On these timeframes, see Art. 6 and 9 ElReg-2019.

[123] See Renate Mayntz, 'The Conditions of Effective Public Policy: A New Challenge For Policy Analysis' (1983) 11 Policy & Politics 123. Other scholars denote such norms as '*unilateral regulation*' (Knops (n 30) 76), or '*deontic norms*' (Sieghard Beller, 'Deontic Norms, Deontic Reasoning, and Deontic Conditionals' (2008) 14 Thinking & Reasoning 305).

[124] For a typology of regulatory instruments, see Knops (n 30) 71–77.

[125] See Commission Regulation (EU) 838/2010 of 23 September 2010 on Laying Down Guidelines Relating to the Inter-transmission System Operator Compensation Mechanism and a Common Regulatory Approach to Transmission Charging [2010] OJ L250/5. The mechanism is discussed by Dubravko Sabolić, 'On Economic Inefficiency of European Inter-TSO Compensation Mechanism' (2017) 110 Energy Policy 548.

[126] Since 2013, the Commission has adopted a new list of projects that qualify for PCI status every odd year. For the latest list at the time of writing, see Commission Delegated Regulation (EU) 2022/564 of 19 November 2021 Amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as Regards the Union List of Projects of Common Interest [2022] OJ L109/14. Kaisa Huhta, 'Case T-295/20 Aquind: Clarifying the Division of Powers in the EU Energy Sector' (2023) 32 European Energy and Environmental Law Review 155 discusses a recent case that concerned the deletion of an electricity interconnector project from the PCI list; Tim Schittekatte and others, 'Making the TEN-E Regulation Compatible with the Green Deal: Eligibility, Selection, and Cost Allocation for PCIs' (2021) 156 Energy Policy 112426 discuss the selection process in general.

[127] See Regulation (EU) 2021/1153 of the European Parliament and of the Council of 7 July 2021 Establishing the Connecting Europe Facility [2021] OJ L249/38.

advantages under the recently revised TEN-E Regulation.[128] The impact of such incentive measures on ensuring sufficient investment in interconnectors provides an interesting avenue for future research. The same goes for the intricate procedures under the Governance Regulation.[129] These are relevant for subquestion 3, however their study must remain reserved for a future date.

1.4.3.2. Selection of Sources

This subsection explains how the various sources used in the dissertation were selected. The presentation is grouped into legal sources, official extra-legal sources and unofficial extra-legal sources.

Concerning legal sources, the primary object of study of this thesis is EU law.[130] National law is only used for illustration purposes. In this context, it is worth noting that EU law takes formal precedence over national law of the Member States.[131] While EU legislation outside the four-tiered framework can yield insights for the research informing this thesis, the main focus is on EU electricity legislation as defined in subsection 1.2.2 above. At the level of secondary law, the legal dogmatic research underlying this thesis focuses on the Electricity Directive and Electricity Regulation, which establish regulative norms in the context of market integration and interconnectors. With respect to delegated electricity legislation, the Papers and this Enveloping Discussion focus on the CACM Guideline because it addresses crucial topics related to electricity interconnection, such as the calculation and allocation of capacity on interconnectors on the spot market.[132] The remaining guidelines are used for illustration purposes where appropriate. By contrast, the network codes are exhaustive, but concern very technical subjects that offer little insight for this thesis.[133]

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[128] See Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on Guidelines for Trans-European Energy Infrastructure [2022] OJ L152/45. Literature on the newly revised TEN-E Regulation is still scarce; for a discussion, see Schittekatte and others (n 126). For an analysis of the predecessor Regulation (EU) 347/2013 of the European Parliament and of the Council of 17 April 2013 on Guidelines for Trans-European Energy Infrastructure [2013] OJ L115/39, see Olaf Däuper and Christian Thole, 'The Energy Infrastructure Package and the New TEN-E Regulation—Scope and Impact on the Energy Community' (2014) 12 Oil, Gas & Energy Law; Sven Fischerauer, 'Bringing Together European Energy Markets: The New Regulation on Guidelines for Trans-European Energy Infrastructure (TEN-E)' (2013) 22 European Energy and Environmental Law Review 70.

[129] Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action [2018] OJ L328/1 (GovReg). For an overview over the aims and functioning of the GovReg, see Sabine Schlacke and Michèle Knodt, 'The Governance System of the European Energy Union and Climate Action' (2019) 16 Journal for European Environmental & Planning Law 323. For a critical discussion, consult Ammannati (n 34).

[130] EEA law may be referenced where appropriate, ie when Norway is used as a case study.

[131] Cf Case 6/64 *Costa v ENEL* [1964] ECLI:EU:C:1964:66; Case 106/77 *Amministrazione delle Finanze dello Stato v Simmenthal SpA* [1978] ECLI:EU:C:1978:49. For a critical comment to these decisions, refer to Joerges and Kreuder-Sonnen (n 4) 129–131.

[132] Commission Regulation (EU) 2017/2195 of 23 November 2017 Establishing a Guideline on Electricity Balancing [2017] OJ L312/6 (EB-GL); Commission Regulation (EU) 2017/1485 of 2 August 2017 Establishing a Guideline on Electricity Transmission System Operation [2017] OJ L 220/1 (SO-GL); Commission Regulation (EU) 2016/1719 of 26 September 2016 Establishing a Guideline on Forward Capacity Allocation [2016] OJ L259/42 (FCA-GL); Commission Regulation (EU) 2015/1222 of 24 July 2015 Establishing a Guideline on Capacity Allocation and Congestion Management [2015] OJ L197/24 (CACM-GL).

[133] Commission Regulation (EU) 2017/2196 of 24 November 2017 Establishing a Network Code on Electricity Emergency and Restoration [2017] OJ L312/54; Commission Regulation (EU) 2016/1447 of 26 August 2016 Establishing a Network Code on Requirements for Grid Connection on High Voltage Direct Current Systems and Direct

Finally, the methodologies implement the guidelines and are thus highly relevant for this thesis. However, the discussion in the Papers is generally anchored at the level of the guidelines for several reasons. First, the methodologies are challenging to discuss in an article format due to their extreme level of detail and their overwhelming number. Second, in the case of regional methodologies, presenting the findings would have required referencing several methodologies instead of one guideline.[134] Third, discussing provisions in a guideline allowed to address the underlying issues at EU level (instead of the regional level). In contrast, discussing the wording of single methodologies would have required extensive explanations and might have distracted from the legal analysis. Thus, the study of methodologies occurs 'in the background' and is not made explicit in the Papers to keep the argument concise. In contrast, chapter 4 comprises an explicit discussion of a regional methodology in depth.[135]

The analysis of EU law is based on the English language version; where a comparison with other authentic language versions is required, these will be chosen according to my understanding of the language.[136] The interpretation of EU law includes a study of binding decisions at EU level, the most important being decisions by the European Courts, ie the European Court of Justice (ECJ) or General Court (GC), since in the view of the ECJ, existing case law serves as precedent in subsequent cases.[137] Further insight is gained from consulting decisions by the Commission in competition cases, as well as decisions by the Agency for the Cooperation of Energy Regulators (ACER) or its Board of Appeal.[138] European soft law instruments are also considered, taking into account their non-binding nature.[139]

However, many issues related to EU interconnector regulation are not resolved in the aforementioned legal sources, or their resolution depends on concepts from other disciplines. Therefore, obtaining the answers sought under the 'law in context' approach of this study often makes it necessary to consult extra-legal sources in order to gain a fuller understanding of the legal framework. Examples include white papers, as well as declarations, resolutions or communications from the European Parliament, the Council or the Commission. Whereas such documents do not have legal force, they specify the aims, objectives and motivations behind EU energy policy, which in turn is relevant for the teleological interpretation of EU law prescribed by the ECJ. Similar

Current-Connected Power Park Modules [2016] OJ L244/1; Commission Regulation (EU) 2016/1388 of 17 August 2016 Establishing a Network Code on Demand Connection [2016] OJ L223/10; Commission Regulation (EU) 2016/631 of 14 April 2016 Establishing a Network Code on Requirements for Grid Connection for Generators [2016] OJ L112/1.

[134] It would be interesting to compare regional versions of the same methodology, however such a study must remain reserved for future research.

[135] For another example, refer to Hancher, Kehoe and Rumpf (n 49) 57–58.

[136] This includes German, Spanish, Danish, Swedish, French, Portuguese and Italian. This criterion also applies to the choice of examples from national law.

[137] Arnull (n 72) 626; *CILFIT* (n 73) para 14.

[138] ACER is introduced below, in s 2.2.5.

[139] For a recent decision by the ECJ concerning legal review of soft law adopted by an EU agency, see Case C-911/19 *FBF* [2021] ECLI:EU:C:2021:599. The decision is discussed by Merijn Chamon and Nathan de Arriba-Sellier, 'FBF: On the Justiciability of Soft Law and Broadening the Discretion of EU Agencies: ECJ (Grand Chamber) 15 July 2021, Case C-911/19, Fédération Bancaire Française (FBF) v Autorité de Contrôle Prudentiel et de Résolution, ECLI:EU:C:2021:599' (2022) 18 European Constitutional Law Review 286.

considerations apply to reports by EU bodies—such as the annual Market Monitoring Report by ACER[140] or the regular Reports on the State of the Energy Union by the Commission[141]. One of the shortcomings of the legal doctrinal method, and an important limitation of this thesis, is the singular focus on legal sources. This means that I have not collected my own empirical data and thus had to rely on external sources for discussing the effects of the rules in question. Therefore, these reports constitute a valuable source of data on the practical impact of EU electricity regulation.

Finally, literature from various non-official sources is used to ensure an informed discussion. For the most part, this relates to peer-reviewed academic publications: journal articles, books and book chapters, and other dissertations and theses. In general, these publications represent legal scholarship, unless concepts or theories from other disciplines are required to understand the key points of the discussion and/or facilitate the analysis. These sources are treated as objective, since they have undergone adequate processes to ensure adherence to academic standards. By contrast, self-published working papers, or reports and studies from think tanks, consultancies or stakeholder associations may represent particular interests. With this in mind, they provide an important perspective on the issues at stake and are another valuable source for data. Other unofficial, non-academic publications—such as non-scientific newspaper articles or blog posts—are used strictly for illustration purposes.

1.5. Structure of the Study

This chapter 1 has set the scene for the remainder of the Enveloping Discussion by introducing the topic of the thesis and presenting the aims and research questions. It has also set out the key challenges this study focuses on, and explained the methodological choices and challenges underlying the study. The discussion proceeds as follows. Chapter 2 reviews the strategic importance of interconnectors within the theoretical and historical evolution of EU electricity regulation. This helps understand why electricity interconnector regulation constitutes the focus of investigation of this thesis. Chapter 3 summarises the Papers that inform this dissertation, providing updates where appropriate. The findings from the individual Papers are set into a wider context in

[140] See ACER and CEER, 'Wholesale Electricity Market Monitoring 2021: Progress of European Electricity Market Integration' (2022); ACER and CEER, 'Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020—Electricity Wholesale Markets Volume' (2021); ACER and CEER, 'Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2019—Electricity Wholesale Markets Volume' (2020); ACER and CEER, 'Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2018—Electricity Wholesale Markets Volume' (2019); ACER and CEER, 'Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017—Electricity Wholesale Markets Volume' (2018). ACER develops these annual reports in cooperation with the Council of European Energy Regulators (CEER), a cooperation forum for the European NRAs. For further information on CEER, see n 223 below.

[141] European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: State of the Energy Union 2022' (2022) COM(2022) 547 final; European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: State of the Energy Union 2021—Contributing to the European Green Deal and the Union's Recovery' (2021) COM(2021) 950 final; European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: 2020 Report on the State of the Energy Union Pursuant to Regulation (EU) 2018/1999 on Governance of the Energy Union and Climate Action' (2020) COM(2020) 950 final; European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: Fourth Report on the State of the Energy Union' (2019) COM(2019) 175 final.

chapter 4, which combines these findings into an encompassing discussion of the Network Code Strategy. This discussion shows further connections between the individual Papers and yields new and important insights on EU regulation of electricity interconnectors. Chapter 5 concludes the Enveloping Discussion by highlighting the overall findings and contribution of this thesis as a whole, naming practical and theoretical implications, while also pointing to possible avenues for further research.

Before the discussion commences, I feel the urge to apologise in advance for the copious use of abbreviations and acronyms. These may seem tedious and confusing at first. However, energy law scholarship and practice invariably uses acronyms in great number. Writing out these acronyms would risk alienating experts from the field; in turn, after an initial adjustment period, these acronyms do facilitate reading. Finally, also the European Courts have surrendered to the ubiquity of acronyms in EU electricity regulation, as the following quote from the GC illustrates: '*In the present case, as ACER noted […], in the initial aFRRIF proposal, the TSOs had planned to appoint a consortium to perform the functions required to operate the aFRR platform.*'[142] To slacken the learning curve and for reference, the most common acronyms are included in the table of abbreviations.

[142] Case T-606/20 *Austrian Power Grid and Others v ACER* [2023] ECLI:EU:T:2023:64 [92].

2. Theoretical and Practical Evolution of the Energy Union: the Quest for Sufficient Interconnection

The purpose of this chapter is twofold: First, it shows why an increase in interconnection is necessary for achieving all of the EU's energy policy aims under the Energy Union (see section 2.1). Second, this chapter introduces important aspects of the sophisticated Network Code Strategy that the EU uses to couple the European electricity systems. On the one hand, this strategy involves a multitude of private and public actors that jointly execute regulatory tasks through formalised interaction at different levels of hierarchy. The main actors responsible for increasing electricity interconnection are discussed in the context of their specific roles in section 2.2. On the other hand, the Network Code Strategy is the result of an iterative consolidation of EU legislation on the electricity sector in three consecutive phases. Section 2.3 reviews this evolution and thus lays the groundwork for understanding the research approach and the findings of the Papers, as explained in chapter 3, as well as the subsequent overarching discussion of the Network Code Strategy in chapter 4.

2.1. Interconnection and Market Development in the Energy Union

The Commission proclaimed already in 2019 that '*the Energy Union is a reality*'.[143] However, this statement does not withstand critical scrutiny. To understand why, it is useful to consider the relationship between the IEM and the other 'dimensions' of the Energy Union.[144] At the outset, the Energy Union is nothing more than a policy concept, a label for the EU's efforts in connection with its mission under Article 194(1) TFEU.[145] This concept has been floating in EU policy for years. It started out as an initiative to secure European gas supply.[146] However, the Energy Union was soon extended to encompass the electricity sector and more diverse energy policy aims than 'just' security of supply. Over time, policies aiming at decarbonising the European society and industry, and at becoming independent from fossil fuel imports have docked onto the Energy Union—the European Green Deal[147] and the REPowerEU programme constitute important examples.[148] At the same time, the IEM is the cement that holds the Energy Union together, the foundation upon which EU energy policy is realised.

[143] European Commission, 'Fourth Report on the State of the Energy Union' (n 129) 1.
[144] According to recital (2) GovReg, these dimensions are '*energy security; the internal energy market; energy efficiency; decarbonisation; and research, innovation and competitiveness*'.
[145] Cf Roeben (n 4) 17–18.
[146] See Kacper Szulecki and others, 'Shaping the 'Energy Union': Between National Positions and Governance Innovation in EU Energy and Climate Policy' (2016) 16 Climate Policy 548, 552–553; Ole Gunnar Austvik, 'The Energy Union and Security-of-Gas Supply' (2016) 96 Energy Policy 372, 377. For a detailed account on the genesis of the Energy Union programme, see Roeben (n 4) 19–22.
[147] European Commission, 'The Green Deal' (n 10).
[148] European Commission, 'REPowerEU Plan' (n 20) 1: '*REPowerEU is about rapidly reducing our dependence on Russian fossil fuels by fast forwarding the clean transition and joining forces to achieve a more resilient energy system and a true Energy Union.*'

Despite decades of effort to integrate the European electricity markets, the IEM is still a work in progress.[149] The latest Electricity Directive explicitly '*seeks to address the persisting obstacles to the completion of the internal market for electricity*.'[150] In turn, the Electricity Regulation names the deficiency of electricity infrastructure as a '*serious obstacle to the development of a functioning internal market for electricity.*'[151] Since the IEM remains unfinished, the Energy Union cannot be considered '*a reality*', as the Commission stated in 2019. Rather, the Commission's assessment must be seen in its temporal context, with the EU in a deep political crisis and an imminent no-deal Brexit requiring (overly) optimistic messages on the success and benefits of the EU's current policy efforts. More recent policy documents reflect the nascent state of the Energy Union. The Commission's 2022 REPowerEU Plan, for example, once again aims inter alia, '*to achieve […] 'a true Energy Union*'.[152] The objectives of EU energy policy cannot be achieved without the necessary 'hardware' in the form of electricity interconnectors, which is currently lacking.[153]

Thus, the current lack of interconnection is a core weakness of the Energy Union programme. There is no EU super-regulator that decides on electricity interconnector utilisation and investment.[154] Especially decisions on interconnector investment are taken at national level and at the initiative of the TSOs, with some intergovernmental coordination. In contrast, the EU has been more successful in harmonising the utilisation of interconnectors, which is increasingly determined through supranational rules and procedures, however with important gaps. The scope of harmonization achieved under the Network Code Strategy (or the lack thereof) is discussed in chapter 4. For the moment, it is sufficient to keep in mind that further progress with electricity market integration—and hence the Energy Union and related policy objectives—depends on the interaction of several actors. These actors, their roles and tasks in EU electricity regulation are introduced in the coming section.

2.2. Key Actors and Institutions of the Energy Union

This section introduces the main actors and roles that are relevant for furthering the interconnection of the European grids, on the one hand, and for the Network Code Strategy, on the other. The Energy Union is embedded within a complex regulatory landscape populated by numerous actors. These actors play crucial roles in improving the current state of electricity interconnection throughout the EU. By painting a clearer picture of the main stakeholders in EU electricity regulation, as well as

[149] For similar assessments, see Huhta, 'Case T-295/20 Aquind' (n 126) 156; Jean-Michel Glachant and Sophia Ruester, 'The EU Internal Electricity Market: Done Forever?' (2014) 31 Utilities Policy 221. By contrast, the study by Alenka Lena Klopčič, Jana Hojnik and Aleš Pustovrh, 'ACER's Success in Establishing and Ensuring the Functioning of the Internal Energy Market: Through the Eyes of NRAs and Traders' (2020) 18 Managing Global Transitions 91, concludes that the IEM is completed. However, this assessment builds on a survey involving a limited circle of market participants, and the authors concede that the answer might have been different had other actors been included in the survey.
[150] Recital (8) ElDir-2019.
[151] Recital (27) ElReg-2019.
[152] European Commission, 'REPowerEU Plan' (n 20) 1.
[153] European Commission, 'The Energy Union Programme' (n 3) 8. The need for more interconnection is not related to the Energy Union as such, but a general requirement of electricity market integration; see already Kim Talus and Thomas Wälde, 'Electricity Interconnectors in EU Law: Energy Security, Long Term Infrastructure Contracts and Competition Law' (2007) 32 European Law Review 125, 132–133.
[154] de Hauteclocque and Perez (n 35) 14.

their roles, this section provides the necessary knowledge for the summary of the Papers in the following chapter 3 and the discussion of the Network Code Strategy in chapter 4.

2.2.1. The EU Institutions: Agenda-Setters, Co-Legislators and Competition Law Enforcers

The EU institutions—the European Parliament, the Council and the Commission—provide the legislation that drives EU electricity regulation.[155] It is outside the scope of this dissertation to discuss legislation at EU level in detail. It suffices to emphasise that the underlying procedures ensure the intermediation between the political interests represented in these institutions to set the agenda for implementing the energy policy aims, which today are defined in Article 194(1) TFEU.[156] The resulting compromises provide the impetus for EU electricity regulation.[157] As section 2.3 below recounts, while policy priorities shifted over time, increasing interconnector capacity for electricity market integration has always been at the top of the regulatory agenda.

In addition, it is worth pointing to the Commission's crucial importance for both the enforcement and development of EU energy law. The Commission has proven to be a progressive agenda-setter in the field of EU electricity regulation in the context of its general prerogative to propose new EU legislation.[158] The Commission is also an effective enforcer, since its competences as 'the guardian of the Treaties'[159] and especially under competition law allow it to proceed both against Member States and undertakings[160]. By making deft use of these competences, the Commission has used sector inquiries and 'surgical strikes' in the form of landmark cases to clear the path for the adoption of more far-reaching regulatory aims and measures in the field of electricity.[161] Within the Network Code Strategy, the Commission is responsible for formally adopting network codes and guidelines.[162]

2.2.2. The Member States: Sovereign Organisers of National Energy Supply

The relationship between the EU and its Member States in the field of energy is uneasy,[163] and the EU's energy competence in Article 194 TFEU represents '*a carefully crafted compromise between*

[155] Art. 194(2), 289, 294 TFEU.
[156] Bocquillon and Maltby (n 34) 42–43.
[157] Birchfield (n 34) discusses in detail how the EU institutions interact to shape EU energy policy, characterising the Council as 'putting the brakes' on the Commission's proposals, while the Parliament pushes for even more ambitious energy policy. See also European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Better Regulation: Joining Forces to Make Better Laws' (2021) COM(2021) 219 final 7.
[158] Art. 17(2) TEU.
[159] Art. 17(1) TEU.
[160] See Art. 101-106 TFEU.
[161] In *Case 39351—Swedish Interconnectors* (n 85) paras 42–45, the Commission clearly stated that arbitrary curtailments of electricity interconnectors constitute an abuse of a TSO's dominant position; this was confirmed in *Case AT.40461—DE/DK Interconnector* (n 85) para 60. For further examples and more extensive discussions, consult Bergqvist and Herrera Anchustegui (n 85); Małgorzata Sadowska, *Committed to Reform? Pragmatic Antitrust Enforcement in Electricity Markets* (Intersentia 2014); Céline Gauer and Lars Kjølbye, 'Energy' in Jonathan Faull, Ali Nikpay and Deirdre Taylor (eds), *Faull & Nikpay: the EU Law of Competition* (Third edition, Oxford University Press 2014); Christopher Jones (ed), *EU Energy Law: EU Competition Law and Energy Markets*, vol II (2nd edn, Claeys & Casteels 2007); Cameron (n 32).
[162] Art. 59(1), (2), 61(1) ElReg-2019.
[163] Eckert (n 25) 34; de Hauteclocque and Perez (n 35) 14–15.

national sovereignty over natural resources […] and a shared Union competence for the rest.'[164] The EU and its Member States may prefer different approaches to resolving the trilemma introduced earlier.[165] For example, while security of supply is accepted as the primary concern of energy policy at the EU and domestic level,[166] strategies and approaches to ensuring energy security vary considerably[167] and may even serve to justify action in breach of the EU's energy policy.[168] The Member States' room for manoeuvre is further extended by Article 194(2) TFEU, which explicitly highlights the Member States' sovereignty over organising their own electricity supply and exploiting their natural resources. After more than a decade, the scope of this proviso is still far from clear.[169] Also with regard to the Network Code Strategy, the Electricity Regulation emphasises the Member States' autonomy in internal matters; according to Article 58(2)(d), '*the network codes and guidelines shall […] be without prejudice to the Member States' right to establish national network codes which do not affect cross-zonal trade.*'

2.2.3. Transmission System Operators: Enablers of Sufficient Interconnection

The significance of the transmission system operators (TSOs) for electricity market integration cannot be overstated. In the liberalised market setting of the Energy Union, it is not the Member States themselves, but the TSOs as private companies[170] that must ensure both the optimal utilisation and sufficient investment in interconnectors. According to the Electricity Directive, a TSO is

> '*a natural or legal person who is responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity*'.[171]

As follows from this definition, the TSOs' main 'mission' is to operate the transmission system, which consists in the management of electricity flows to ensure that the operational security limits of the system are not violated.[172] All electricity networks have limited capacity, ie they can only

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[164] Leigh Hancher and Francesco Maria Salerno, 'Energy Policy after Lisbon' in Andrea Biondi, Piet Eeckhout and Stefanie Ripley (eds), *EU Law after Lisbon* (Oxford University Press 2012) 374.
[165] Bocquillon and Maltby (n 34) 40; Heselhaus (n 35) 23–24; Austvik (n 146) 378; Szulecki and others (n 146) 553–560 compare and discuss the positions of several important Member States.
[166] Cf Heffron and others (n 83) 45; Jean-Michel Glachant and Nicole Ahner, 'Is Energy Security the Objective of EU Energy Policy?' in Jean-Arnold Vinois (ed), *EU Energy Law: The Security of Energy Supply in the European Union*, vol VI (Claeys & Casteels 2012) 17.
[167] Discussed by Hawker, Bell and Gill (n 39) in the context of capacity remuneration mechanisms. For a different view, see Vinois (n 26) 24–25, who regards security of supply as '*a key national concept becoming truly european* (sic).'
[168] Hancher and Salerno (n 164) 368.
[169] The meaning and scope of the proviso in Art. 194(2) TFEU are discussed by Calliess (n 112) para 29; Roeben (n 4) 117–119; Thea Sveen, 'The Interaction between Article 192 and 194 TFEU—Renewable Energy Promotion with a Predominant Environmental Purpose' (2014) 446 MarIus 157; Haraldsdóttir (n 92); Johnston and van der Marel (n 72). It is notable that all these commentators agree that ambiguities remain.
[170] Note that the TSOs in many Member States are state-owned. Some TSOs are organized as public entities; however, they participate in commercial transactions and thus act like private companies.
[171] Art. 2(35) ElDir-2019.
[172] Vincent Rious and others, 'The Diversity of Design of TSOs' (2008) 36 Energy Policy 3323, 3324; Knops (n 30) 326–327; I Horowitz, 'A Law Enforcement Perspective of Electricity Deregulation' (2006) 31 Energy 905, 905.

accommodate a certain amount of electricity at any given time.[173] When the demand for transmission capacity exceeds the available capacity in an area, the corresponding portion of the transmission system is congested.[174] Nevertheless, EU rules on electricity trade only recognise congestion in cross-border contexts under a 'zonal system'. In a zonal pricing system, uniform electricity wholesale prices are calculated for so-called 'bidding zones', defined as '*the largest geographical area within which market participants are able to exchange energy without capacity allocation*'.[175] Ideally, the borders of bidding zones should correspond to capacity bottlenecks in the network.[176] By contrast, the electricity network within each bidding zone is treated as a 'copper plate' where electricity can flow without restrictions[177]—a mere fiction, as a network without any capacity restrictions would require massive overinvestment. In practice, the TSOs' tasks of managing network security, network capacity, and network congestion are just different aspects of working towards the common aim of optimising the utilisation of transmission systems and interconnectors.[178] In EU energy law and the literature, it is common to use the term congestion management.[179] Congestion management is the most important task of the TSOs within the scope of this dissertation.[180]

Congestion management comprises different actions in the short- medium and long-term.[181] In the short-term, TSOs manage congestion by employing so-called remedial actions to keep the system

[173] Christian Schneller, 'Cross-Border Electricity Trade in Europe: Towards an "Electrical Schengen Area"?' in Martha M Roggenkamp and Catherine Banet (eds), *European Energy Law Report*, vol XIV (Intersentia 2021) 132.

[174] Art. 2(4) ElReg-2019 defines congestion as '*a situation in which all requests from market participants to trade between network areas cannot be accommodated because they would significantly affect the physical flows on network elements which cannot accommodate those flows*'.

[175] As defined in Art. 2(65) ElReg-2019. A zonal system constitutes a compromise between accuracy and feasibility, cf Rious and others (n 172) 3324. A more demanding, but purportedly more efficient alternative consists in a so-called 'nodal system', where electricity prices are determined for each node of the transmission network, depending on various factors; for explanations, see Anselm Eicke and Tim Schittekatte, 'Fighting the Wrong Battle? A Critical Assessment of Arguments against Nodal Electricity Prices in the European Debate' (2022) 170 Energy Policy 113220, 2–3; Endre Bjørndal, Mette Bjørndal and Victoria Gribkovskaia, 'Congestion Management in the Nordic Power Market: Nodal Pricing Versus Zonal Pricing' [2013] SNF Report 3–4; König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* (n 102) 148–149. Barbara Burstedde, 'From Nodal to Zonal Pricing: A Bottom-up Approach to the Second-Best', *2012 9th International Conference on the European Energy Market* (IEEE 2012), provides a theoretical performance comparison between zonal and nodal pricing in Central Europe.

[176] Art. 14(1) ElReg-2019.

[177] Marie Byskov Lindberg, 'The Power of Power Markets: Zonal Market Designs in Advancing Energy Transitions' (2022) 45 Environmental Innovation and Societal Transitions 132, 135.

[178] For instance, the objectives of the CACM-GL include '*ensuring optimal use of the transmission infrastructure*', '*ensuring operational security*', and '*optimising the calculation and allocation of cross-zonal capacity*', see Art. 3(b)-(d). See also Recommendation of the Agency for the Cooperation of Energy Regulators No 02/2016 of 11 November 2016 on the Common Capacity Calculation and Redispatching and Countertrading Cost Sharing Methodologies 2.

[179] Art. 16 ElReg-2016; Carsten König, 'Congestion Management and the Challenge of an Integrated Offshore Infrastructure in the North Sea' [2014] MarIus 183; Céline Jullien and others, 'Coordinating Cross-Border Congestion Management through Auctions: An Experimental Approach to European Solutions' (2012) 34 Energy Economics 1; Laurens J De Vries and Rudi A Hakvoort, 'An Economic Assessment of Congestion Management Methods for Electricity Transmission Networks' (2002) 3 Journal of Network Industries 425.

[180] In a similar vein, Barbara Burstedde, 'Essays on the Economics of Congestion Management—Theory and Model-Based Analysis for Central Western Europe' (Doctoral Thesis, Universität zu Köln 2013) 31.

[181] ACER Recommendation 02/2016 on the Common Capacity Calculation and Redispatching and Countertrading Cost Sharing Methodologies 8.

in balance.[182] In particular, Article 16(4) of the Electricity Regulation establishes that the TSOs must maximise the capacity in their grid and interconnectors to the extent possible under security constraints; this 'maximum capacity principle' is the core principle of congestion management and discussed extensively in Paper 2.[183] However, in recent years, the growing share of RES creates new patterns of congestion and increases the need for remedial actions. As a result, the EU-wide bill for remedial actions has increased to billions of Euros annually.[184] The current European bidding zone configuration is thus highly inefficient.[185] Therefore, EU legislation is pushing for a reconfiguration of bidding zones as a medium-term element of congestion management.[186] Nevertheless, whereas the TSOs provide the underlying technical analyses, the definition of bidding zones is ultimately a political decision.[187] Since the reconfiguration of bidding zones may lead to different price levels within the Member States,[188] the bidding zone review prescribed in EU law has so far been unsuccessful due to resistance from the Member States.[189] In the long-term, as Paper 1 explains, the Electricity Directive obliges the TSOs to make the necessary investments to remove structural capacity bottlenecks within their grids.[190] However, as chapter 4 shows, investment in electricity interconnectors is steered at national level rather than through EU legislation.

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[182] According to Art 2(13) CACM-GL, a '*"remedial action" means any measure applied by a TSO or several TSOs, manually or automatically, in order to maintain operational security*'. The most common remedial actions are countertrading and redispatching. Art. 16(4) ElReg-2019 explicitly orders that '*[c]ounter-trading and redispatch, including cross-border redispatch, shall be used to maximise available capacities to reach the minimum capacity provided for in [the 70 per cent rule]*'. For an excellent introduction to countertrading and redispatching, including illustrative figures, see König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* (n 102) 151–158; for a concise explanation, consult Knops (n 30) 338–340.

[183] Cf ACER Recommendation 02/2016 on the Common Capacity Calculation and Redispatching and Countertrading Cost Sharing Methodologies 5. See also Christof Schoser and Lena Sandberg, 'The Regulation on Cross-Border Electricity Exchanges: Substantive Rules' in Christopher Jones (ed), *EU Energy Law*, vol I (4th edn, Claeys & Casteels 2016) 404–405.

[184] ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2020' (n 140) 45–46; ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2019' (n 140) 32–33. The most recent Market Monitoring Report at the time of writing, covering the year 2022, does not provide numbers, but reports a modest decrease of 2 per cent when compared to 2021, see ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2021' (n 140) 7.

[185] ACER, '2023 70 Per Cent Report' (n 12) 5; Alberto Pototschnig, 'The Importance of a Sound Bidding-Zone Review for the Efficient Functioning of the Internal Electricity Market' 11 [2020] FSR Policy Brief 2020/22; the inefficiency of the current bidding zone configuration has been known for some time, cf Schoser and Sandberg (n 183) 409.

[186] Art. 14 ElReg-2019; Art. 32-34 CACM-GL.

[187] According to Art. 14(7) ElReg-2019, it is up to each Member State to decide how to tackle structural internal congestion. Member States that opt for amending their bidding zone configuration must reach a unanimous decision with '*the relevant Member States*'; where this fails, the Commission may decide whether to amend or maintain the bidding zone configuration between the concerned Member States as a measure of last resort, Art. 14(8) ElReg-2019.

[188] Burstedde (n 180) 53.

[189] These difficulties are discussed in depth by Pototschnig (n 185); see also the examples in ACER, 'Monitoring Report on the Implementation of the CACM Regulation and the FCA Regulation' (2019) s 3.6. For further analysis of the dilemma, refer to Fridtjof Nansen Institute and Thema Consulting Group, 'Clean Energy Package—The Battle on Bidding Zones and Cross-Zonal Capacity Allocation' (2019) REMAP Insight 3-2019, available at https://www.fni.no/getfile.php/139736-1559128718/Filer/Publikasjoner/REMAP%20Insight%203%20-%20Bidding%20zones%20and%20capacity%20allocation.pdf (accessed 13 October 2023).

[190] Similarly, ACER Recommendation 02/2016 on the Common Capacity Calculation and Redispatching and Countertrading Cost Sharing Methodologies 8.

Their mission to operate the transmission system imposes a heavy responsibility on the TSOs, but also gives them a dominant position in the sense of Article 102 TFEU.[191] Transmission systems are generally regarded as natural monopolies, subject to strong economies of scale that make the operation of two parallel, competing grids in the same area futile from an economic viewpoint.[192] By controlling the transmission system, the TSOs also control any adjacent interconnectors and determine who gets access to the underlying electricity market, as Paper 4 explains.[193] Therefore, EU legislation recognises the dominant position of the TSOs and (1) establishes a non-discriminatory third-party access regime; (2) separates network operation from the production and trade of electricity through unbundling requirements; and (3) regulates the income arising from providing access to the transmission system. These safeguards, which aim to ensure that the TSOs facilitate a neutral playing field for all system users, are addressed in the context of the Papers. However, they are not directly relevant for this Enveloping Discussion and will thus not be discussed in detail here.

In addition, to achieve a greater degree of coordination and consistency in cross-border matters, the Electricity Regulation obliges the TSOs to cooperate in the European Network of Transmission System Operators (ENTSO-E).[194] ENTSO-E is a private stakeholder association established pursuant to the Electricity Regulation.[195] Among ENTSO-E's tasks, two stand out for their relevance for this dissertation.[196] First, ENTSO-E is tasked with developing the drafts for network codes and guidelines in the context of the Network Code Strategy.[197] The TSOs seem to accept ENTSO-E and use the Network as a forum for cooperation even beyond its formal mandate. For instance, the responsibility to develop proposals for pan-European or regional methodologies[198] rests with the concerned TSOs, not ENTSO-E.[199] Nevertheless, the TSOs use ENTSO-E and its resources as a platform for their deliberations.[200] The creation of methodologies is analysed in Paper 5 and discussed in chapter 4. Second, ENTSO-E is responsible for publishing, biannually, a pan-European 'Ten-Year Network Development Plan' (TYNDP). However, this plan is explicitly

[191] *Case AT.40461—DE/DK Interconnector* (n 85) paras 53–55; *Case 39351—Swedish Interconnectors* (n 85) paras 24–25.
[192] Anna Cretì and Fulvio Fontini, *Economics of Electricity: Markets, Competition and Rules* (1st edn, Cambridge University Press 2019) 74–75; Kruimer (n 40) 31; Michel Rivier, Ignacio J Pérez-Arriaga and Luis Olmos, 'Electricity Transmission' in Ignacio J Pérez-Arriaga (ed), *Regulation of the Power Sector* (Springer London 2013) 264–265; Paul L Joskow, 'Regulation of Natural Monopoly' in A Mitchell Polinsky and Steven Shavell (eds), *Handbook of Law and Economics*, vol 2 (North-Holland 2007) 1229.
[193] *Case AT.40461—DE/DK Interconnector* (n 85) para 48; *Case 39351—Swedish Interconnectors* (n 85) para 21. See also Kruimer (n 40) 9.
[194] Art. 28(1) ElReg-2019. Refer also to Cécile Musialski, 'The ENTSOs Under the Third Energy Package' in Bram Delvaux, Michaël Hunt and Kim Talus (eds), *EU Energy Law and Policy Issues* (Intersentia 2012) 44–46, who discusses the switch from voluntary to compulsory cross-border coordination of TSOs under the Third Energy Package.
[195] See Musialski (n 194) 43 and Arts 28, 29 ElReg-2019. For ENTSO-E's 'Mission Statement', see https://www.entsoe.eu/about/inside-entsoe/objectives/ (accessed 13 October 2023).
[196] ENTSO-E's tasks are enumerated in Art. 30 ElReg-2019.
[197] Art. 59(9), (10) ElReg-2019; see also Vlachou (n 65) 271–272.
[198] On the different geographical ambits of methodologies, see above, at s 1.2.2.
[199] Art. 9(1) CACM-GL. In contrast, ENTSO-E is responsible for developing certain methodologies under the ElReg-2019, see Art. 23(3), (6) and 26(11).
[200] For example, see ENTSO-E's overview over methodologies developed to implement the CACM-GL at https://www.entsoe.eu/network_codes/cacm/ (accessed 13 October 2023).

labelled as non-binding.[201] It is noteworthy that the most recent TYNDP developed by ENTSO-E highlights an investment gap of 15 GW of transmission capacity until 2030, which illustrates the need of securing additional investment in electricity transmission infrastructure.[202]

Finally, due to the importance and the complexity of the transmission grid, the TSOs enjoy significant authority, both as technical experts and as guardians of reliable electricity supply.[203] As Eckert and Eberlein note: '*Drawing on their legitimacy as "connectors" in the EU electricity market, network operators have been able to shape the emerging European policy framework and acquire a regulatory role formalised by European legislation.*'[204] The TSOs thus bear an exceptional degree of regulatory responsibility for being, at the outset, private actors. The discussion in chapter 4, as well as Papers 4 and 5, focuses on how the Network Code Strategy aims at tapping into the knowledge of the TSOs to create a harmonised, legally binding and technically detailed legal framework on the operation of the European power grids and markets. It is particularly interesting that the TSOs develop drafts for the rules that will apply to them after regulatory scrutiny and formal adoption.

2.2.4. Power Exchanges: Facilitators of Market Coupling

Whereas their tasks are less diverse and vital than the TSOs', power exchanges still provide an essential service for the efficient price formation the EU pursues under the IEM. Power exchanges are not regulated as densely as the TSOs are in EU legislation—presumably because the operation of electricity auctions is not considered a natural monopoly activity.[205] Based on bids and offers, the power exchanges calculate the electricity price in each bidding zone for the spot market.[206] To optimise cross-border trade on the spot market, the CACM Guideline establishes a sophisticated 'market coupling' mechanism. Market coupling is the most advanced instance of electricity market integration in Europe and yields considerable welfare benefits.[207] In the context of market coupling, each Member State can designate one or several power exchanges as nominated electricity market operators (NEMOs) in its territory.[208] A NEMO is defined as '*an entity designated by the competent*

[201] Art. 30(1)(b), 48 ElReg-2019. The TYNDP is based on (also non-binding) biannual regional investment plans according to Art. 34(1), 48(1)(a) ElReg-2019.

[202] ENTSO-E, 'High-Level Report TYNDP 2022' (n 20) 6. On missing economic incentives for reinforcing the transmission grid, see also König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* (n 102) 113.

[203] Sigrid Quack, 'Expertise and Authority in Transnational Governance' in Roger Cotterrell and Maksymilian Del Mar, *Authority in Transnational Legal Theory* (Edward Elgar Publishing 2016) 384, defines authority as '*decision-making power over an issue area that is generally regarded as legitimate by participants*'.

[204] Eckert and Eberlein (n 65) 60.

[205] Note that some Member States maintain statutory monopolies on the operation of the national electricity markets, cf Case C-394/21 *Bursa Română de Mărfuri* [2023] ECLI:EU:C:2023:146 (ECJ).

[206] For a description of the marginal pricing system used to determine the wholesale electricity price for each bidding zone, see Christie (n 104) 5–6.

[207] See ACER, 'Final Assessment of the EU Wholesale Electricity Market Design' (2022) 3. Market coupling is discussed below, at s 4.2.2. On the market coupling mechanism in general, see also Schneller (n 173) 135–137; König, 'Congestion Management and the Challenge of an Integrated Offshore Infrastructure in the North Sea' (n 179) 194–196.

[208] Art. 4, 5 CACM-GL. The NEMO activity is treated as competitive unless defined as a legal monopoly in the concerned Member State. Jørgen Bjørndalen and others, 'NEMOs—Efficient Competition and Efficient Market

authority to perform tasks related to single day-ahead or single intraday coupling'.[209] NEMOs calculate the wholesale electricity prices for the spot market and develop proposals for methodologies that serve to implement market coupling.[210] The prices determined by the NEMOs for each bidding zone determine the direction of cross-border electricity trade: electricity should always flow from low-price zones to bidding zones with higher prices.[211] In turn, all NEMOs of the EU jointly operate the 'market coupling operator' (MCO) function, which is an EU-wide legal monopoly.[212] The market coupling mechanism is discussed in chapter 4.

2.2.5. The National Regulatory Authorities and ACER: Enforcers and Rule-Makers

Traditionally, EU electricity regulation builds on a strictly indirect approach to enforcement. Under the principle of subsidiarity,[213] EU electricity legislation is generally implemented and enforced by the Member States.[214] The Commission's direct enforcement competences in the field of competition law constitute an important exception. Otherwise, enforcement of EU electricity legislation falls to the specialised national regulatory authorities (NRAs). These technocratic agencies are the 'first point of contact' for issues related to EU electricity regulation. As seen above, EU law has iteratively expanded the tasks and powers of the NRAs with the aim to make them effective enforcers, and prescribes their independence from political and commercial influence to avoid regulatory capture.[215] Among the NRAs' diverse tasks, controlling the TSOs' compliance with their obligations under EU energy law is particularly important in the context of this dissertation.[216] It is interesting that the Clean Energy Package explicitly tasks the NRAs with '*ensuring that transmission system operators make available interconnector capacities to the utmost extent*' pursuant to the maximum capacity principle.[217] This underlines the urgency of improving the utilisation of electricity interconnectors. Moreover, NRAs are to monitor the TSOs' investment plans, control their consistency with the TYNDP, and may make recommendations where they consider that amendments to these plans are required.[218] However, as Papers 1 and 3

Coupling' (DNV GL Energy 2017) discuss this approach critically. On the legal requirements for designating a monopolist NEMO, see *Bursa Română de Mărfuri* (n 205).

[209] See Art. 2(23) CACM-GL and the essentially identical definition in Art. 2(8) ElReg-2019.

[210] For examples, see Art. 7(3) or 36 CACM-GL.

[211] ACER denotes this as the '*right economic direction*', cf ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2021' (n 140) 9.

[212] Art. 5(3), 7(2) CACM-GL.

[213] Art. 5(3) TEU.

[214] On the principle of subsidiarity in the context of '*EU energy action*', see Roeben (n 4) 119–121.On the principle of subsidiarity in general, see European Commission, 'Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: The Principles of Subsidiarity and Proportionality: Strengthening Their Role in the EU's Policymaking' (2018) COM(2018) 703 final.

[215] Art. 57(4) ElDir-2019. See Case C-378/19 *Prezident Slovenskej republiky* [2020] ECLI:EU:C:2020:462 and Case C-718/18 *Commission v Germany* [2021] ECLI:EU:C:2021:662. See further Kaisa Huhta, 'C-718/18 Commission v. Germany: Critical Reflections on the Independence of National Regulatory Authorities in EU Energy Law' (2021) 30 European Energy and Environmental Law Review 255, s II; Saskia Lavrijssen and Leigh Hancher, 'Networks on Track: From European Regulatory Networks to European Regulatory "Network Agencies"' (2009) 36 Legal Issues of Economic Integration 23, s 2.1. On regulatory capture in the energy sector: Macatangay and Roeben (n 114).

[216] Art. 59(1)(b) ElDir-2019.

[217] Art. 59(1)(h) ElDir-2019.

[218] Art. 59(1)(k) ElDir-2019.

find, electricity interconnector investment regulation is characterised by a high degree of Member State autonomy, making enforcement less straightforward.[219]

Moreover, a project as complex as the IEM requires cross-border coordination, in order to ensure that enforcement goes beyond a limited and purely national perspective.[220] Prior to the Network Code Strategy, energy regulators cooperated in informal networks such as the Florence Forum for the electricity sector.[221] These networks prevented the isolation of any single NRA, fostered the exchange of best practices, and issued non-binding soft law.[222] Even today, the European NRAs cooperate informally in the 'Council of European Energy Regulators' (CEER).[223] Nevertheless, the Commission did not consider self-regulation sufficient for attaining the IEM and thus proposed to create an EU agency for the energy sector: ACER.[224] The Agency's aim is to facilitate the cooperation of the NRAs on cross-border issues and assist them at EU level.[225] Concerning the relationship between the NRAs and ACER, it is important to recall that ACER is no European super-regulator.[226] Due to the limits to delegation that the ECJ has established with its *Meroni* doctrine,[227] the Agency for the most part wields soft law powers such as the issuing of recommendations.[228] ACER possesses no direct investigation or sanctioning powers—'hard' enforcement remains within the discretion of the NRAs.[229] The Agency may generally not issue

[219] Similarly already de Hauteclocque and Perez (n 35) 14.
[220] Cf Thomas P Tangerås, 'Optimal Transmission Regulation of an Integrated Energy Market' (2012) 34 Energy Economics 1644, 1645.
[221] For contemporary accounts, consult Lavrijssen and Hancher (n 215) and Cameron (n 32) 566–569. See also Gräper and Webster (n 21) 604–605; David Levi-Faur, 'Regulatory Networks and Regulatory Agencification: Towards a Single European Regulatory Space' (2011) 18 Journal of European Public Policy 810.
[222] Eberlein (n 21) 144–150 analyses the mode of operation of the Florence Forum in detail.
[223] For further information on CEER and its relation to ACER, see https://www.ceer.eu/eer_about (accessed 13 October 2023).
[224] European Commission, 'Proposal for a Regulation of the European Parliament and of the Council Amending Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity' [2007] (COM(2007) 531 final) 9–10 in the explanatory memorandum (Proposal for the ElReg-2009). For a more detailed account of the historical development, refer to Lavrijssen and Hancher (n 215).
[225] Art. 1(2) of Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 Establishing a European Union Agency for the Cooperation of Energy Regulators (Recast) [2019] OJ L158/22 (ACERReg-2019).
[226] See de Hauteclocque and Perez (n 35) 14–16. Florian Ermacora and Ernst Tremmel, 'The Agency for the Cooperation of Energy Regulators (ACER)' in Christopher Jones (ed), *EU Energy Law*, vol I (4th edn, Claeys & Casteels 2016) s 3.2 provide a detailed overview over ACER's powers under the Third Energy Package.
[227] Hancher and Salerno (n 164) 378–380. The Meroni doctrine is discussed in Paper 5 and based on the seminal ECJ judgment in Case 9/56 *Meroni & Co, Industrie Metallurgiche, SpA v High Authority of the European Coal and Steel Community* [1958] ECLI:EU:C:1958:7.
[228] Ermacora and Tremmel (n 226); de Hauteclocque and Perez (n 35) 15. However, the power of soft law measures to exhort and persuade should not be underestimated, cf *FBF* (n 139) para 48; the potential impact of soft law in the energy sector is not met with adequate avenues of judicial review, as Oana Ștefan and Marina Petri submit in 'Too Weak to Be Controlled: Judicial Review of ACER Soft Law' (2018) 37 Yearbook of European Law 525. It should be noted that the aforementioned accounts predate the extension of ACER's normative powers under the Clean Energy Package, cf below at s 2.3.3. For a discussion of these changes, see Leigh Hancher and Julius Rumpf, 'Balancing Power: The Impact of Legal Review on Harmonizing the European Electricity Market' [2024] European Journal of Risk Regulation (forthcoming); Vlachou (n 65) 270–272. For a recommendation by the Agency concerning the utilisation of electricity interconnectors, see Recommendation 01/2019 of the European Union Agency for the Cooperation of Energy Regulators of 08 August 2019 on the Implementation of the Minimum Margin Available for Cross-zonal Trade Pursuant to Article 16 (8) of Regulation (EU) 2019/943.
[229] Art. 59(3) ElDir-2019.

instructions to the NRAs.[230] In some cases, ACER is however empowered to adopt binding decisions, most importantly related to the adoption of methodologies.[231] Nevertheless, the scope of ACER's powers is subject to avid discussions among scholars and practitioners and has even sparked a constitutional debate in some European countries.[232]

In any case, the ACER has been described as a 'network agency', as its decisions stem from negotiation and deliberation among the NRAs.[233] ACER's operative organ, the Board of Regulators, is composed of representatives of all NRAs of the EU and the Commission that decide with two thirds majority.[234] This ensures that when ACER takes a decision, the NRAs '*remain fully involved in the process.*'[235] Nevertheless, ACER's regulatory practice suggests that it has become more than the sum of its parts. While the Agency's powers to adopt binding decisions are limited, its regulatory practice so far reveals that ACER pursues a regulatory agenda of its own, often with a preference for centralisation.[236] This frequently leads to contestation of ACER's decisions by the NRAs or

[230] This is illustrated by the following press release by the Agency: 'ACER questions the decision of the postponement of the go-live of the Core Region flow-based project and invites national regulatory authorities to investigate it', available at https://www.acer.europa.eu/news-and-events/news/acer-questions-decision-postponement-go-live-core-region-flow-based-project-and-invites-national-regulatory-authorities-investigate-it (accessed 13 October 2023). Note the absence of binding instructions from the side of ACER.

[231] Art. 2(d) ACERReg-2019. In this context, Macatangay and Roeben (n 114) 192, rightly submit that '*ACER is functionally, if not organisationally, on the way to becoming a genuine transboundary regulator, able to pursue an independent assessment of the overall social welfare.*' The issue that ACER is taking normative decisions is discussed in Paper 5.

[232] Cf the 'ACER case' (*ACER-saken*) in Norway, which concerns the implementation of the Third Energy Package into EEA and Norwegian law. Due to the peculiarities of the EEA Agreement, decisions by ACER must be implemented in the EFTA states through a stepwise procedure. First, the EFTA Surveillance Authority (ESA) adopts a formal decision that implements the Agency's decisions in EEA law; ESA's decision is then formally confirmed by the NRAs in each EFTA state, who thus implement it in national law.
The civil rights organisation '*Nei til EU*' (No to the EU) initiated proceedings against the parliamentary decision implementing the Third Energy Package into Norwegian law, arguing that the ACER-ESA procedure, in combination with the formal requirement to make NRAs independent from government control, means that Norway must implement supranational decisions on energy matters without sufficient political or legal control.
Nei til EU claims that under section 115 of the Norwegian constitution, the resulting transfer of Norwegian sovereignty under the Third Energy package—when seen in conjunction with earlier transfers of power under the First and Second Energy Packages—would have required a qualified majority vote in the Norwegian parliament on the implementation of the Third Energy Package into Norwegian law, when in fact the parliament decided with simple majority based on the proposition that the implementation of the Third Energy Package only entailed a minor transfer of sovereignty.
After five years, the case is now pending with the Norwegian Supreme Court (*Høyesterett*) and being heard by the full plenary of the court. For further information on the case, see https://www.domstol.no/en/supremecourt/news/2023/the-acer-case/ and https://neitileu.no/aktuelt/norwegian-supreme-court-to-rule-on-unconstitutional-transfer-of-sovereignty (both accessed 13 October 2023).
Interestingly, already Silke Goldberg and Henrik Bjørnebye, 'Introduction and Comment' in Bram Delvaux, Michaël Hunt and Kim Talus (eds), *EU Energy Law and Policy Issues* (Intersentia 2012) 26–27 expounded on possible problems arising from the independence of NRAs vis-à-vis the national government. Note further that this dissertation is not concerned with questions of national law.

[233] Lavrijssen and Hancher (n 215) 24. Similarly, Levi-Faur (n 221) 825–826. The internal workings of ACER are commented upon by Ștefan and Petri (n 228) 528–530, who observe considerable organisational differences when compared to other network sectors and thus state that '*ACER is an atypical actor within the EU agency landscape.*'

[234] Art. 21, 22 ACERReg-2019.

[235] European Commission, 'Proposal for a Regulation of the European Parliament and of the Council establishing a European Union Agency for the Cooperation of Energy Regulators (recast)' [2016] (COM(2016) 863 final) 8 in the explanatory memorandum (Proposal for the ACERReg-2019).

[236] For example, ACER recommends to create an EU entity to act as MCO, instead of assigning this function to all NEMOs jointly; see ACER, 'CACM and FCA Implementation Report' (n 189) 30.

Member States.[237] Therefore, the relationship between ACER and the NRAs is complex, sometimes amounting to a power struggle for control over the regulatory procedures.[238] However, it is worth noting that the Clean Energy Package has centralised EU electricity regulation to a degree by extending ACER's powers. Most notably, ACER has obtained competence to decide on all pan-European methodologies.[239] Previously, such methodologies required a unanimous decision by all European NRAs, which often failed due to disagreement.[240]

Binding decisions by ACER are subject to internal review by a dedicated Board of Appeal (BoA).[241] Such boards are a common feature of several European agencies.[242] In the context of the ECJ proceeding *ACER v Aquind*, Advocate General Campos Sanchez-Bordona described these boards as '*administrative review bodies, internal to the agencies, which enjoy a degree of independence. They are not judicial in nature, although they perform quasi-judicial functions through adversarial proceedings.*'[243] The ACER Regulation provides access to internal review because ACER may take decisions '*on complex technical or scientific issues capable of directly affecting the legal situation of the parties concerned.*'[244] According to the ECJ's judgment in *ACER v Aquind*, the BoA must perform a full review of all technical, economic and legal considerations underlying the appealed decision.[245] This is necessary to compensate for the limited intensity of review before the European Courts, which in the case of technically or scientifically complex decisions only scrutinise whether these decisions are vitiated by 'manifest errors'.[246] As the GC put it succinctly in the preceding judgment: '*a system of "limited review of a limited review" fails to offer the guarantees of effective judicial protection*'.[247] Therefore, internal review before the BoA is mandatory before further (external) review before the European Courts becomes available.[248] The BoA is nominally

[237] At the time of writing, Case T-485/21 *BNetzA v ACER* (pending); Case T-446/21 *Commission de Régulation de l'Énergie v ACER* (pending); *MEKH v ACER* (n 79); *BNetzA v ACER* (n 77); *E-Control v ACER* (n 62); Case T-63/16 *E-Control v ACER* [2017] ECLI:EU:T:2017:456; Case T-671/15 *E-Control v ACER* [2016] ECLI:EU:T:2016:626.
[238] This issue is discussed in Hancher and Rumpf (n 228). See also the discussions by Jevnaker (n 65) 928, as well as Lavrijssen and Hancher (n 215) 28–29.
[239] These are methodologies that apply throughout the EU; cf above at s 1.2.2.
[240] For a discussion of problems arising from the previous approach, see Vlachou (n 65) 276–278.
[241] Art. 25-28 ACERReg-2019. The BoA does not review soft law adopted by ACER, see Ștefan and Petri (n 228) 542–545.
[242] See Merijn Chamon, Annalisa Volpato and Mariolina Eliantonio (eds), *Boards of Appeal of EU Agencies: Towards Judicialization of Administrative Review?* (Oxford University Press 2022); Paola Chirulli and Luca De Lucia, 'Specialised Adjudication in EU Administrative Law: The Boards of Appeal of EU Agencies' (2015) 40 European Law Review 832.
[243] Case C-46/21 P *ACER v Aquind*: Opinion of Advocate General Sánchez-Bordona [41].
[244] *ACER v Aquind* (n 73) para 56.
[245] ibid 72. On the scope of the legal review, see *BNetzA v ACER* (n 77). The latter litigation concerned ACER's decision on a capacity calculation methodology (CCM) for the Core region, covering central Europe. For a discussion of the scope and intensity of review of ACER decisions, see Hancher and Rumpf (n 228). For a discussion beyond the electricity sector, consult Luca de Lucia, 'The Boards of Appeal as Hybrid Adjudicators' in Merijn Chamon, Annalisa Volpato and Mariolina Eliantonio (eds), *Boards of Appeal of EU Agencies: Towards Judicialization of Administrative Review?* (Oxford University Press 2022).
[246] Joana Mendes, 'Discretion, Care and Public Interests in the EU Administration: Probing the Limits of Law' (2016) 53 Common Market Law Review 419, 427.
[247] Case T-735/18 *Aquind v ACER* [2020] ECLI:EU:T:2020:542 [58].
[248] Art. 29 ACERReg-2019.

independent of the Agency; however, Paper 5 notes that it has a strong tendency to confirm appealed decisions.[249]

2.2.6. System Users: Producers and Consumers

So far, this account has focused on the electricity transmission system and interconnectors. However, electricity networks are not an end in themselves, but serve to ensure electricity supply by connecting the installations of electricity producers[250] (power plants) and consumers, or customers[251].[252] Since producers and consumers are connected to the electricity system via the network,[253] EU law also refers to them as 'system users', defined in the Electricity Directive as

> '*a natural or legal person who supplies to, or is supplied by, a transmission system or a distribution system*'.[254]

At present, system users do not generally play an active role in EU electricity regulation.[255] The dispatching of power plants is coordinated by the TSOs—and not the producers—as part of their general responsibility to operate the transmission system.[256] Also the customers remain largely passive and purchase such electricity as is available from domestic dispatching and cross-border trade. The passive role of system users is not set in stone, however; recent developments under the Clean Energy Packages open up for a more active role of system users in the capacity of 'prosumers'[257] or citizen energy communities that are partially self-supplied and sell surplus electricity.[258] EU electricity regulation also increasingly aims to engage system users in demand response[259] and energy storage.[260] These developments are outside the scope of this thesis.

Nevertheless, at the current state of regulation, the most significant contribution of system users to securing sufficient interconnection for the Energy Union is the payment of transmission tariffs.[261] These tariffs constitute the main source of income for the TSOs. The transmission tariffs—or the

[249] At the time of writing, the BoA has confirmed more than three quarters of all appealed decisions.
[250] Defined in Art. 2(38) ElDir-2019 as '*a natural or legal person who generates electricity*'.
[251] Cf the different categories of customers defined in Art. 2(1)-(5) ElDir-2019. The common element of these definitions is that customers purchase electricity.
[252] For clarity, it should be kept in mind that the network consists of numerous distinct elements, including for example, transmission cables, transformers, substations or switching equipment. For details, see Cretì and Fontini (n 192) ch 3; Laloux and Rivier (n 27) s 1.3.
[253] For more details, refer to Cretì and Fontini (n 192) 39–43; Laloux and Rivier (n 27) 21–27.
[254] Art. 2(36) ElDir-2019.
[255] Ensuring sufficient investment in electricity generation is evidently relevant in the context of the Energy Union and the IEM, however outside the scope of this thesis. For an extensive analysis, see Bjørnebye (n 102).
[256] Art. 40(1)(a) ElDir-2019, Art. 12 ElReg-2019.
[257] Henri Van Soest, 'The Prosumer in EU Energy Law' (2018) 502 MarIus.
[258] Andreas Stroink and others, 'Benefits of Cross-Border Citizen Energy Communities at Distribution System Level' (2022) 40 Energy Strategy Reviews 100821.
[259] Salla Annala and others, 'Regulation as an Enabler of Demand Response in Electricity Markets and Power Systems' (2018) 195 Journal of Cleaner Production 1139.
[260] See the definitions in Art. 2(8), (11), (20), and (59) ElDir-2019.
[261] Art. 6 ElDir-2019, Art. 18 ElReg-2019. For discussions of the transmission tariff regime, see Huhta, 'C-718/18 Commission v. Germany' (n 215); Catherine Banet, 'Electricity Network Tariffs Regulation and Distributive Energy Justice: Balancing the Need for New Investments and a Fair Energy Transition' in Catherine Banet, *Energy Justice and Energy Law* (Oxford University Press 2020).

methodologies underlying their calculation—are subject to previous approval by the NRAs,[262] which are to ensure that the tariffs are non-discriminatory and cover the efficient costs of transmission system operation,[263] while also allowing for '*necessary investments […] to ensure the viability of the networks*'.[264] Since the costs of operating the transmission system—including costs arising from the use of remedial actions[265]—are passed down to the system users, a TSO should have no opportunity to inflate its income to the detriment of the system users (the principle of cost-reflectiveness).[266] In particular, the transmission tariffs '*shall not include unrelated costs supporting unrelated policy objectives.*'[267] Finally, it is noteworthy that the tariff burden is distributed unevenly among customers and producers. Whereas all EU Member States impose tariffs on customers, only about half of the Member States levy 'injection charges' from electricity producers.[268]

2.3. Phases of EU Electricity Regulation: a History of Packages

Today, EU electricity regulation constitutes a vast and comprehensive regulatory framework. This is the result of an iterative process that has taken place in three phases: a long, initial phase of hibernation (discussed in subsection 2.3.1) ended when the EU injected competition into the European electricity markets (as reviewed in subsection 2.3.2). Currently, EU electricity regulation is in the phase of the Network Code Strategy, which began with the Third Electricity Package, adopted in 2009 (see subsection 2.3.3). Each phase was characterised by changing paradigms and priorities, and it is impossible to understand the current state and challenges of EU electricity regulation without a grasp of this development. Among the impulses driving the evolution of EU electricity regulation, three are particularly noteworthy.

The first driver is the dependence on electricity networks and the requirements of power system engineering; the second, economic theory. Billimoria et al. describe the rationale of electricity regulation as '*beginning with a focus upon the physics and engineering of electricity networks and translating this into an economic characterization of the offered goods.*'[269] In other words: electricity regulation takes the physical characteristics and necessities of the sector as a point of departure and applies economic theory to achieve an efficient market design that furthers the desired

[262] Art. 59(1)(a) ElDir-2019. The NRAs' independence from the government in the context of fixing network tariffs or the underlying methodologies must not be compromised, as the ECJ has ruled in several proceedings; see *Commission v Germany* (n 215)—this decision is discussed by Huhta, 'C-718/18 Commission v. Germany' (n 215)—and Case C-474/08 *Commission v Belgium* [2009] ECLI:EU:C:2009:681. The Court has also stated that network tariffs must be approved ex ante by the NRA and that an ex post control is not sufficient, see Case C-274/08 *Commission v Sweden* [2009] ECLI:EU:C:2009:673. Both latter cases are discussed by Tom Maes, 'The Energy Regulators' Core Competence: Network Tariff Setting' in Bram Delvaux, Michaël Hunt and Kim Talus (eds), *EU Energy Law and Policy Issues* (Intersentia 2012) 132–135.

[263] Art. 18(1) ElReg-2019.

[264] Art. 59(7)(a) ElDir-2019, 18(2) ElReg-2019. The procedural and substantial requirements related to the NRAs' control of tariffs are discussed by Maes (n 262) 125–129.

[265] Rious and others (n 172) 3324. For numbers, consult the reports referenced in n 184 above.

[266] This principle is discussed by Huhta, 'C-718/18 Commission v. Germany' (n 215) 264; Banet (n 261) 90.

[267] Art. 18(1) ElReg-2019.

[268] ACER, 'Report on Electricity Transmission and Distribution Tariff Methodologies in Europe' (2023) 24–26; Schoser and Sandberg (n 183) 412–414 discuss this using the terms load charge (or L-charge) and generator charge (or G-charge).

[269] Farhad Billimoria, Pierluigi Mancarella and Rahmat Poudineh, 'Market and Regulatory Frameworks for Operational Security in Decarbonizing Electricity Systems: From Physics to Economics' (2022) 1 Oxford Open Energy oiac007, 2.

energy policy outcomes.[270] As stated previously, the EU pursues its energy policy aims through a competitive, liberalised and integrated electricity market.[271] In this sense, EU electricity regulation is essentially an implementation of liberal economic theory. By referring to the functioning of the internal market not only as an aim, but also as a principle, Article 194(1) TFEU leaves no doubt that EU energy policy follows a market-based approach in pursuit of unrestricted competition.[272]

Nevertheless, EU electricity regulation does not adhere to a pure Chicago school approach. Market actors are regarded as *homines oeconomici*,[273] assuming that they will adapt their behaviour on the market to maximise their own utility according to rational choice theory.[274] Even though the European electricity sector is liberalised, EU electricity regulation thus frequently intervenes in the freedom of the market in order to provide the right incentives, to correct market failures and to pursue ulterior aims, such as sustainability.[275] This brings us to the third driver: legislation.[276] The development of EU electricity regulation can be described as a history of consecutive legislative packages.[277] Whereas each of the packages marked a significant increase in the EU's ambition to integrate the European electricity markets, not every package ushered in a new phase of electricity regulation. The discussion now addresses each of these phases in turn, as depicted in Figure 2 below.

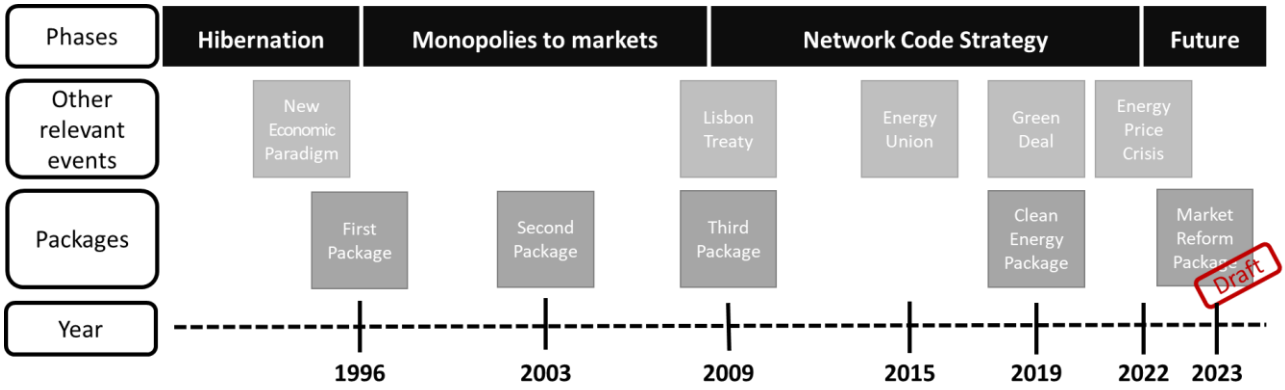

Figure 2: Phases of EU Electricity Regulation and Related Energy Packages

[270] As discussed by Glachant and Ahner (n 166). Similarly, Heffron and Talus (n 101) 1, state that '*energy law and policy are about markets, security of supply and efficiency. It is about government policies aimed at securing energy sources at the least possible cost, including social cost.*'
[271] See above at s 1.4.3.1.
[272] Cf Anna-Alexandra Marhold, 'The Interplay Between Liberalization and Decarbonization in the European Internal Energy Market for Electricity' in Klaus Mathis and Bruce R Huber (eds), *Energy Law and Economics* (Springer International Publishing 2018) 59–61, who considers that '*EU energy policy is de facto an extension of competition law to the EU energy sector.*'
[273] Heselhaus (n 35) 20.
[274] Sanchez-Graells (n 103) 174–176.
[275] Using RES support schemes as an example, Marhold (n 272) 70–73; Banet (n 72) 46–49. For further examples, see Heselhaus (n 35) s 4. On the necessity for re-regulation to achieve liberalisation, see Vogel (n 4) 33–36; Horowitz (n 172) 907.
[276] Odd-Harald B Wasenden, *EU Market Abuse Regulation in Energy Markets* (Cappelen Akademisk Forlag 2008) 221, also highlights this impact.
[277] Similarly: Leonardo Meeus and Valerie Reif, 'Why Did We Start with Electricity Markets in Europe?', in *The Evolution of Electricity Markets in Europe* (Edward Elgar Publishing 2020); Heselhaus (n 35) 24–25.

2.3.1. Hibernation (1957 – 1990s)

The first 30 years following the Treaty of Rome were marked by an almost complete absence of supranational energy policy and legislation in Europe.[278] Only isolated acts at EU level were concerned with electricity regulation, and their impact on the electricity sector was scarce.[279] While the energy sector was in principle covered by the Treaties and thus subject to the fundamental provisions of EU law, such as the free movement provisions[280] or the Commission's competences in the field of competition law,[281] the first decades of European economic integration hardly affected the energy sector.[282] Nevertheless, it is important to engage with this first phase to understand the point of departure for EU electricity regulation and the growing importance for interconnectors for EU energy policy.

During this 'period of hibernation',[283] most countries worldwide had placed the sector in the hands of vast (and usually state-owned) incumbent energy utilities that controlled the entire value chain, from the generation over the transmission to the sale of electricity.[284] Economists refer to this constellation as vertical integration.[285] In addition to the natural monopoly of the electricity grid, these 'national champions' often benefitted from statutory monopolies for the import and export of electricity, as well as the distribution and supply within the national territory.[286] Economists at the time argued that the monopolistic model was more efficient and necessary to ensure security of supply, or even '*to prevent economically harmful effects of competition*' in the energy sector.[287] Instead of enforcing unbundling and competition, regulators sought to curb the market power of the monopolists through price regulation.[288] Interconnectors were built and used as substitutes for domestic power production without further policy implications than safeguarding national security of supply through exclusive, long-term cross-border power supply agreements between the national monopolists.[289]

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[278] Similarly, however extending this assessment to '*the last five decades*', Pielow and Lewendel (n 38) 265.
[279] Kruimer (n 40) 44–46. During the dawn of liberalisation, also most states shied away from regulatory intervention in the field of energy, see Bradbrook (n 86) 214.
[280] See only the seminal judgment in *Costa v E.N.E.L.* (n 131), which concerned electricity.
[281] For an early overview, consult Piet Jan Slot, 'Energy and Competition' (1994) 31 Common Market Law Review 511.
[282] John S Duffield and Vicki L Birchfield, 'Introduction: The Recent Upheaval in EU Energy Policy' in Vicki L Birchfield and John S Duffield (eds), *Toward a Common European Union Energy Policy: Progress, Problems, and Prospects* (Palgrave Macmillan 2011) 2–5.
[283] From Kim Talus, *EU Energy Law and Policy: A Critical Account* (Oxford University Press 2013) s 2.1.
[284] Recital (2) ElReg-2019; Griffin and Puller (n 25) 2.
[285] See the definition in Art. 2(53) ElDir-2019.
[286] Bjørnebye (n 102) 41.
[287] Quoted from the preamble to the first German electricity act (Gesetz zur Förderung der Energiewirtschaft) of 1935; my translation. This informed early electricity regulation; cf the commentary on the first German energy act by Hans Darge, Eugen Melchinger and Fritz Rumpf, *Gesetz zur Förderung der Energiewirtschaft* (Elsner 1936). See also Knops (n 30) 2–3; Griffin and Puller (n 25) 2–3.
[288] Griffin and Puller (n 25) 3.
[289] Schneller (n 173) 133; Hawker, Bell and Gill (n 39) 52; Roggenkamp and others (n 16) 295. For an example, see *VEMW and Others* (n 73); the decision is discussed by Leigh Hancher, 'Case Note on Case C-17/03, VEMW, APX En Eneco N.v. v DTE' (2006) 43 Common Market Law Review 1125.

In short: during the first phase of EU electricity regulation, congestion management and interconnector investment was firmly in the hands of all-powerful national champions and followed a completely different purpose, as the very concept of integrating electricity markets appeared foreign at the time. However, this was about to change.

2.3.2. Monopolies to Markets (1996 – 2009)

In the early 1990s, several large economies abandoned the monopolistic model in favour of competitive energy markets—the US, the UK and Norway are important forerunners.[290] These countries embraced a different economic reasoning that had emerged in the preceding decades. The economic mainstream now perceived vertical integration as an obstacle—rather than a prerequisite—to efficient electricity supply. The argument entailed that the natural monopoly only applied to the electricity networks, but not the production and trade of electricity, so that efficiency could be gained by exposing the latter activities to competition.[291] The success of these early liberalisation endeavours initiated a gradual political change towards a European energy policy aiming to inject competition into the national electricity markets.[292] However, '*[e]lectricity markets do not emerge naturally, they have to be designed.*'[293] Therefore, the EU adopted two consecutive 'packages' that began the reformation of the European electricity system from a competition-free environment into a level playing field for electricity generators and traders.

The First and Second Energy Packages, adopted in 1996 and 2003, respectively, established the TSOs' role as neutral facilitators of non-discriminatory access to the transmission system. Yet whereas the First Energy Package recognised the importance of interconnectors for the completion of the IEM,[294] it contained no detailed rules on their utilisation or investment in cross-border infrastructure, leaving these matters in the hands of the national incumbents. The Second Energy Package compensated for some of the shortcomings of its predecessor[295] and harmonised important aspects of cross-border electricity trade. This new energy package provided for uniform conditions on access to interconnectors and established general principles of congestion management.[296] The adoption of a regulation for that purpose is reflective of a desire for a greater degree of

[290] The studies that retrace this development are legion; for some examples, consult R Bolton, 'A History of Electricity Liberalisation: Origins and Evolution of the Nordic Model' (2023) 21 Oil, Gas & Energy Law; Pollitt (n 32) 64–65; Paul Joskow, 'The Difficult Transition to Competitive Electricity Markets in the U.S.' in James M Griffin and Steven L Puller (eds), *Electricity Deregulation: Choices and Challenges* (University of Chicago Press 2005); von der Fehr and Sandsbråten (n 25) 282.

[291] Griffin and Puller (n 25) 3–4. For an extensive discussion of the development of the economic discourse, see Jean-Michel Glachant, 'Why Regulate Deregulated Network Industries?' (2002) 3 Competition and Regulation in Network Industries 297.

[292] For an overview over the causal developments in economic theory, see Glachant (n 291) 299–302.

[293] Konstantin Petrov and others, 'European Internal Electricity Market—What Next?' (2007) 1 European Review of Energy Markets 1, 15. Vogel (n 4) 3–4 makes the convincing argument that this applies to markets in general.

[294] Art. 7 and recital (6) of Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 Concerning Common Rules for the Internal Market in Electricity [1997] OJ L27/20 (ElDir-1996).

[295] Leigh Hancher, 'Slow and Not so Sure: Europe's Long March to Electricity Market Liberalization' (1997) 10 The Electricity Journal 92; European Commission, 'Proposal for a Directive of the European Parliament and of the Council Amending Directives 96/92/EC and 98/30/EC Concerning Common Rules for the Internal Market in Electricity and Natural Gas' (2001) COM(2001) 125 final.

[296] Art. 4-6 of Regulation (EC) No 1228/2003 of the European Parliament and of the Council of 26 June 2003 on Conditions for Access to the Network for Cross-border Exchanges in Electricity [2003] OJ L176/1 (ElReg-2003).

harmonisation. Most importantly, the maximum capacity principle entered EU electricity regulation.[297] In contrast, the topic of interconnector investment did not experience a similar degree of harmonisation.

This notwithstanding, the Second Energy Package introduced the option to obtain a 'merchant' exemption for new interconnectors. Such an exemption, which is only available to independent third-party investors (ie not to TSOs), may relieve new interconnectors from the restrictions of third-party access, unbundling, and the use of congestion income, among other things. However, a merchant exemption is limited to interconnector projects that, while having a positive impact on the IEM, are too risky to be executed by a regulated TSO.[298] The 'merchant model' is still in force without substantial changes, and a number of projects have obtained an exemption.[299] The Second Energy Package also strived for greater regulatory oversight and obliged the Member States to create specialised regulatory agencies for the energy sector, the NRAs.[300] During these early stages of EU electricity regulation, cross-border coordination and cooperation occurred mostly through self-regulation.[301] The TSOs developed non-binding technical standards for grid operation on their own initiative, forming networks to exchange best practices and knowledge.[302] The NRAs endorsed and supported the voluntary self-regulation of the European TSOs and also cooperated in informal networks, such as the Florence Forum for the electricity sector.[303]

2.3.3. The Network Code Strategy (2009 – Present)

As it were, already the Second Energy Package established the core of today's EU electricity regulation. Nevertheless, the years following its adoption showed that the Second Energy Package lacked the punch to complete the IEM and to provide sufficient interconnection.[304] Following a

[297] Art. 6(3) ElReg-2003.

[298] Art. 7 ElReg-2003. For discussions of the merchant regime, refer to König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* (n 102) 114–118; Adrien de Hauteclocque and Vincent Rious, 'Reconsidering the European Regulation of Merchant Transmission Investment in Light of the Third Energy Package: The Role of Dominant Generators' (2011) 39 Energy Policy 7068. The merchant investment regime for interconnectors is also discussed extensively in Paper 3.

[299] The Commission lists existing merchant exemptions at https://energy.ec.europa.eu/topics/markets-and-consumers/wholesale-energy-market/access-infrastructure-exemptions-and-derogations_en (accessed 13 October 2023).

[300] Art. 23 of Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 Concerning Common Rules for the Internal Market in Electricity [2003] OJ L176/37 (ElDir-2003).

[301] A rich academic debate on self-regulation has resulted in a plethora of concepts and categories, which cannot be reiterated in full here. For an overview, see Julia Black, 'Decentring Regulation: Understanding the Role of Regulation and Self-Regulation in a "Post-Regulatory" World' (2001) 54 Current Legal Problems 103, 114–122; Neil Gunningham and Joseph Rees, 'Industry Self-Regulation: An Institutional Perspective' (1997) 19 Law & Policy 363, 364–365. A common denominator of these conceptualisations is the distribution of regulatory tasks and powers between the private and public sphere, with more or less control by a public (or, in the case of the EU, supranational) regulator; see Ian Bartle and Peter Vass, 'Self-Regulation Within the Regulatory State: Towards a New Regulatory Paradigm?' (2007) 85 Public Administration 885; Robert Baldwin, Martin Cave and Martin Lodge, 'Self-Regulation, Meta-Regulation, and Regulatory Networks', *Understanding Regulation: Theory, Strategy, and Practice* (Oxford University Press 2011); on different intensities of self-regulation, see Ian Ayres and John Braithwaite, *Responsive Regulation: Transcending the Deregulation Debate* (Oxford University Press 1992) 38–40.

[302] Musialski (n 194) 34–36 provides an overview over the TSOs' self-regulation under the First and Second Energy Packages.

[303] For a discussion of the Florence forum, see Eberlein (n 21).

[304] Recitals (7) and (10) in Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 Concerning Common Rules for the Internal Market in Electricity [2009] OJ L211/55 (ElDir-2009). See also European Commission, 'Commission Staff Working Paper: Interpretative Note on Directive 2009/72/EC Concerning Common

sector inquiry, the Commission therefore proposed the adoption of a Third Energy Package.[305] The Third Energy Package was adopted in 2009, once again with the aim of completing the IEM.[306] The adoption of the Third Energy Package ushered in a new phase of EU electricity regulation marked by several far-reaching changes that this subsection will analyse in the following order: (1) a change of the regulatory strategy, from establishing the legal framework for the electricity sector (and especially the utilisation of interconnectors) to refining and harmonising it;[307] (2) a corresponding replacement of facultative self-regulation and voluntary cooperation networks with formalised institutions that carry regulatory powers and obligations under EU legislation;[308] (3) the Lisbon Treaty, adopted in 2009, establishing, for the first time, an explicit (shared) EU competence in the field of energy; and (4) the adoption of the Energy Union programme.[309]

Regarding the first and second major changes, the shift to the Network Code Strategy entailed an extensive reorganisation of the governance of the electricity sector.[310] The Third Energy Package initiated a vast endeavour to establish harmonised, detailed and legally binding rules for the operation of the European electricity grids and markets, with a view to optimising the utilisation of existing interconnectors. TSOs and NRAs received new regulatory duties, and their cross-border cooperation was institutionalised.[311] With ACER, a new EU agency was created for the energy sector, with a view to coordinating the work of the NRAs at European level.[312] Cooperation among the European TSOs was also institutionalised with the creation of ENTSO-E.[313] Both new actors were invested with regulatory duties within the Network Code Strategy: whereas ENTSO-E was tasked with providing the drafts for the network codes and guidelines, ACER scrutinised them before submitting them to the Commission for adoption. Seeing as the NRAs in many Member States were subject to political influence or even control, the Third Energy Package sharpened the

Rules for the Internal Market in Electricity and Directive 2009/73/EC Concerning Common Rules for the Internal Market in Natural Gas—The Unbundling Regime' (2010) 4; European Commission, 'Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/54/EC Concerning Common Rules for the Internal Market in Electricity' [2007] (COM(2007) 528 final) 4–7 in the explanatory memorandum; Neelie Kroes, 'Improving Competition in European Energy Markets through Effective Unbundling' (2007) 31 Fordham International Law Journal 1387, in particular 1416.

[305] European Commission, 'Final Report on the First Energy Sector Inquiry' (n 47). The sector inquiry is discussed by Goldberg and Bjørnebye (n 232) 10–11.

[306] Recitals (3), (4) in Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on Conditions for Access to the Network for Cross-border Exchanges in Electricity [2009] OJ L211/15 (ElReg-2009). For a comment on the main changes under the Third Energy Package, see Yona Marinova, 'Implementation of the Third Internal Energy Market Package' in Christopher Jones (ed), *EU Energy Law*, vol I (4th edn, Claeys & Casteels 2016).

[307] This approach is referred to as uniformisation by Rious and others (n 172) 3327.

[308] European Commission, Proposal for the ElReg-2009 14 in the explanatory memorandum; Levi-Faur (n 221) 825–826.

[309] European Commission, 'The Energy Union Programme' (n 3).

[310] Per Ove Eikeland, 'The Third Internal Energy Market Package: New Power Relations among Member States, EU Institutions and Non-State Actors' (2011) 49 Journal of Common Market Studies 243.

[311] Jevnaker (n 65) 935.

[312] See Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 Establishing an Agency for the Cooperation of Energy Regulators [2009] OJ L211/1 (ACERReg-2009).

[313] Art. 4 ElReg-2009. ENTSO-E and its main tasks in the context of the Network Code Strategy are introduced above, at s 2.2.3.

corresponding independence requirements, requiring the Member States to shield the NRAs from political as well as commercial interests.[314]

The third major change concerned the adoption of the Lisbon Treaty in 2009, which introduced a shared energy competence for the EU.[315] Until 2009, the EU had lacked an explicit competence in the field of energy[316] and relied on its competences concerning the approximation of laws[317], the promotion of trans-European networks[318] or in the field of environmental protection[319] to adopt energy legislation, depending on the objectives pursued in each case.[320] Today, Article 194(1) TFEU lays down the general principles and aims of EU energy policy, while Article 194(2) TFEU serves as a specific legal base for adopting EU electricity regulation to achieve these aims.[321] Nevertheless, as stated before, the Member States retain considerable discretion in energy policy matters.[322] This remains true even after the adoption of the Energy Union strategy, which marks the fourth major change during the current phase of EU electricity regulation.[323]

However, even these comprehensive changes did not succeed in completing the IEM. The implementation of the network codes and guidelines did not go according to plan and interconnector capacity continued to be lacking.[324] Therefore, after just under a decade, the Third Energy Package was superseded by the Clean Energy Package, adopted during the writing of this dissertation over the course of 2018 and 2019.[325] The Clean Energy Package still aims at completing the IEM.[326] This package reflects the latest developments in EU energy policy. It is generally oriented along the five dimensions of the Energy Union programme, and environmental aims figure more prominently in the Clean Energy Package than any of the preceding packages.[327] However, the Clean Energy

[314] Art. 35(4), (5) ElDir-2009. On the scope of the NRAs' independence, see *Commission v Germany* (n 215); Huhta, 'C-718/18 Commission v. Germany' (n 215).
[315] Art. 4(2)(i), 194(2) TFEU. The scope of the energy-specific competence established in Art. 194 TFEU and its relation to other legal bases for EU action enshrined in the Treaties is discussed in detail by Kim Talus and Pami Aalto, 'Competences in EU Energy Policy' in Rafael Leal-Arcas and Jan Wouters (eds), *Research Handbook on EU Energy Law and Policy* (2017) 18–23. For further details on the history of Art. 194 TFEU, see Hancher and Salerno (n 164) 368–374.
[316] Pielow and Lewendel (n 38) 265–266; Delvaux and Guimaraes-Purokoski (n 105) 16–17.
[317] Now Art. 114 TFEU.
[318] Now Art. 170-172 TFEU.
[319] Now Art. 191, 192 TFEU.
[320] For details, see Kaisa Huhta, 'The Scope of State Sovereignty under Article 194(2) TFEU and the Evolution of EU Competences in the Energy Sector' (2021) 70 International and Comparative Law Quarterly 991, 996–997; Christian Calliess and Christian Hey, 'Multilevel Energy Policy in the EU: Paving the Way for Renewables?' (2013) 10 Journal for European Environmental & Planning Law 87, 97–100.
[321] Calliess (n 112) para 3; Pielow and Lewendel (n 38) 267.
[322] See above, at s 2.2.2.
[323] European Commission, 'The Energy Union Programme' (n 3).
[324] Schneller (n 173) 137; ACER, 'CACM and FCA Implementation Report' (n 189); ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2017' (n 140) 24–29.
[325] For background information on the Clean Energy Package, see https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en (accessed 13 October 2023).
[326] Recital (8) in Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on Common Rules for the Internal Market for Electricity (Recast) (ElDir-2019).
[327] Art. 1 ElDir-2019; Art. 1(a), (b) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the Internal Market for Electricity (Recast) (ElReg-2019). See also Sunila (n 102) 22–24; Huhta, 'Trust in the Invisible Hand?' (n 107) 4. However, also previous packages referred to environmental aims, cf already recital (4) ElDir-1996 and Slot and Skudder (n 112) 120–121.

Package remains faithful to the liberal market paradigm and pursues the underlying aims through market-based measures to the extent possible. Therefore, the Clean Energy Package does not entail fundamental changes to EU electricity regulation. Instead, it confirms and reinforces the Network Code Strategy, streamlines the underlying processes and fixes issues that have arisen during implementation.

Most importantly, the Clean Energy Package addresses the issue of low interconnector utilisation heads-on. The Commission explicitly developed the Clean Energy Package to '*ensure that electricity imports and exports are not restricted by national actors for economic reasons.*'[328] To this end, the maximum capacity principle is complemented by the so-called '70 per cent rule'. In simplified terms, this rule obliges the TSOs to make available at least 70 per cent of the 'safe' capacity of the transmission system and its interconnectors, ie '*of the capacity respecting operational security limits*'.[329] Due to ample exemptions, the 70 per cent rule is effectively under a moratorium until 2026[330] and may not become fully effective after that, due to the possibility to grant individual exemptions to TSOs.[331] On the other hand, many European transmission systems are not ready to provide the minimum capacity in the current, inefficient bidding zone configuration—and in all likelihood will not be by 2026, either. Thus, implementing the 70 per cent rule may lead to higher network operation costs, result in inefficient congestion management, or even lead to higher CO_2 emissions.[332] ACER voiced similar concerns at the most recent Florence forum, calling the discrepancy between the 70 per cent rule and the physical state of the grid an '*elephant in the room*'.[333] While a dedicated study of the minimum capacity threshold is outside the scope of this dissertation, Papers 2 and 4 highlight factual and legal problems that may compromise its effectiveness.[334] In the face of these difficulties, ACER's latest report on the implementation of the 70 per cent rule poses the question '*whether it is possible to reach the target at all*.'[335] The

[328] European Commission, 'Proposal for a Regulation of the European Parliament and of the Council on the internal market for electricity (recast)' [2016] (COM(2016) 861 final) 19.
[329] Art. 16(8) ElReg-2019.
[330] According to Art. 15 ElReg-2019, Member States may adopt 'national action plans' that temporarily establish lower minimum capacity thresholds, to be increased along a linear trajectory to 70 per cent until 31 December 2025.
[331] TSOs may apply for a derogation from the 70 per cent rule for one year at a time under Art. 16(9) ElReg-2019. While there does not seem to be an upper limit on the number of consecutive derogations, neighbouring NRAs may refer the derogation decision to ACER, which provides a certain protection against abuse. For the first example, see Decision No 17/2022 of the Agency for the Cooperation of Energy Regulators of 26 October 2022 on Svenska Kraftnät's Request for a Derogation from the 70% Requirement Pursuant to Article 16(9) of Regulation (EU) 2019/943. Nevertheless, uncertainties remain, and ACER and CEER '*invite the Commission to […] specify clearer provisions for granting (recurring) derogations*' in their 'Reaction to the European Commission's Public Consultation on Electricity Market Design' (2023) 33.
[332] See Schneller (n 173) 140–142. For an early critical discussion, see also Konrad Purchała, '75% Capacity Thresholds—Do We Really Know What We Are Doing?' (*EURACTIV*, Dez 2018) https://www.euractiv.com/section/energy/opinion/75-capacity-thresholds-do-we-really-know-what-we-are-doing/ (accessed 13 October 2023).
[333] See ACER's presentation '70% Monitoring' (Florence Forum, 7 June 2023), available at https://circabc.europa.eu/ui/group/7e2c11cf-7e6f-45db-94ee-ad64e9cff29e/library/0c13607b-b760-4ff9-b680-25ef53d8a79c/details (accessed 13 October 2023).
[334] On the one hand, calculating the reference capacity seems to be difficult, cf *Case AT.40461—DE/DK Interconnector* (n 85) paras 21–24. On the other, the NRAs interpret and apply the 70 per cent rule differently, despite attempts by ACER to provide a harmonized interpretation; see below, at s 3.1.2.
[335] ACER, '2023 70 Per Cent Report' (n 12) 5.

implementation of this rule hence raises numerous issues that constitute important avenues for future research.

This notwithstanding, the Clean Energy Package has introduced further measures to improve congestion management by the TSOs that are worth mentioning. For one, the 70 per cent rule goes hand in hand with a reinforced procedure to review the configuration of bidding zones in the Member States.[336] The 70 per cent rule has the potential to increase pressure on the Member States to split ineffective bidding zones along structural congestions, with positive effects for the IEM.[337] Moreover, the Third Electricity Regulation takes coordination among TSOs to the next level, tasking them with establishing regional coordination centres (RCCs) that calculate transmission capacity at the level of 'system operation regions'.[338] To be sure, the RCCs are no supranational system operators, and the TSOs remain fully responsible for congestion management.[339]

All told, the Clean Energy Package has not fundamentally altered the Network Code Strategy, but rather cautiously reinforced the underlying governance. First, the package has defined new areas for the developments of network codes and guidelines.[340] Second, it has improved the implementation of the network codes and guidelines. When adopting new network codes and guidelines, ACER may revise the draft before sending it on for adoption to the Commission, a shortcoming under the previous Third Energy Package that Paper 1 pointed out.[341] Furthermore, ACER's powers have been extended to streamline the implementation of the existing guidelines. In particular, ACER now decides on all pan-European methodologies and may revise all methodologies before adoption.[342]

In contrast to the increasingly detailed rules on interconnector utilisation, it is worth noting that even under the Clean Energy Package, the legal regime for investment in interconnectors in EU electricity regulation remains inchoate.[343] The pan-European 'Ten-Year Network Development Plan' (TYNDP) still is explicitly non-binding. The newly adopted Governance Regulation does stipulate interconnection targets of 10 per cent by 2020 and 15 per cent by 2030.[344] However, as

[336] Art. 14 ELReg-2019. For details, see Pototschnig (n 185); Fridtjof Nansen Institute and Thema Consulting Group (n 189).
[337] Because of the lack of capacity in the grids and the difficulties to execute necessary investments on time, remedial action costs could skyrocket from 2026. Thus, a bidding zone review could become '*the least of three evils*' related to congestion management, as Schneller (n 173) 142 puts it.
[338] Art. 35, 36, 37(1)(a) ElReg-2019. See also Decision No 05/2022 of the European Union Agency for the Cooperation of Energy Regulators of 7 April 2022 on the Definition of System Operation Regions. The merging of some functions of system operation may improve coordination and information flows among TSOs, cf Tangerås (n 220) 1646.
[339] Art. 35(5) ElReg-2019. On supranational TSO designs, see Rious and others (n 172) 3328–3329. The legal conditions for creating supranational TSOs in the EU are examined in Kanerva Sunila and others, 'A Supra-National TSO to Enhance Offshore Wind Power Development in the Baltic Sea? A Legal and Regulatory Analysis' (2019) 128 Energy Policy 775, 779–780.
[340] Art. 59-61 ElReg-2019.
[341] Art. 59(11) ElReg-2019.
[342] Art. 5(2) and (6), recital (20) ACERReg-2019.
[343] Note that this refers to the fact that investment obligations remain at the discretion of the TSOs and NRAs; as mentioned at s 1.4.3.1 above, EU legislation provides several dedicated incentive schemes for interconnector investment, which however remain outside the scope of this dissertation.
[344] Art. 2(11), 4(d)(1) and point 2.4.1. of Part 1 of Annex I to the GovReg. These targets were first established by the European Council, see European Council, 'Conclusions of European Council Meeting 23 and 24 October 2014' (2014)

Paper 3 finds, these targets are most likely indicative and in any case too indeterminate to establish concrete investment obligations in electricity interconnectors. The question whether the Network Code Strategy may come to harmonise the conditions for interconnector investment in the future is discussed in chapter 4.

2.3.4. Outlook: What Does the Future Hold for EU Electricity Regulation?

As this section has explained, progress with European integration in the field of electricity follows the familiar pattern of 'integration through law', where law is both the object and agent of integration.[345] The preceding review has shown that the regulatory framework for electricity has grown very comprehensive, with each Package branching out into new areas while also growing deeper roots in previously established fields of regulation. The most impactful change from the perspective of this dissertation is the introduction of the Network Code Strategy, under which EU electricity regulation has become highly complex, with several new tiers of EU legislation and numerous actors populating an increasingly intricate regulatory landscape. These developments will be discussed in greater detail in chapter 4. However, the preceding account also shows that EU electricity regulation does not evolve uniformly. In particular, rules on investment remain vague and grant the Member States a large degree of discretion and control.

Nevertheless, it has become clear that the regulatory issues addressed in this dissertation are still works in progress. The rules on the non-discriminatory operation of the transmission grid that Paper 1 discusses can be traced back all the way to the First Energy Package.[346] The scarcity of cross-border capacity, which Paper 2 deals with in detail, was a primary motivation for the adoption of the Second Energy Package,[347] and is still a pressing issue today. Paper 3 shows that almost 30 years after the liberalisation of the electricity sector began with the First Energy Package, statutory monopolies can still be found in the Member States. Paper 4 explores the interplay between the 'rules in the book' that the remaining Papers discuss and putting those rules in action, showing that the EU and its Member States yet need to find consensus on numerous issues in the field of energy policy. This suggests that the effectiveness of EU energy law depends on continued enforcement to ensure that electricity regulation adheres to the path determined by the EU's energy policy aims. Finally, the implementation of the network codes and guidelines, introduced with the Third Energy Package,[348] is still unfinished, an issue raised in Papers 4 and 5.

EUCO 169/14 6–7. The Council reiterated these targets shortly after, see Council of the European Union, 'Council Conclusions: Completion of the Internal Energy Market' (2014) 2. See also recital (17) GovReg.

[345] On the 'integration through law' research agenda, see Joerges and Kreuder-Sonnen (n 4) 119; Loïc Azoulai, '"Integration Through Law" and Us' (2016) 14 International Journal of Constitutional Law 449, 451; Mauro Cappelletti, Monica Seccombe and Joseph H Weiler (eds), 'Integration Through Law: Europe and the American Federal Experience. A General Introduction', *Integration Through Law, Volume 1: Methods, Tools and Institutions, Book 1: A Political, Legal and Economic Overview* (De Gruyter 1986).

[346] Art. 7(5) ElDir-1996.

[347] Recital (3) ElReg-2003.

[348] Art. 6, 18 ElReg-2009.

In the foreseeable future, the dimensions of the Energy Union will continue to set the agenda for EU electricity regulation.[349] Already the Clean Energy Package refers extensively to the Energy Union and its dimensions.[350] However, other, external factors may provide additional impetus for change. Up to the Clean Energy Package, the development of EU electricity law was comparatively stable and calm, driven mostly by internal impulses, above all the completion of the IEM according to neoliberal economic theory. However, shortly before the conclusion of this thesis, the electricity sector was affected by several crises that provided urgent external impulses. First, the ever-more acute climate crisis has led to an even stronger push to secure the European electricity supply through renewables.[351] Second, the price crisis that shook the European energy markets in 2022 has led to the adoption of emergency regulation to dampen the soaring gas and electricity prices, to protect vulnerable customers and to accelerate the deployment of RES even more.[352] These measures are, too, embedded in the Energy Union programme.[353]

At the time of writing, a more far-reaching revision of the Electricity Directive and Regulation is already on the horizon. In March 2023, the Commission proposed to reform the electricity market design to better address the aforementioned crises.[354] At the time of writing, the Council and the European Parliament were concerned with the Commission's proposal.[355] Despite giving the proposal a high-priority treatment, it is too early to speculate on the duration and outcome of the legislative procedure. Yet as far as can be seen, this revision will focus on issues outside the scope of this thesis, ie lowering and stabilising electricity prices for customers in the EU, avoiding excessive profits for power generators and bolstering the safeguards against market manipulation.[356] In contrast, the proposal does not envisage any further concerted measures against the suboptimal utilisation and investment in electricity interconnectors. Hopefully, this is no sign of resignation,

[349] Cf Roeben (n 4) 4, who considers the Energy Union programme as '*the reference for policy and lawmaking on the European energy system for the medium term.*'
[350] For example, according to Art. 1(a), the ElReg-2019 aims to '*set the basis for an efficient achievement of the objectives of the Energy Union*'.
[351] Hardiman (n 91) 243; European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: An EU Strategy to Harness the Potential of Offshore Renewable Energy for a Climate Neutral Future' COM(2020) 741 final; European Commission, 'The Green Deal' (n 10).
[352] Council Regulation (EU) 2022/1854 on an Emergency Intervention to Address High Energy Prices [2022] OJ L261 I/1; Council Regulation (EU) 2022/2577 Laying Down a Framework to Accelerate the Deployment of Renewable Energy [2022] OJ L335/36; Council Regulation (EU) 2022/2578 Establishing a Market Correction Mechanism to Protect Union Citizens and the Economy Against Excessively High Prices [2022] OJ L335/45. For a discussion of different emergency interventions in the context of the 2022 energy price crisis, see Javier Arribas Cámara and Vicente Sánchez Jiménez, 'The European Union Facing the Abyss: Legislative Review in the Face of the Energy Crisis, 2022' (2023) 41 Journal of Energy & Natural Resources Law 335.
[353] In its 'REPowerEU Plan' (n 20) 1, the Commission states that '*REPowerEU is about rapidly reducing our dependence on Russian fossil fuels by fast forwarding the clean transition and joining forces to achieve a more resilient energy system and a true Energy Union.*'
[354] European Commission, Proposal for a Regulation to Improve the Union's Electricity Market Design.
[355] For background information on the proposal, consult https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/electricity-market-design_en (accessed 13 October 2023).
[356] For an overview over the legislative procedure up to July 2023, see European Parliament, 'Briefing: EU Legislation in Progress—Improving the Design of the EU Electricity Market' (2023), available at https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/745694/EPRS_BRI(2023)745694_EN.pdf. (accessed 13 October 2023).

since these issues must be resolved in order to attain the EU's energy and environmental policy aims.

2.4. Interim Conclusion: The Energy Union—a Work In Progress

This chapter has discussed how the European electricity sector has evolved from segregated national markets towards an Energy Union. The physical interconnection of the electricity grids has been an enabler of this process, but remains insufficient at the time of writing. For three decades, the EU has used its legislative competences to stipulate a variety of measures aiming at remedying the lack of interconnection, which this chapter has examined in depth. Schneller encapsulates these measures quite eloquently as build, split, or pay.[357] The ideal solution in the long-term is investment in new interconnectors, but also in the national transmission systems ('build'). Because interconnectors cannot operate independently of the 'national' electric power systems they connect, internal congestion often translates to interconnector curtailments.[358] The Electricity Regulation names such curtailments as '*a serious obstacle to the development of a functioning internal market for electricity.*'[359] Remaining structural internal bottlenecks should be addressed through an efficient bidding zone configuration ('split'). However, given the long lead times and widespread resistance to transmission infrastructure investment[360] as well as the political awkwardness of reconfiguring the existing bidding zones, the chronic underutilisation of interconnectors throughout the EU is thus likely to continue. This necessitates an excessive use of redispatching and countertrading ('pay'), which generates massive costs that are passed down to the consumers and is thus the least efficient solution.[361] These obstacles and inefficiencies need to be overcome in order to realise the Energy Union. Against this background it appears unfortunate that, at least at the time of writing, the proposals to reform the EU electricity market design entail no innovations that promise to resolve the conundrum of insufficient electricity interconnection.

[357] Schneller (n 173) 142.
[358] Knops (n 30) 331–333.
[359] Recital (27) ElReg-2019.
[360] On conflicts accompanying the German endeavour to remove internal bottlenecks with 'power highways' (Stromautobahnen), see Nils Hellmuth and Eva-Maria Jakobs, 'Lernen von Erfahrungen mit Infrastrukturprojekten—Konfliktauslöser und -bearbeitung' (2022) 46 Zeitschrift für Energiewirtschaft 131, 137–138.
[361] Rious and others (n 172) 3324.

3. Findings of the Papers

This chapter summarises the main findings of the Papers that comprise Part 2 of this dissertation. Each of the Papers relates to one or several of the subquestions that this thesis endeavours to answer.[362] The following summaries present the Papers in a way that emphasises the connections between them and those points that are most relevant for the overarching discussion of the Network Code Strategy in chapter 4. Where appropriate, the summaries also indicate relevant legal developments that have taken place since the publication of the respective Papers.

3.1. Just How Much is Enough? EU Regulation of Capacity and Reliability Margins on Electricity Interconnectors (Paper 1)

3.1.1. Summary

Paper 1 analyses how EU legislation addresses the interaction between the aims of security of supply and increased interconnection. Security of supply is a complex concept that covers several distinct aspects, the safeguarding of which is incumbent upon different actors.[363] Since pertinent EU legislation indiscriminately refers to security of supply to denote different aspects, Paper 1 unpacks this concept and focuses on the TSOs' obligation to safeguard the operational security—or reliability—of the grid in day-to-day operation. This obligation is subject to a necessary trade-off with the maximum capacity principle, since maximising interconnector capacity beyond the capabilities of the grid may lead to a blackout.[364] When calculating interconnector capacity, TSOs set reliability margins to ensure that cross-border trade does not jeopardise operational security. Excessive reliability margins could contribute to the underutilisation of electricity interconnectors. Therefore, departing from the observation that electricity interconnectors are frequently underutilised, Paper 1 discusses whether the EU rules on reliability management by TSOs are effective in ensuring compliance with the maximum capacity principle. This analysis contributes to answering subquestion 1: how EU law pursues the efficient utilisation of existing interconnectors. Moreover, Paper 2 addresses subquestion 2 by identifying investment in interconnectors as a part of the TSOs' reliability management and examining the pertinent rules in EU legislation.

Paper 1 finds that in day-to-day transmission network operation, EU energy law consistently prioritises reliability over all other relevant concerns. The maximum capacity principle itself only applies to the extent that reliability is maintained. At the same time, the legal framework does not establish precise criteria for reliability management. Therefore, TSOs enjoy ample and possibly excessive discretion when setting reliability margins. In addition, investment decisions are not taken at EU level and occur for the most part at initiative of the TSOs and the discretion of the NRAs. For lack of specific statutory safeguards, avoiding excessive reliability margins presupposes active regulatory oversight. Paper 1 argues that general principles of EU electricity regulation, such as the

[362] See s 1.3 and Table 1 above.
[363] Along the same lines, Marhold (n 272) 61–62.
[364] Note that maximising interconnector capacity may contribute to other aspects of security of supply. One example concerns generation adequacy, which generally benefits from access to foreign electricity production. These considerations are outside the scope of Paper 1.

non-discrimination obligation or the maximum capacity principle, provide a sufficient base for regulatory control. If applied consistently, these principles delimit the TSOs' discretion sensibly and are suited for resolving the trade-off between maximising interconnector capacity and operational security.

However, *ex post* enforcement of these principles is hampered, which may explain the low utilisation rate of many interconnectors. In the very technical domain of reliability management, it is plausible to regard information asymmetry and lack of resources on the side of the NRAs as possible causes. The final question Paper 1 is concerned with is whether the European network codes provide an effective remedy to the lack of interconnection capacity and facilitate enforcement. Unfortunately, the emerging framework of detailed *ex ante* regulation under the Network Code Strategy appears as a double-edged sword. While contributing to the EU's efforts of harmonising the sectoral framework, this framework also challenges regulators with unprecedented complexity, and new and demanding tasks. Furthermore, the available network codes—most of them still in draft status at the time of writing of Paper 1—do not resolve core issues at the heart of reliability management, but require further implementation due to their adoption as guidelines. The main argument of Paper 1 is therefore that more detailed and complex legislation may not be the most suitable, or urgent, measure to ensure the integration of electricity markets and networks according to the aims of the Energy Union.

3.1.2. Update: Subsequent Changes in Legislation

The development of Paper 1 began under the Third Energy Package. During writing, the Commission proposed extensive revisions to EU electricity regulation. This process would conclude with the adoption of the Clean Energy Package in 2018/2019.[365] While the relevance of the Clean Energy Package for the subject of Paper 1 was evident, at the time of submission, the legislative proceedings had just commenced and it was too early for more than a brief outlook. In addition, all electricity guidelines have been adopted since publication of Paper 1. This subsection comments on relevant changes that follow from the adoption of the Clean Energy Package, as well as the adoption and implementation of further electricity guidelines. In general, EU electricity regulation now provides a much denser framework of harmonised *ex ante* regulation on reliability management.[366] However, also this framework has not been successful in gaining a sufficient level of electricity interconnection.[367]

The most radical change in the Clean Energy Package from the viewpoint of reliability management concerns the 70 per cent rule.[368] The Electricity Regulation explicitly states that the TSO may assign up to 30 per cent of the capacity at each interconnector to '*reliability margins, loop flows and internal flows*'. Whereas this sets a definite upper limit for reliability margins, it is up to each TSO

[365] On the Third Energy Package and the Clean Energy Package, see s 2.3.3 above.
[366] For example, the ElReg-2019 establishes parameters to be used in national reliability standards, providing further harmonisation and reducing the room for setting arbitrary reliability standards; see Art. 11, 25 ElReg-2019.
[367] ACER, '2023 70 Per Cent Report' (n 12) 5.
[368] Art. 16(8) ElReg-2019.

to determine the reference capacity for each interconnector (ie the maximum safe capacity of which 70 per cent must be made available). Moreover, despite ACER's efforts to harmonise the NRAs' interpretation and monitoring of the 70 per cent rule, disparate approaches prevail in the different Member States.[369] In addition, due to numerous derogations from the 70 per cent rule, reliability margins are often higher than 30 per cent in practice.[370]

These difficulties with implementing the 70 per cent rule also illustrate that the general issues identified in Paper 1 remain valid despite the adoption of the Clean Energy Package and further electricity guidelines. As Paper 1 expects, implementing the guidelines has substantially increased the workload of the NRAs, as well as ACER.[371] Moreover, the adoption of the methodologies has proven highly contentious.[372] These conflicts often leads to time-consuming legal proceedings.[373] The network codes and guidelines are thus no miracle cure for the lack of electricity interconnection.

3.2. Congestion Displacement in European Electricity Transmission Systems—Finally Getting a Grip on it? Revised Safeguards in the Clean Energy Package and the European Network Codes (Paper 2)

Paper 2 discusses EU legislation concerning another phenomenon that leads to structurally underutilised electricity interconnectors: the common practice among TSOs to limit interconnector capacity in order to relieve congestion within the domestic grids. Paper 2 refers to this practice as 'congestion displacement'. Congestion displacement is one of the main obstacles to the achievement of the IEM and the related energy policy aims of the EU.[374] The objective of Paper 2 is to show how EU energy law combats congestion displacement and—seeing as it is so common—to identify possible reasons for the prevalence of this practice. The main argument of Paper 2 is that even a dense and harmonised legal framework cannot ensure sufficient interconnection, since incentives for TSOs to employ and for NRAs to tolerate congestion displacement remain.

The Paper focuses on changes to the pertinent regulatory framework due to the adoption of the Clean Energy Package and the European network codes and guidelines. Paper 2 retraces how these legislative changes affect the scope for congestion displacement by electricity TSOs, contrasting the new safeguards with the previous legal framework under the Third Energy Package where appropriate. For the first time, Article 16(8) of the Electricity Regulation explicitly prohibits congestion displacement. This prohibition complements the maximum capacity principle and is flanked by the 70 per cent rule, as well as detailed requirements in the electricity guidelines. The Paper submits that the 70 per cent rule

[369] See ACER, 'Report on the Result of Monitoring the Margin Available for Cross-Zonal Electricity Trade in the EU in the First Semester of 2020' (2020); ACER, 'Practical Note: Monitoring the Margin of Capacity Available for Cross-Zonal Trade' (2022). For further details on ACER's recommended approach, consult ACER Recommendation 01/2019 on Implementing the Minimum Cross-Zonal Capacity Margin.
[370] ACER, '2023 70 Per Cent Report' (n 12). See also the issues mentioned in s 2.3.3 below. For critical discussions of the 70 per cent rule, consult the sources named in n 332 above.
[371] Roughly three quarters of the decisions adopted by ACER at the time of writing are related to the adoption of methodologies.
[372] Fink and others (n 34) 313.
[373] Hancher and Rumpf (n 228); see also the procedures named in n 237 above and n 561 below.
[374] Recital (27) ElReg-2019; ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2019' (n 140) 14–15.

will likely function as an absolute limit to congestion displacement, highlighting that a rigid threshold most likely does not yield optimal economic gains on every interconnector. These concerns notwithstanding, the analysis reveals no major gaps in the legal framework, so that the prevalence of congestion displacement once again suggests a lack of enforcement.[375]

To test this assumption, Paper 2 discusses three instances of structural congestion displacement as case studies. Two of these cases concern competition proceedings before the Commission, whereas the third case took place before national institutions of a Member State. The case studies show that TSOs mainly attempt to justify congestion displacement with reasons of reliability and economic efficiency. However, the scope for justifying congestion displacement is small, as reliability concerns may only justify congestion displacement as a measure of last resort. By contrast, economic efficiency cannot justify congestion displacement under the current framework. While the Commission follows this reasoning and employs a zero-tolerance rhetoric on congestion displacement, it has only prosecuted congestion displacement in two cases, which is merely the tip of the iceberg.[376] In contrast, the national institutions in the third case study interpret the framework on congestion management according to the interest of their home state and to the detriment of EU energy policy aims and electricity market integration. In both cases, deficient enforcement allows excessive congestion displacement to endure.

Based on these findings, Paper 2 continues the discussion from a wider perspective and examines possible economic and political reasons for the persistence of congestion displacement. The article argues that by displacing congestion, TSOs can avoid costs without risking revenues, so that TSOs lack incentives to maximise cross-border capacity under the current legal framework. The article suggests modifications to TSO income regulation to address this issue. Moreover, the Paper uses several examples to discuss how political considerations—mostly related to electricity price formation—may incentivise national regulators to tolerate systematic congestion displacement. The findings of Paper 2 illustrate how EU electricity regulation aims to optimise interconnector utilisation and thus contribute to answering subquestion 1. Furthermore, the discussion of possible motivations for tolerating congestion displacement also sheds light on subquestion 3, ie how EU electricity regulation manages conflicting interests. In addition, Paper 2 encompasses a *de lege ferenda* criticism of the EU rules that regulate TSO income, proposing an alternate approach that may incentivise interconnector utilisation at a socially optimal level.

3.3. Statutory Transmission Monopolies in EU and EEA Law—Why a European Energy Union Cannot Tolerate National Transmission Monopolies (Paper 3)

Paper 3 discusses whether Member States may monopolise investment in interconnectors. This discussion contributes to answering subquestion 2, ie how EU law ensures investment in new interconnectors. However, given the scarcity of regulative norms on interconnector investment in EU legislation, Paper 3 turns the question on its head and examines how much discretion the Member States

[375] Of course, the same concerns related to the implementation of the 70 per cent rule discussed in the context of the update of Paper 1 (see above, at subsection 3.1.2), which arose after the publication of Paper 2, also apply here.
[376] *Case AT.40461—DE/DK Interconnector* (n 85); *Case 39351—Swedish Interconnectors* (n 85).

enjoy in controlling interconnector investment. This question is motivated by the fact that several Member States have adopted statutory transmission monopolies (STMs) to increase their control over interconnector investment. STMs restrict ownership and operation of transmission infrastructure—including interconnectors—to a monopolist, usually the incumbent 'national' TSO. The main argument of Paper 3 is that STMs generally breach EU law, in particular free movement law.

First, Paper 3 establishes how STMs restrict investment in interconnectors. EU electricity regulation recognises two regimes for interconnector investment, both of which are heavily regulated and subject to strict requirements of economic efficiency. On the one hand, under the 'regulated' regime, the costs of interconnector investment are recuperated over time through transmission tariffs and/or congestion income.[377] On the other hand, the so-called 'merchant' investment regime, which requires a formal exemption, allows for quicker amortisation of the investment costs and higher profits. EU electricity regulation has opened up for merchant investment since the Second Energy Package, with several merchant projects having been realised since 2003. Whereas the incumbent TSO may only invest under the regulated scheme, EU electricity regulation gives third-party investors the choice between the regulated and the merchant scheme. However, STMs exclude third-party interconnector investment altogether. This makes STMs incompatible with EU legislation; whereas secondary law is too vague to infer a prohibition of STMs, there are good reasons to assume that STMs breach free movement law and EU competition law.

The ECJ considers that a state measure breaches free movement law where it impedes access to the relevant market. Paper 3 shows that a separate market for cross-border transmission capacity exists, which can be accessed by building or acquiring ownership of an interconnector. While the domestic grid is considered a natural monopoly and investment in 'onshore' cables by a third party is therefore excluded, this logic does not apply to cross-border cables. Real-world examples show that it is possible and economically feasible to build several parallel interconnectors in the same area. By restricting interconnector investment, STMs exclude entry to and competition on the market for market for cross-border transmission capacity, violating free movement law. In addition, STMs breach competition law even though they are state measures. The beneficiary of the STM enjoys a dominant position due to its control over the transmission system as a natural monopoly. STMs constitute exclusive rights that further the abuse of this dominant position, so that they amount to illegal state measures in the case law of the ECJ.

As Paper 3 proceeds to explain, the impediments to the free movement provisions that STMs cause are generally not justifiable. The main conceivable reasons for justification—security of supply, environmental concerns, public ownership of critical infrastructure or economic considerations—are invalid in most cases. This is either because the reason is not legitimate (economic considerations), because STMs are unsuitable to achieve the intended objectives (security of supply

[377] Art. 2(16) CACM-GL defines congestion income as '*the revenues received as a result of capacity allocation*'. According to Art. 19 ElReg-2019, congestion income is 'earmarked' and may only be used for certain purposes that ensure the reliability of the transmission system, increase its capacity or otherwise benefit the system users. For discussions of the congestion income regime, see also Rumpf and Hancher (n 79) 247–248; Axel Gautier, 'Merchant Interconnectors in Europe: Merits and Value Drivers' [2020] FSR Policy Brief 2020/05.

or environmental protection), or because Member States dispose of other, less restrictive but equally effective measures to attain their goal (public ownership). Nevertheless, the ECJ has on occasion granted the Member States an extended margin of discretion in energy matters. Unfortunately, the available case law is inconsistent, raising legal uncertainty, which acts as a potential deterrent to third-party investors. This is problematic, as the 'regulated' investment path so far has not ensured sufficient interconnection in many Member States. To establish legal certainty, Paper 3 thus calls on regulators and market participants to submit STMs to scrutiny by the ECJ. Since proceeding under competition law involves greater procedural risks, Paper 3 argues that STMs should be challenged under free movement law.

3.4. Enforcement of EU Energy Law (Paper 4)

Paper 4 relates to subquestion 3, ie how EU law responds to the inherent challenges of technical complexity and conflicting interests in electricity regulation. It engages with a common finding of the remaining Papers that the decisive enforcement of EU legislation on electricity interconnectors is just as important as the provision of a harmonised *ex ante* framework. Paper 4 discusses this finding in a more differentiated manner, asking what characterises the EU's enforcement strategy for the energy sector, as well as examining factors for the success of enforcement—or the lack thereof. The analysis focuses on enforcement in the context of energy market integration. The main argument of Paper 4 is that the enforcement of EU energy law is overall successful, however inherent conflicts among the EUs energy policy aims (the trilemma) as well as among the involved actors continue to pose obstacles to successful enforcement.

On the one hand, policy preferences differ between the EU and the Member States; on the other, these preferences evolve over time and their weighing may depend on subjective judgments and external factors. Using the 2022 energy prices crisis as an example, Paper 4 shows that the geopolitical situation influences energy policy. Moreover, the Paper points out the general evolution of energy policy aims, which have developed from 'pure' market integration to include sustainability concerns and even social aims, such as combatting energy poverty and thus reflect evolving policy preferences. Against this dynamic setting, Paper 4 shows that the EU uses a diversified enforcement strategy that builds on 'hard', or deterrent, enforcement, as well as cooperative or compliance-based strategies. In general, the EU appears to use a deterrent strategy where it can rely on political consensus, while a more cooperative enforcement style is applied in areas where discord persists. For example, the EU has used a mix of these strategies successfully to liberalise the monopolistic energy markets in the Member States.

In this context, Paper 4 identifies that EU energy law relies on substantive and technical requirements. Under the Network Code Strategy, the latter category constitutes a rapidly growing share of EU energy regulation. Paper 4 classifies this strategy as an instance of co-regulation, rather than genuine self-regulation by the industry, due to a high degree of formal regulatory control. Yet formal control is not effective at resolving conflicts among the involved actors—including among the regulators—so that Paper 4 considers the Network Code Strategy more successful at identifying points of contention than at producing consensus. In line with the remaining Papers, Paper 4 argues

that the Network Code Strategy may result in excessive complexity, ultimately encumbering rather than furthering enforcement. Using the persistent lack of cross-border interconnector capacity as a case study, Paper 4 finds that the creation of harmonised technical requirements under the Network Code Strategy cannot guarantee enforcement success in the face of disagreement—even where the EU has introduced 'enforcement by numbers' as in the case of the 70 per cent rule.[378]

3.5. Quaternary Law in EU Electricity Regulation: Stretching *Meroni* too Far? (Paper 5)

Paper 5 focuses on the methodologies as a defining feature of the Network Code Strategy.[379] These methodologies serve to implement the electricity guidelines and represent an unprecedentedly 'deep delegation' of rule-making, which is why Paper 5 also refers to them as the first example of quaternary law in EU legislation. Paper 5 contributes to answering subquestion 3, ie how EU law responds to the inherent challenges of technical complexity and conflicting interests in electricity regulation. The Paper explains that the methodologies are a response to the technical complexity of electricity regulation and a means to tap into the knowledge of private actors—mostly TSOs. Since the Methodologies share the common goal of optimising interconnector utilisation, Paper 5 also sheds light on subquestion 1.

Delegation is widely used in EU regulation of technical sectors, however the methodologies go beyond comparable instances of delegated rule-making in four ways: (1) methodologies are formally adopted by ACER or the NRAs, instead of the Commission; (2) drafting is delegated to private parties instead of an agency, as is the norm; (3) methodologies are legally binding; and (4) methodologies are developed for different geographical ambits (pan-European, regional, national) following a 'differentiated approach'. The unique features of the methodologies also illustrate a wider issue concerning the legal boundaries of delegation to administrative bodies—such as agencies—in EU law. For lack of clear Treaty provisions, these boundaries follow from the ECJ's *Meroni* doctrine, also called non-delegation doctrine. The main argument of Paper 5 is that the doctrine must be revised because it fails to capture new developments in the field of delegated rule-making, such as the methodologies.

The core of this doctrine is that the EU institutions may only delegate executive discretion, but not political discretion. In particular, the delegated powers must be precisely delineated *ex ante* in EU law and subject to effective legal control *ex post*. However, whereas the doctrine purportedly aims to impede excessive delegation in EU law, Paper 5 shows that this doctrine fails to provide clear boundaries on delegation in practice, using recent decisions by the ECJ and the GC for substantiation. As a result, it has become easier to delegate rule-making to agencies than to the Commission. The methodologies thus illustrate how the legal uncertainty owed to the perfunctory application of the *Meroni* doctrine contributes to the gap between the legal limits for delegation and regulatory practice.

[378] Once again, practical problems in the context of implementing the 70 per cent rule have subsequently corroborated these concerns.
[379] The methodologies have been introduced in s 1.2.2 above.

On the one hand, adopting methodologies may well involve political discretion, which is nominally unacceptable under the *Meroni* doctrine. This is exemplified by the conflicts that emerge during the development of the methodologies, which often revolve around questions of energy policy. On the other hand, legal control of methodologies is not always effective, because there is no coordinated way to seek recourse against regional methodologies adopted by a conglomerate of NRAs. At the same time, regional methodologies are very important for achieving the IEM. These deficits appear highly problematic under the *Meroni* doctrine, yet based on the application of the doctrine in practice, it is unclear whether the ECJ would give the methodologies a green light. A study of the legislative procedure leading to the Third Energy Package and the Clean Energy Package shows that the unclear boundaries of the *Meroni* doctrine were used as an argument in favour of equipping ACER with more extensive rule-making powers in the context of adopting methodologies.

Paper 5 therefore recommends to replace the rigid and unsuitable distinction between political and executive discretion and discusses several approaches to revising the doctrine. From among these approaches, the Paper recommends a revised '*Meroni* doctrine 2.0' based in the normative impact of the delegated decision—the greater this impact, the more restrictive the Court's scrutiny should be. If the ECJ should decide to follow such a differentiated approach, the specific features of the methodologies would require utmost restriction when scrutinising their legality. The contribution of Paper 3 is thus twofold. First, a *de lege ferenda* criticism that suggests how to adapt a deficient line of jurisprudence by the ECJ. Second, Paper 5 contributes to legal dogmatic research by making EU law scholarship aware that deep delegation in EU electricity regulation has spawned a novel category of supranational legislation, referred to as quaternary law, a phenomenon that may gain traction also in other sectors.

3.6. Interim Conclusion: Five Papers that Illustrate the Network Code Strategy

Work on the Papers informing this dissertation began under the Third Energy Package and shortly after the adoption of the first electricity guideline, the CACM Guideline. During the writing of this thesis, the Clean Energy Package and the first wave of European network codes and guidelines were adopted. As contemporary witnesses, the Papers thus provide a unique perspective on the implementation of the Network Code Strategy. Whereas each of the Papers focuses on one important legal aspect of EU interconnector regulation, together, they also illustrate larger developments that have occurred under this strategy. The Papers, when taken together, therefore allow for a more comprehensive discussion of the Network Code Strategy as a whole and its impact on the legal framework for interconnectors in the EU. This discussion takes place in the following chapter 4.

4. Discussing how the Network Code Strategy Pursues Sufficient Interconnection for Achieving the Energy Union

This chapter elaborates on the issues and conclusions of the Papers by discussing the Network Code Strategy from a more encompassing perspective. This change of perspective yields some new and surprising insights. Most importantly, the Network Code Strategy does not address all of the current 'big issues' related to electricity interconnectors. While the Network Code Strategy has harmonised the rules for cross-border electricity trade on the spot market through the 'market coupling' mechanism, progress in other vital areas—most importantly, capacity calculation—is lagging behind. Moreover, the equally pressing topic of interconnector investment falls almost completely outside the scope of the Network Code Strategy. Finally, while the Network Code Strategy for the most part ensures that harmonisation proceeds according to EU energy policy and law, the strategy does not resolve technical complexity and conflicting interests. As the following discussion shows, the Network Code Strategy rather helps highlighting remaining challenges. All told, whereas the Network Code Strategy leaves some challenges unresolved, the harmonisation that is achieved comes at the cost of a jump in complexity that creates new challenges. This is problematic, since the Third Energy Package initiated the Network Code Strategy with the aim to replace the self-regulation of the electricity sector with binding rules in EU regulations to strengthen coordination on cross-border issues and create a base for enforcement.[380]

These findings help understand why the EU still struggles to procure the necessary 'hardware' for the Energy Union. They are discussed as follows: first, section 4.1 reviews how the characteristics and objectives of the Network Code Strategy have transformed EU electricity regulation into a sectoral legal framework like no other. Then, the discussion returns to the three constituents of sufficient interconnection introduced in chapter 1: optimising utilisation, furthering investment and responding to the inherent challenges in electricity regulation. Section 4.2 shows that the harmonisation of the rules on interconnector utilisation proceeds at a slower pace and smaller scope than originally intended, while implementation gaps remain. In contrast, the topic of interconnector investment is largely 'off limits' for the Network Code Strategy; section 4.3 analyses the reasons why this is unlikely to change in the near future. With regard to the third and last constituent, the management of the inherent challenges to electricity regulation, section 4.4 discusses how a combination of formal and informal safeguards ensures that underlying conflicts do not result in regulatory capture of the Network Code Strategy; however, regional methodologies may constitute a loophole for particular interests. In each of these sections, a case study puts the conclusions in context and provides a more substantial understanding. Where appropriate, the discussion introduces new examples that further underpin the findings from the Papers . Section 4.5 summarises the discussion of the Network Code Strategy in this chapter.

[380] European Commission, Proposal for the ElReg-2009 13–15 in the explanatory memorandum.

4.1. The Network Code Strategy: a Fast Lane to Sufficient Interconnection for the Energy Union?

The puzzle motivating this dissertation is that despite three decades of effort to interconnect the European electricity systems, a lack of interconnection still hampers the realisation of the IEM and thus the Energy Union.[381] This shortcoming also jeopardises other vital aims of EU energy policy, such as the Green Deal, and the independence from fossil fuel imports. As far as can be seen, a further electrification of society based on low-carbon electricity production is currently the only conceivable way of delimiting climate change without compromising access to energy. Therefore, the demand for electric energy will continue to grow, which in turn will further increase the need for electricity interconnection.[382] Increasing electricity interconnection may thus be the single most important objective of EU energy policy at present, as well as in the foreseeable future. The combined findings of the Papers portray the Network Code Strategy as a renewed effort to secure sufficient interconnection for the Energy Union through harmonised, delegated legislation.[383] This places the Network Code Strategy among the EU's most important regulatory endeavours at present.[384]

The Network Code Strategy is a unique approach to sectoral regulation at EU level.[385] On a high level, the Network Code Strategy leads to a significant increase in complexity, both with regard to the institutional setup of EU electricity regulation and as far as EU electricity legislation is concerned. Chapter 2 has already discussed how the Network Code Strategy has diversified the institutional landscape for EU electricity regulation, inter alia through the creation of ENTSO-E and ACER.[386] Hence, the following discussion focuses on the effects of the strategy on the legislative framework for EU electricity interconnectors. The harmonisation of sectoral legal frameworks through delegated decision-making—often referred to as 'tertiary law'—is a well-established subject of EU law scholarship.[387] However, the Network Code Strategy stands out because it leads to a vertical and horizontal sprawl of EU legislation on the electricity sector, as shown in Figure 3 below. The extent of this sprawl is unparalleled in other sectoral frameworks. The vertical sprawl follows from the use of guidelines and methodologies and results in the four-tiered structure explained in chapter 1.[388]

[381] ACER, '2023 70 Per Cent Report' (n 12) 5; ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2020' (n 140) 89–90. The IEM is a core building block of the Energy Union, cf above, at s 2.1.
[382] Cf International Energy Agency, 'World Energy Outlook 2022' ch 6. Note that the gas sector is outside the scope of this dissertation, as are speculations about the future role of natural gas.
[383] See also recital (1) CACM-GL.
[384] Note that the discussion in this chapter is tailored to the electricity sector. The EU follows a similar approach in the gas sector. However the strategy has developed differently in both sectors. In particular, the adoption of guidelines and methodologies—in addition to network codes—is currently unique to the electricity sector.
[385] The characteristics that distinguish the Network Code Strategy are discussed in Paper 5 and reiterated above, at s 3.5. For further analyses of the Network Code Strategy (without using this term), refer to the studies referenced in n 65 above. These references are not exhaustive.
[386] See above at s 2.2.3 and s 2.2.5, respectively.
[387] See the references in n 51 above.
[388] See s 1.2.2.

In turn, the horizontal sprawl of the legal framework refers to the overwhelming volume of the sectoral legislation to be adopted under the Network Code Strategy. The network codes for electricity and guidelines adopted at the time of writing encompass more than 450 pages and 670 articles in the English language version.[389] In addition, the guidelines order the creation of close to 200 methodologies, which represent several hundred additional articles, owed to the extensive use of regional methodologies. To illustrate the latter point, the European electricity markets are currently divided into eight Capacity Calculation Regions (CCRs),[390] each of which has a separate Capacity Calculation Methodology (CCM);[391] together, these alone contain 204 articles. In this context, it is worth stressing that the guidelines order the creation of numerous regions for diverse purposes, and the CCRs are just one example. Defining and operating these regions requires negotiation, regulatory oversight and often creates additional conflicts.[392] Moreover, many methodologies are interdependent, even across guidelines.[393] Thus, a complete depiction of the dependencies between the different tiers of EU electricity regulation would require a comprehensive, three-dimensional model, and Figure 3 constitutes a strongly simplified presentation.

[389] The development of a new network code on cybersecurity is nearing completion, as ACER has submitted a revised draft to the Commission for adoption in July 2022; the submitted version is available at https://www.acer.europa.eu/sites/default/files/documents/Recommendations/Revised%20Network%20Code%20on%20Cybersecurity%20%28NCCS%29_1.pdf (accessed 13 October 2023). If adopted as submitted, the new network code on cybersecurity would add 48 pages and 51 provisions to this count.

[390] See ACER Decision 08/2023 on the Amendment to the Determination of Capacity Calculation Regions. ENTSO-E provides an interactive map is available at https://www.entsoe.eu/bites/ccr-map/ (accessed 13 October 2023). Note that while helpful, the interactive map was not up-to-date at the time of writing.

[391] Art. 20(2), 21 CACM-GL.

[392] Fink and others (n 34) 313.The creation of the CCRs (which followed the same procedure as the development of methodologies) provides an illustrative example, as it shows how disagreement on a methodology leads to a litigation before the GC. See *E-Control v ACER* (n 62) paras 1–11 in particular. The case is discussed by Hancher and Rumpf (n 228), as well as Kühnert, Böhler and Polster (n 17).

[393] Torbjørg Jevnaker and others, 'Stocktaking of the Adopted TCMs—Towards Harmonization or Diversity?' (Fridtjof Nansen Institute 2022) 3–5, available at https://www.fni.no/publications/stocktaking-of-the-adopted-tcms-towards-harmonization-or-diversity (accessed 13 October 2023).

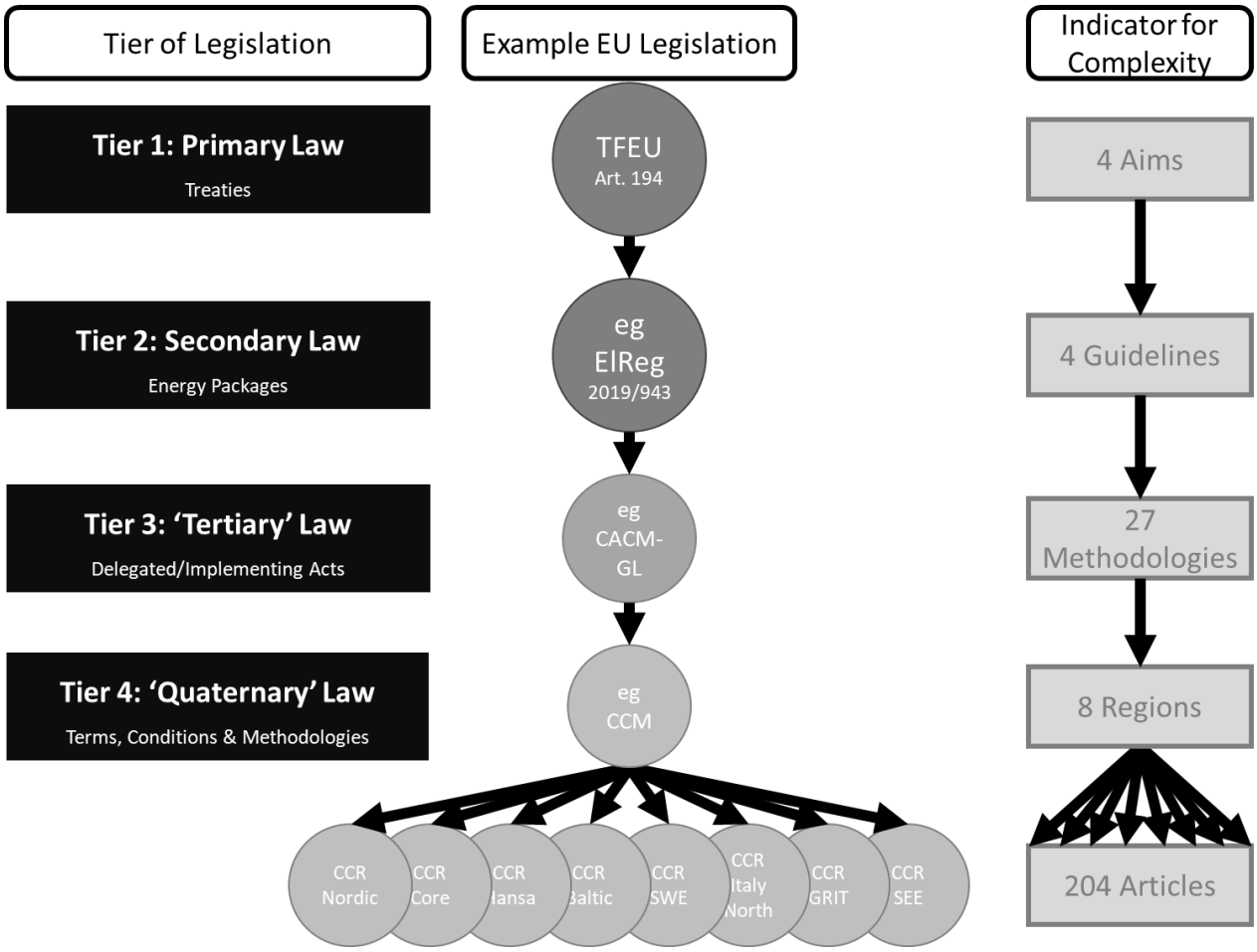

Figure 3: The Vertical and Horizontal Sprawl of EU Electricity Regulation under the Network Code Strategy

Closely related to the legislative sprawl just discussed, a second defining characteristic of the Network Code Strategy is a deeper delegation of rule-making than in other areas of EU regulation.[394] The Network Code Strategy actively involves private undertakings in producing EU electricity regulation—not merely through consultations, but by tasking them with providing drafts for the rules to govern them.[395] This deep delegation takes place in sophisticated, multilevel rule-making procedures, illustrated with Figure 4 below.[396] As can be seen, drafts for the network codes and guidelines on tier 3 are developed by private actors—the TSOs, acting through ENTSO-E—under the oversight of ACER.[397] The Electricity Regulation establishes different procedures for the network codes and the guidelines in Articles 59 and 61, however in practice all guidelines in force

[394] For a discussion of the issue, see Torbjørg Jevnaker and others, 'Double Delegated Rulemaking in EU Electricity Market Regulation: Actual Rulemaking Below the Level of Implementing Acts' [2024] European Journal of Risk Regulation (forthcoming).
[395] Eckert and Eberlein (n 65) 69.
[396] For a comprehensive explanation of the procedure, see Hancher, Kehoe and Rumpf (n 49) 19–27. Further, more concise descriptions are provided by Eckert and Eberlein (n 65) 69; Gräper and Webster (n 21) 606–608; Jevnaker (n 65) 935–936.
[397] Art. 59, 61 ElReg-2019. The corresponding provisions under the Third Energy Package are found in Art. 6, 8 and 18 ElReg-2009.

at the time of writing have been adopted according to the more elaborate procedure for network codes.[398]

This procedure—shown on the left side of Figure 4—is as follows: first, based on the exhaustive list of areas for the future development of network codes or guidelines in the Electricity Regulation,[399] the Commission publishes a priority list every three years. Second, the Commission requests ACER to establish so-called *framework guidelines* for each of these areas (not to be confused with the *guidelines* themselves).[400] Third, on the basis of these framework guidelines, the TSOS, acting through ENTSO-E, draft a proposal.[401] Fourth, ACER scrutinises and, if necessary, revises this draft to ensure that it '*complies with the relevant framework guidelines and contributes to market integration, non-discrimination, effective competition, and the efficient functioning of the market*'.[402] If any of the steps up to this point fails, the Commission may develop and adopt the network code or guideline on its own initiative as an *ultima ratio*.[403] Fifth, the procedure concludes with the adoption of the network code or guideline as a delegated or implementing EU regulation.[404]

[398] To be precise, the existing guidelines have been adopted according to the procedure in Art. 6 ElReg-2009. This procedure is not quite as elaborate as the one established in Art. 59 ElReg-2019, however the involved actors and their tasks are essentially identical.
[399] Art. 59(1) and (2), 61 ElReg-2019. The latest priority list is contained in Commission Implementing Decision (EU) 2020/1479 of 14 October 2020 Establishing Priority Lists for the Development of Network Codes and Guidelines for Electricity for the Period from 2020 to 2023 and for Gas in 2020 [2020] OJ L33/10.
[400] Art. 59(4) through (8) ElReg-2019. Ștefan and Petri (n 228) 534–539 show that the framework guidelines play an important role in the development of network codes and guidelines; this notwithstanding, the level of detail of the framework guidelines is not specified in EU legislation, as Gräper and Webster (n 21) 626–627 point out.
[401] Art. 59(9), (10) ElReg-2019. To this end, ENTSO-E convenes a drafting committee consisting of representatives of ACER, ENTSO-E, possibly E.DSO and '*a limited number of the affected main stakeholders.*' According to Art. 18(5)(h), (8) of ENTSO-E's Articles of Association, these proposals are elaborated and adopted by specialised committees with at least two-thirds majority. The Articles of Association are available at https://www.entsoe.eu/Documents/General%20ENTSO-E%20documents/General%20ENTSO-E%20documents/140930_Articles_of_Association.pdf (accessed 13 October 2023).
[402] Art. 59(11) ElReg-2019.
[403] Art. 59(13), (14) ElReg-2019.
[404] The procedure, in especially the degree of involvement of the European Parliament and Council, depend on whether the network code or the guideline is adopted as an implementing or delegated act, Art. 68 ElReg-2019. For details, consult Hancher, Kehoe and Rumpf (n 49) 24–27.

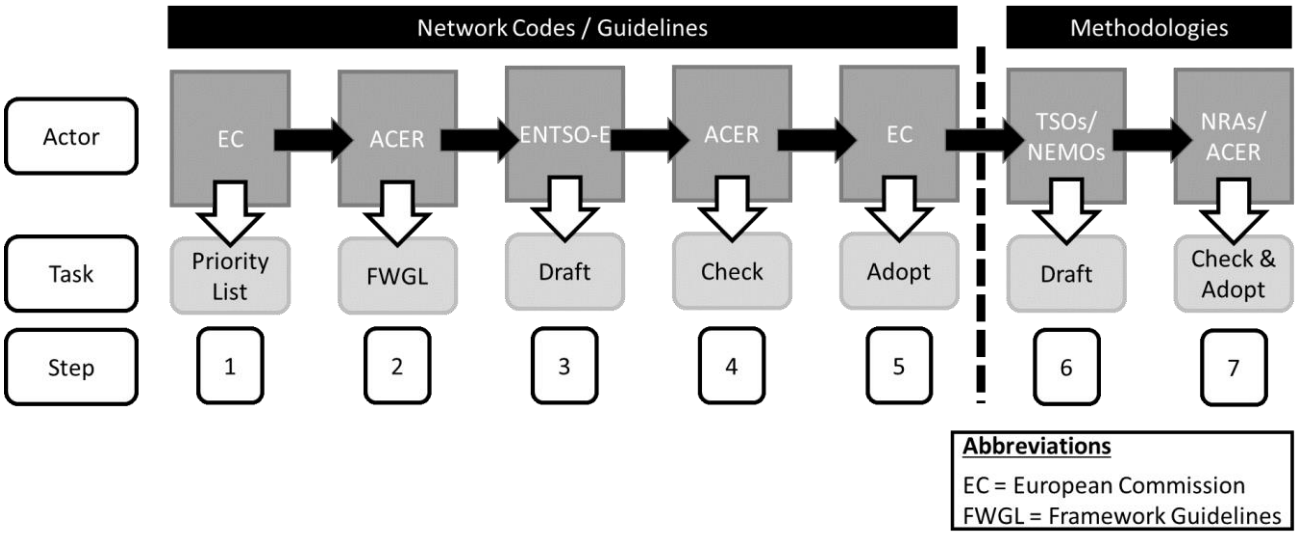

Figure 4: Simplified Overview over the Procedure for the Adoption of Network Codes, Guidelines and Methodologies

In turn, the procedure for the development of methodologies—depicted on the right side of Figure 4—involves two additional steps. As seen in step 6 of Figure 4, TSOs or NEMOs negotiate a proposal for the methodology according to the specifications in the respective guideline.[405] For example, Article 21 of the CACM Guideline establishes the minimum criteria for the development of capacity calculation methodologies (CCMs).[406] The drafters may not deviate from these terms of delegation.[407] In the final step 7 of Figure 4, the proposal is submitted to regulatory scrutiny. Depending on the geographical ambit of each methodology—pan-European, regional or national[408]—the competent regulatory body differs. The Clean Energy Package has made ACER competent to decide on all pan-European methodologies.[409] In turn, NRAs are generally competent to decide on regional methodologies.[410] However, the competence to decide on regional methodologies passes to ACER if the NRAs of the region fail to reach an agreement on a proposal within the legally defined deadline, or upon the NRAs' joint request.[411] In any case, the procedure concludes with the adoption of the methodology as an individual decision under EU law (if ACER adopts it) or under national law (if one or several NRAs adopt it).

[405] See Art. 9(1) CACM-GL.
[406] Art. 9(2) and (3) CACM-GL stipulates the required quorum in each constellation.
[407] Hancher, Kehoe and Rumpf (n 49) 32.
[408] Since national methodologies do not raise the same issues as their regional or pan-European counterparts, they remain outside the scope of this dissertation.
[409] Art. 5(2) ACERReg-2019 and Art. 9(6) CACM-GL. Under the Third Package, pan-European methodologies were adopted unanimously by all NRAs of the EU. Since unanimity was unattainable in most cases, the decision often had to be referred to ACER for decision under what is now Art. 6(10) ACERReg-2019. For an example, see *E-Control v ACER* (n 62). Therefore, the Clean Energy Package transferred competence to ACER by default to '*streamline the procedures*', cf recital (20) ACERReg-2019.
[410] Art. 9(7) CACM-GL.
[411] Art. 6(10) ACERReg-2019, Art. 9(11) CACM-GL.

4.2. Harmonising the Rules on Interconnector Utilisation

This section examines the Network Code Strategy from the perspective of subquestion 1, ie how EU law aims to increase the available capacity on existing electricity interconnectors. It is worth recalling that the TSOs' actions related to optimising the utilisation of interconnectors are also referred to as congestion management. Although all guidelines aim at optimising the utilisation of interconnectors,[412] uncoordinated interconnector capacity restrictions at national level jeopardise the attainment of the EU's energy policy goals.[413] This raises the question what factors may explain the apparent failure to harmonise congestion management to avoid such uncoordinated curtailments. In line with the research focus of this dissertation, the following discussion focuses on the spot market, ie the day-ahead and intraday timeframes, which are covered in the CACM Guideline.[414] However, similar considerations apply to the remaining timeframes and guidelines.[415]

From a legal point of view, three effects of the Network Code Strategy are particularly interesting and will be discussed in the following subsections. First, subsection 4.2.1 highlights that the scope of harmonisation achieved under the Network Code Strategy falls short of what was originally intended. Second, to put the harmonisation that nevertheless has been achieved into context, subsection 4.2.2 discusses the sophisticated, EU-wide market coupling system established according to the CACM Guideline. Third, subsection 4.2.3 raises the issue that an important harmonisation gap remains with regard to capacity calculation.

4.2.1. Scope of Harmonisation under the Network Code Strategy

The harmonisation of congestion management does not proceed at the scope and pace envisioned under the Third Energy Package, which aimed for EU-wide harmonisation through the adoption of exhaustive network codes.[416] For example, ACER's Framework Guidelines on Capacity Allocation and Congestion Management for Electricity, adopted in 2011, specified:

[412] See Art. 3(b) CACM-GL; Art. 4(1)(h) SO-GL; Art. 3(1)(d) EB-GL; Art. 3(g) FCA-GL.
[413] Recital (27) ElReg-2019; ACER, '2023 70 Per Cent Report' (n 12) 5.
[414] See above, at s 1.4.3.1.
[415] Those guidelines follow a similar logic in that they aim to establish a more or less centralised forum that bundles and coordinates the trade of electricity and the allocation of capacity in the respective timeframe according to harmonised rules. The FCA-GL orders '*the establishment of a single allocation platform at European level*', see Art. 1(1). In turn, the EB-GL orders the establishment of several European platforms for the exchange of different types of balancing energy (replacement reserves; frequency restoration reserves with manual activation; frequency restoration reserves with automatic activation) and for the imbalance netting process, see Art. 19-22.
[416] It should be noted that according to Art. 18(3), (5)(a) ElReg-2009, guidelines adopted by the Commission should not provide full harmonisation, but only the '*minimum degree of harmonisation to achieve the aims of this Regulation and do not go beyond what is necessary for that purpose*'. However, the CACM Guideline was initially intended as a network code, for which the ElReg-2009 does not establish a corresponding caveat; see Art. 8(6)(g) ElReg-2009. See also Vlachou (n 65) 274, who submits that a detailed, EU-wide authorisation scheme for NEMOs may exceed the *minimum* degree of harmonisation prescribed for the CACM-GL (original emphasis). It should further be noted that the ECJ does not assume that EU legislation on transmission system operation provides exhaustive harmonization, see *Elektrorazpredelenie Yug* (n 45) para 50.

> '*The CACM Network Code(s) shall set out deadlines for the implementation, for the different timeframes and across the European Union, of the target model for CACM as defined in these Framework Guidelines, with 2014 as the overall deadline for the completion of the [IEM]*.'[417]

The 2014 deadline refers to the European Council's call to complete the IEM by 2014, issued in 2011.[418] However, the CACM Guideline was not adopted before 2015. Moreover, adopting a guideline instead of an exhaustive network code meant even slower progress.[419] The CACM Guideline prescribes the development of dozens of methodologies. Whereas each of them is a small, but significant building block to harmonising electricity interconnector utilisation, the adoption of methodologies constitutes an additional, time-consuming step on the path towards harmonisation. First, the CACM Guideline determines how much time the drafters have to develop each proposal; this deadline differs for each methodology and may be between 3 and 24 months. Second, the regulators need time to scrutinise the proposal—which may take up to 22 months in the case of regional methodologies.[420]

Moreover, replacing the envisaged '*CACM Network Code(s)*' with a guideline also entails a lower degree of harmonisation: numerous methodologies in the CACM Guideline are adopted at regional instead of pan-European level, with each region having a different version of the same methodology. This literally multiplies the effort involved in implementing each guideline and perpetuates the co-existence of distinct approaches. Still, with the CACM Guideline specifying *what* to harmonise, the question *how* the mandatory coordination among TSOs would look in detail seemed just a matter of implementation. However, also the more cautious approach to iteratively harmonise the rules on interconnector utilisation proved too ambitious. ACER's report on the implementation of the CACM Guideline concludes that the process was characterised by discord and delays, recommending substantial and procedural changes to streamline the implementation of the guidelines.[421] In a subsequent report on the implementation of the SO Guideline, the Agency also highlights implementation gaps.[422]

In the face of the difficulties during the first phase of implementing the Network Code Strategy, the Clean Energy Package has recalibrated and slightly toned down the level of ambition behind the Network Code Strategy. The Electricity Regulation recognises network codes and guidelines as different, but equivalent measures of harmonisation.[423] In addition, network codes as well as

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[417] ACER, 'Framework Guidelines on Capacity Allocation and Congestion Management for Electricity' 5.
[418] European Council (n 68).
[419] For a contemporary comment, see Schoser and Sandberg (n 183) 406–408.
[420] The NRAs generally have six months to decide on the drafters' proposal, Art. 9(10) CACM-GL; however, they may request an extension of this deadline by up to six more months, 6(10) ACERReg-2019. If the NRAs jointly request amendments to the proposal from the drafters, this period is extended by four months according to Art. 9(12) CACM-GL. If the NRAs fail to agree and the decision passes to ACER, the Agency has six more months to decide according to Art. 5(6) ACERReg-2019, 9(10) CACM-GL.
[421] ACER, 'CACM and FCA Implementation Report' (n 189) 65–68.
[422] ACER, 'Implementation Monitoring Report of the System Operation Guideline' (2022) 8–9.
[423] Pursuant to Art. 61(2) ElReg-2019, it is explicitly up to the Commission whether it adopts a network code or a guideline in the areas named in Art. 59(1) and (2) ElReg-2019.

guidelines shall only '*provide the minimum degree of harmonisation required to achieve the aims of this Regulation*' and '*not go beyond what is necessary for the[se] purposes*'; moreover, they shall '*take into account regional specificities, where appropriate*'.[424] Thus, it is no longer the ambition of the Network Code Strategy to provide full, EU-wide harmonisation.

On a higher level, it is worth reflecting on how much harmonisation is feasible under the Network Code Strategy. The detailed rules are not always successful at resolving existing ambiguities, and the increased complexity of the regulatory framework for electricity may even create new ambiguities. In their comparison of EU banking and electricity regulation, Zeitlin and Rangoni observe that '*no matter how detailed and uniform EU rules may be, they always leave some discretionary space for local contextualization, either explicitly or implicitly*'.[425] Similarly, Fink et al. conclude their study of the implementation of the SO Guideline with the observation that the methodologies grant the Member States ample room for '*customization*', which may limit the degree of harmonisation achieved under the Network Code Strategy.[426] In addition, unresolved conflicts may lead to the adoption of vague compromise texts that only appear determinate, but in fact perpetuate an excessive margin for discretion.[427] In such cases, it would have been preferable not to adopt any harmonised legislation at all. This is problematic, because reducing ambiguities in EU electricity regulation has been an important purpose of the Network Code Strategy from the start.[428]

The persistence of ambiguities raises several questions. First, is it justified to use considerable resources to create a detailed, complex regulatory framework that nevertheless remains ambiguous? Second, do the resulting rules ensure that all relevant stakeholders know at all times what is expected of them? EU law scholarship has only just begun to discuss these issues against the background of the current evolution of EU electricity regulation.

4.2.2. Case Study 1: Implementing Market Coupling

Despite apparent setbacks in the implementation of the CACM Guideline, it has been possible to realise important projects related to short-term capacity management under the Network Code

[424] Art. 58(2)(a)-(c) ElReg-2019.
[425] Jonathan Zeitlin and Bernardo Rangoni, 'EU Regulation between Uniformity, Differentiation, and Experimentalism: Electricity and Banking Compared' (2023) 24 European Union Politics 121, 129.
[426] Fink and others (n 34) 325.
[427] For a discussion of the general issue, see Fritz W Scharpf, 'The Joint-Decision Trap Revisited' (2006) 44 Journal of Common Market Studies 845, 848. For an example in current EU electricity regulation, the rules on future bidding zone reviews in Art.14 ElReg-2019 overlap with the (older) rules on the same issue in Art. 32-34 CACM-GL. In principle, the ElReg-2019 is both *lex superior* and *lex posterior* to the CACM-GL and therefore should take precedence in case of conflict. However, recital (19) ElReg-2019 states that '*[i]t should be possible to launch a regional bidding zone review following the technical report on congestion in line with Article 14 of this Regulation or in accordance with existing procedures laid down in [the CACM-GL].*' Because the criteria for the bidding zone review in both acts are not congruent, the question is to what extent the criteria in the CACM-GL continue to apply alongside the new criteria in Art. 14 ElReg-2019. The discussion in European Commission, 'Guidance on Electricity Market Arrangements: A Future-Proof Market Design for Offshore Renewable Hybrid Projects' 11–12 assumes that the ElReg-2019 merely adds some points to the procedure established in the CACM-GL; however, this view is not convincing, because it fails to consider the overlap and incongruences between both acts.
[428] Cf recitals (4)-(6) ElReg-2009. See also European Commission, Proposal for the ElReg-2009 7–10 in the explanatory memorandum.

Strategy. This section discusses the market coupling system as a case study to illustrate and substantiate this point. Several of the Papers touch upon market coupling, however without entering into the following dedicated discussion. The implementation of market coupling has improved cross-border coordination in the field of short-term congestion management.[429] ACER estimates that electricity market integration is yielding welfare gains in the magnitude of 34 billion € annually; while the Agency did not specify how much of this gain accrues in each timeframe, it is reasonable to assume that the lion's share stems from market coupling.[430] It therefore seems appropriate to consider market coupling '*a success story*'.[431] At the same time, the implementation of market coupling requires the adoption of numerous methodologies and the definition of numerous new 'market roles' with specific responsibilities and obligations.[432] Figure 5 below illustrates the operation of market coupling as an intricate system.[433] Implementing this intricate system has led to a series of conflicts and delays. This subsection argues that such delays are problematic and may explain why despite a more efficient price formation on the connected markets,[434] market coupling does not address the core problem that most European interconnectors remain underutilised.[435]

[429] Eckert (n 25) 32 provides numbers and further references.
[430] ACER, 'Final Assessment of the EU Wholesale Electricity Market Design' (n 207) 3. Other studies arrive at more modest—but still considerable—estimates and predict gains in the vicinity of 4 billion € annually, cf David Newbery, Goran Strbac and Ivan Viehoff, 'The Benefits of Integrating European Electricity Markets' (2013) 94 Energy Policy 253, 261. Note that these numbers say nothing about the distribution of these gains among electricity producers, traders, customers and network operators, or among the different Member States.
[431] Schneller (n 173) 137.
[432] ACER provides an overview over the methodologies adopted to date for the implementation of market coupling on its website, see https://www.acer.europa.eu/electricity/market-rules/capacity-allocation-and-congestion-management/market-coupling-development (accessed 13 October 2023).
[433] For further discussion and illustration of market coupling, see Carsten König, 'How Congestion Management Rules Challenge the Development of an Integrated Offshore Electricity Infrastructure in the North Sea' in Franz-Jürgen Säcker, Lydia Scholz and Thea Sveen (eds), *Renewable Energy Law in Europe: Challenges and Perspectives*, vol 50 (Peter Lang 2015) 168–169.
[434] ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2020' (n 140) 12; Pollitt (n 32) 72–73.
[435] ACER, '2023 70 Per Cent Report' (n 12) 5; ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2020' (n 140) 14; Schneller (n 173) 137.

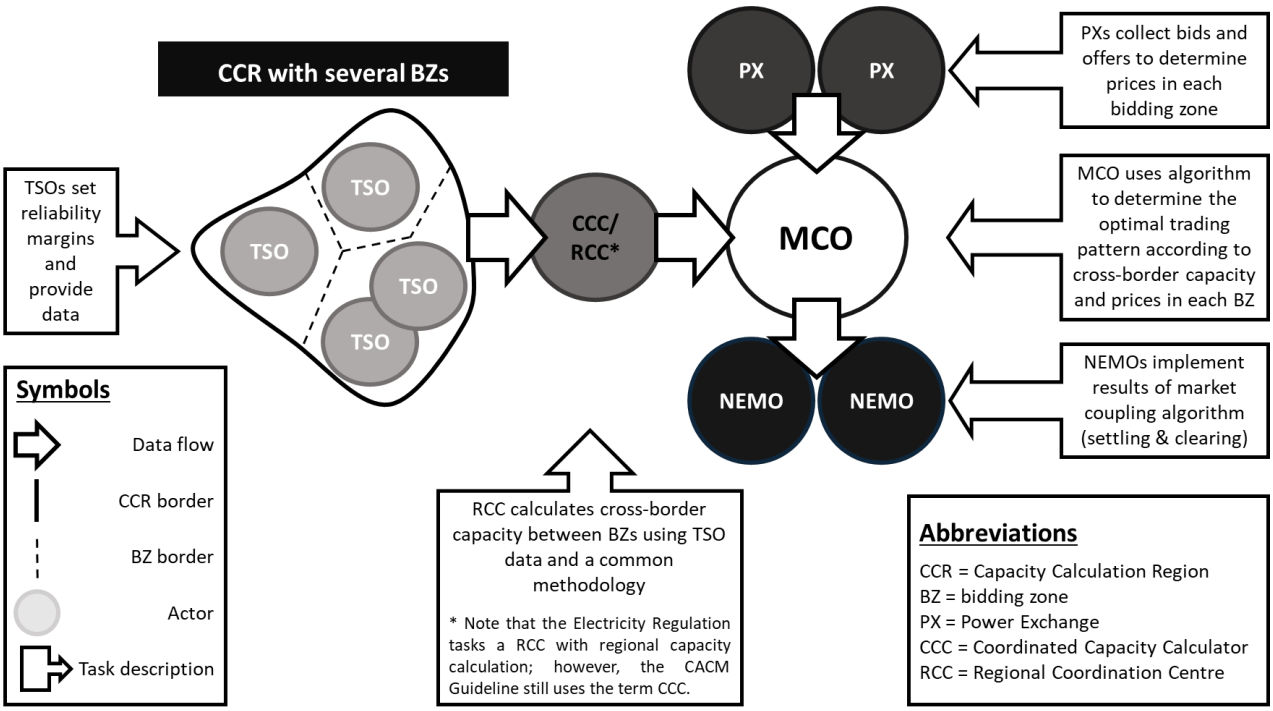

Figure 5: Schematic Illustration of the Market Coupling System under the CACM Guideline

The market coupling system revolves around a designated 'market coupling operator' (MCO), which constitutes an EU-wide legal monopoly jointly carried out by the NEMOs according to the CACM Guideline.[436] Capacity calculation takes place at regional level, with the capacity calculation regions (CCRs) providing the geographical scope. For each CCR, the MCO collects information on the available transmission capacity between bidding zones from 'coordinated capacity calculators' (CCCs).[437] The CCCs calculate the cross-zonal capacity based on the data they receive from the TSOs and according to a regionally harmonised CCM.[438] The MCO also collects electricity trade orders (bids and offers) for each bidding zone from the NEMOs.[439] Since the MCO has knowledge of the available capacities as well as the bids and offers in the different bidding zones, it can find the optimal cross-border trade pattern using an algorithm.[440] Under this 'implicit' capacity allocation approach, market participants simply trade in their home bidding zone and pay an

[436] See Art. 5(3), 7(2) CACM-GL.
[437] Bidding zones are explained above, at s 2.2.3.
[438] Since the Clean Energy Package, this task is fulfilled by the Regional coordination centres (RCCs), Art. 16(3), 37(1)(a) ElReg-2019. Nevertheless, the CACM-GL still uses the term CCC instead of RCC even though it was revised after the entry into force of the ElReg-2019, see Commission Implementing Regulation (EU) 2021/280 of 22 February 2021 Amending Regulations (EU) 2015/1222, (EU) 2016/1719, (EU) 2017/2195 and (EU) 2017/1485 in order to align them with Regulation (EU) 2019/943 [2021] OJ L62/24.
[439] Each Member State can designate one or several power exchanges as NEMOs in its territory, Art. 4 CACM-GL. See also s 2.2.4 above.
[440] See the definition of the MCO function in Art. 2(30) CACM-GL: '*the task of matching orders from the day-ahead and intraday markets for different bidding zones and simultaneously allocating cross-zonal capacities*'. On the objectives of the algorithms for the day-ahead and intraday timeframes, respectively, see Art. 38 and 51 CACM-GL. Bjørndalen and others (n 208) 16 point out that the use of a common algorithm by all NEMOs may encumber competition and innovation, while facilitating collusion.

optimised price.[441] The actual cross-border trading needed to effectuate the result of the algorithm is done by the NEMOs. This way, electricity is traded efficiently '*in the "right economic direction"*' from the low price areas to high price areas, until cross-border capacity between these areas is exhausted.[442]

The overall benefits notwithstanding, conflicting particular interests encumbered and delayed the implementation of the intricate market coupling mechanism.[443] For example, the definition of the CCRs resulted in a lengthy litigation that culminated in the GC's judgment in the case *E-Control v ACER*.[444] The background to this case—which is not discussed in the Papers—is as follows: the initial definition of the CCRs was referred to ACER because the originally competent NRAs failed to agree on the TSOs' proposal. In particular, in addition to proposing how to configure the CCRs, the TSOs recommended splitting the unified German-Austrian bidding zone. The Austrian NRA, E-Control, adamantly resisted this proposition. When ACER took over and approved the bidding zone split, E-Control appealed the Agency's decision and ultimately obtained a favourable judgment from the GC.[445] The resolution of legal conflicts in the context of the Network Code Strategy takes considerable time—*E-Control v ACER* was concluded four years after the TSOs submitted their draft proposal on the CCRs.[446]

To make matters worse, many methodologies under the CACM Guideline are interlinked, or even linked to methodologies from other guidelines. This results in a cascading system: just as each methodology represents a step towards the next level of harmonisation, delays in the development of one methodology frequently delay other methodologies further down the line.[447] This 'domino effect' exacerbates the negative impact of conflicts and delays. The complex structure of the guidelines and methodologies may thus encumber the improvement of interconnector utilisation and thus limit the positive impact of market coupling and progress towards the IEM in general.

4.2.3. Capacity Calculation: Still a Harmonisation Gap

The discussion so far underlines that market coupling optimises the use of the capacity that is available, but is not intended to increase the capacity levels themselves. The CACM Guideline aims to achieve the latter through a harmonisation of capacity calculation for the spot market.[448]

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[441] Implicit capacity allocation is more efficient than the previous system of explicit capacity allocation, where market participants bid for electricity and capacity separately on the connected markets, see Schneller (n 173) 135–136; Schoser and Sandberg (n 183) 398–401; Ulf Hammer, 'Interconnector and Market Coupling—Illustrated by NorNed' in Martha M Roggenkamp and Ulf Hammer (eds), *European Energy Law Report*, vol IV (Intersentia 2007) 283–286.

[442] ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2021' (n 140) 9 states a level of efficiency of 88 per cent for the day-ahead timeframe and 66 per cent for the intraday timeframe. However, these numbers have not improved significantly in recent years, see ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2020' (n 140) 12; ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2019' (n 140) 8.

[443] ACER, 'CACM and FCA Implementation Report' (n 189) s 3.3.

[444] *E-Control v ACER* (n 62).

[445] For more extensive discussions of the case and the underlying conflict, see Hancher and Rumpf (n 228); Kühnert, Böhler and Polster (n 17) 52.

[446] The TSOs submitted their proposal to the NRAs on 17 November 2015, whereas the GC passed its judgment on 24 October 2019; see *E-Control v ACER* (n 62) para 3.

[447] This issue and resulting further problems are discussed by Hancher and Rumpf (n 228).

[448] Cf already Knops (n 30) 336.

However, this process is lagging behind.[449] Thus, the finding of Paper 1 that the TSOs retain a large degree of discretion with respect to the calculation of the capacity that is available for market coupling still applies. This remains true even after the introduction of Regional Coordination Centres (RCCs) under the Clean Energy Package.[450] As argued earlier, the RCCs do not replace the TSOs with regard to capacity calculation and are certainly no supranational TSOs. It is true that the RCCs issue so-called coordinated actions in the context of capacity calculation, which the TSOs must generally implement. However, a TSO may refuse to implement a coordinated action if this would violate the operational security limits of its electricity network.[451] Since the TSOs define the operational security limits, they retain a certain level of discretion also in relation to the coordinated actions.[452] All told, the RCCs appear as an extended arm of the TSOs, since they operate on the basis of data and a CCM provided by the latter.[453]

The TSOs' large discretion with regard to capacity calculation could explain the persistence of '*uncoordinated curtailments of interconnector capacities*'.[454] Harmonising capacity calculation across the EU would lead to a greater degree of coordination—with a possibly positive impact on the available capacity levels. The CACM Guideline recognises two approaches for capacity calculation: either a 'coordinated net transmission capacity' approach, or a 'flow-based' approach.[455] The coordinated net transmission capacity approach is based on historical data and requires large security margins.[456] In contrast, the flow-based approach simulates the expected physical flows over the grid and takes into account how so-called critical network elements interact.[457] Flow-based capacity calculation promises to increase network capacity without endangering security of supply, yet it is evidently more complex.[458] The CACM Guideline orders the use of flow-based capacity calculation unless the concerned TSOs can prove that the coordinated

[449] In its Market Monitoring Report for the year 2018, ACER analysed the level of detail and harmonization of the different regional CCMs. The Agency concluded that '*[w]ith regards to harmonisation, the Agency notes divergent approaches across and within regions*'. On average, CCRs using flow-based CCM achieved 77 per cent in the Agency's benchmark for level of detail and harmonization, while for CCRs using coordinated net transmission capacity CCM, the score was only 47 per cent. See ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2018' (n 140) 34–38. As far as can be seen, ACER has not repeated this assessment.

[450] See s 2.3.3 above.

[451] Art. 42(2) ElReg-2019. TSOs must provide reasons where they do not implement a coordinated action. Each TSO may request the review of a coordinated action, however generally without suspensive effect so long as the implementation of the coordinated action does not entail a violation of operational security limits, Art. 42(4), (5) ElReg-2019.

[452] Cf Zeitlin and Rangoni (n 425) 129.

[453] In addition, the currently designated RCCs are owned by the TSOs of the respective system operation region.

[454] Recital (27) ElReg-2019.

[455] Art. 20 CACM-GL.

[456] See the definition in Art. 2(8) CACM-GL: '*"coordinated net transmission capacity approach" means the capacity calculation method based on the principle of assessing and defining ex ante a maximum energy exchange between adjacent bidding zones*'.

[457] See the definitions in Art. 2(9) CACM-GL: '*"flow-based approach" means a capacity calculation method in which energy exchanges between bidding zones are limited by power transfer distribution factors and available margins on critical network elements*'.

[458] ACER, 'Framework Guidelines on Capacity Allocation and Congestion Management for Electricity' (n 417) 6; Despoina I Makrygiorgou and others, 'Cross-Border Electricity Trading in Southeast Europe Towards an Internal European Market' (2020) 13 Energies 6653, 3–5. For '*an easy-to understand guide to flow-based market coupling*', see Schönheit and others (n 114).

net transmission capacity approach is equally efficient.[459] ACER considers the implementation of flow-based capacity calculation as a key market integration project, which is however delayed.

As the Agency stated recently: '*Such delays can be measured against socio-economic welfare losses because they are implemented much later than what they should be.*'[460] Also the wording of the CACM Guideline reveals that with respect to capacity calculation, the current degree of harmonisation falls drastically short of the intention, as Article 21(4) shows:

> '*By 31 December 2020, all regions shall use a harmonised capacity calculation methodology which shall in particular provide for a harmonised capacity calculation methodology for the flow-based and for the coordinated net transmission capacity approach.*'

Even though the deadline named in the CACM Guideline passed several years ago at the time of writing, the envisaged scope of harmonisation still seems unattainable.[461] The harmonisation stipulated in Article 21(4) of the CACM Guideline is contingent on another occurrence pursuant to Article 20(5) that is unlikely to be fulfilled anytime soon, the occurrence being that two adjacent CCRs switch to flow-based capacity calculation. According to Article 20(5) of the CACM Guideline, two adjacent CCRs in the same synchronous area are to be merged once both introduce flow-based capacity calculation. However, of the eight CCRs at the time of writing, only the Core CCR uses flow-based capacity calculation, while the Nordic CCR is still preparing the introduction of flow-based capacity calculation.[462] Since both CCRs are in different synchronous areas and separated by another CCR, the Hansa CCR, the wording of Article 20(5) of the CACM Guideline excludes a merger. Even if other CCRs began implementing flow-based capacity calculation, experience with the Core and Nordic CCRs shows this process will take years. In particular, there are no plans to introduce flow-based capacity calculation in the Hansa CCR. Apparently, the Commission was overly optimistic concerning the implementation of flow-based capacity calculation when it adopted the CACM Guideline. In hindsight, this appears as an avoidable

[459] Art. 20(1), (7) CACM-GL.
[460] ACER and CEER, 'Reaction to the European Commission's Public Consultation on Electricity Market Design' (n 331) 34.
[461] Note that ACER expected a timely implementation of Art. 21(4) CACM-GL as late as 2019. This is apparent from the assessment of CCMs in ACER and CEER's, 'Electricity Wholesale Markets Monitoring Report 2018' (n 140) 33, which aimed '*to provide an overview of the status of DA and ID CCMs and to identify improvements that could be implemented, either through the 2020 review prescribed by Article 21(4) of the CACM Regulation, or when aligning CCMs to the recast Electricity Regulation.*'
[462] The Core CCR covers central Europe, while the Nordic CCR covers Scandinavia. The latest configuration of CCRs is contained in Annex III to ACER Decision 08/2023 on the Amendment to the Determination of Capacity Calculation Regions. See Art. 1 of that decision for the Nordic CCR, Art. 5 for the Core CCR. The CCMs for both CCRs are available here: https://extranet.acer.europa.eu/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/Pages/16-CCM.aspx?RootFolder=%2Fen%2FElectricity%2FMARKET-CODES%2FCAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT%2F16%20CCM%2FApproved&FolderCTID=0x012000736E88C7D91B79428341346797202065&View=%7BB4C93BB4-744F-4B5E-ACC8-8E5249313228%7D (accessed 13 October 2023).

oversight, as the technical complexity and potential of conflict of flow-based capacity calculation is quite evident.[463]

4.3. Interconnector Investment: 'Off Limits' for the Network Code Strategy

The Network Code Strategy has high ambitions to improve the utilisation of existing electricity interconnectors. Therefore, it is astonishing that the Network Code Strategy almost completely shuns another pressing issue of electricity regulation: insufficient investment in new electricity interconnectors.[464] With regard to subquestion 2, ie how EU legislation aims to promote investment in interconnectors, the surprising answer is that the Network Code Strategy contributes almost nothing. In contrast to the sophisticated legal framework on congestion management discussed in the previous section, neither the network codes nor the guidelines or methodologies address questions of interconnector investment in any detail.[465] This reflects a general scarcity of regulative norms on interconnector investment also in the Packages. In this context, it is important to remember that incentive regulation is outside the scope of this dissertation.[466]

Papers 1 and 3 show that EU legislation on electricity interconnector investment is not centred on harmonisation, but coordination.[467] This concerns, for example, the EU-wide ten-year network development plan (TYNDP) to be developed by ENTSO-E[468] or the 10 and 15 per cent interconnection targets to be implemented according to the Governance Regulation.[469] As Paper 3 finds, the interconnection targets appear to be facultative, and the TYNDP is explicitly non-binding.[470] Prior to the introduction of the Network Code Strategy under the Third Energy Package, Glachant and Lévêque reasoned that the '*[i]nvestment procedures in effect in the Member States remain typically national.*'[471] Almost 15 years later, this is still the case: at the end of the day, interconnector investment decisions are taken at national level, at the initiative of TSOs and subject to approval by NRAs. Whereas the approach to interconnector utilisation has become supranational under the Network Code Strategy, investment in interconnectors can rather be described as intergovernmental.[472]

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[463] Note, however, that the CACM-GL was amended in the meantime without making substantial changes to Art. 21(4).
[464] The EU's ambitious decarbonisation goals also require massive investment in electricity transmission infrastructure, cf recital (6) Eldir-2019; recital (23) ElReg-2019; European Commission, 'An EU Strategy to Harness the Potential of Offshore Renewable Energy for a Climate Neutral Future' (n 351) 11–14; European Commission, 'The Green Deal' (n 10) 6. The same applies to the independence from fossil fuel imports; see European Commission, 'REPowerEU Plan' (n 20) 12–16.
[465] Cf Rumpf and Hancher (n 79) 254–255.
[466] For some examples of the EU incentive regulation in place, see above, at s 1.4.3.1.
[467] In the same vein, Calliess and Hey (n 320) 123; Vinois (n 26) 30–32.
[468] Art. 48 ElReg-2019.
[469] Art. 2(11), 4(d)(1) and point 2.4.1. of Part 1 of Annex I to the GovReg. For a critical view on coordination under the GovReg, see Ammannati (n 34).
[470] Art. 30(1)(b) ElReg-2019.
[471] Jean-Michel Glachant and François Lévêque, 'Introduction' in Jean-Michel Glachant and François Lévêque (eds), *Electricity Reform in Europe: Towards a Single Energy Market* (Edward Elgar 2009) 20.
[472] This may be both the cause and an effect of the absence of regulative norms on interconnector investment in EU legislation. According to Joerges and Kreuder-Sonnen (n 4) 124, an intergovernmentalist notion of European integration '*conceives of European integration as the result of hard-nosed bargains between national leaders whose preferences are determined by the (economic) interests of powerful domestic groups.*'

4.3.1. Case Study 2: The Failed Network Code on Interconnector Investment

This situation is even more astounding because the adoption of harmonised rules on interconnector investment is not excluded from the scope of the Network Code Strategy as a matter of principle. Article 61(4) of the Electricity Regulation empowers the Commission to adopt a guideline (as an implementing act) specifying the '*details of investment incentive rules for interconnector capacity including locational signals implementing Article 19*'. This refers to the use of congestion income for '*covering costs resulting from network investments that are relevant to reduce interconnector congestion*' under Article 19(2)(b) of the Electricity Regulation.[473] In particular the possibility to specify the details of locational signals would harmonise an important consideration in interconnector investment. Similarly, Article 63(11) of the Electricity Regulation empowers the Commission to adopt guidelines (as delegated acts) specifying the conditions for the granting of merchant exemptions to new electricity interconnectors by third-party investors, as well as procedural questions in this context.[474] As Paper 3 explains, merchant interconnectors are important because they can close investment gaps.[475] Nevertheless, both of these options remain unused.

Moreover, it is striking that the aforementioned competences to adopt delegated legislation on interconnector investment are limited to fringe areas. This raises the question how regulative norms on interconnector investment should be designed and enforced. This question cannot be answered exhaustively here, however three possible models come to mind. First, the least intrusive variant would be to leave investment decisions at national level, but to tighten coordination at EU level by making the ten-year network development plan (TYNDP) binding and entrusting the NRAs with enforcing the investments identified in the plan. In fact, during the legislative procedure leading to the Third Energy Package, the Commission and the European Parliament were in favour of making the pan-European TYNDP binding; however, this initiative ultimately failed.[476] As Paper 1 observes, a similar model is in place for TSOs that are unbundled under the independent

[473] As argued elsewhere, Art. 19(2)(b) ElReg-2019 also allows to use congestion income for covering network investments that merely avoid further reductions of interconnector capacity without entailing a simultaneous increase; see Rumpf and Hancher (n 79) 252–253.

[474] See s 3.3 above for an introduction to the merchant investment scheme.

[475] Similarly, HM De Jong, JC Van der Lippe and HPA Knops, 'Investment in Cross Border Transmission Capacity: Economics or Politics? A European Case Study', *Energy Policies for the 21st Century* (2007) 19–20.

[476] See European Parliament, 'Report A6-0191/2008 on the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/54/EC Concerning Common Rules for the Internal Market in Electricity (COM(2007)0528—C6-0316/2007—2007/0195(COD)) Committee on Industry, Research and Energy' (2008) 118–120 (Amendment 21); European Commission, 'Communication to the European Parliament Pursuant to the Second Subparagraph of Article 251(2) of the EC Treaty Concerning the Common Position of the Council on the Adoption of a Regulation of the European Parliament and of the Council Withdrawing Regulation (EC) No 1228/2003 of the European Parliament and of the Council on Conditions for Access to the Network for Cross-Border Exchanges in Electricity' (2009) COM(2008) 904 final s 3.4.1.

transmission operator (ITO) model;[477] however, this concerns less than 10 per cent of the European electricity TSOs.[478]

Second, investment decisions could be elevated to the supranational sphere and placed in the hands of ACER. This is the most intrusive approach. Implementing it would require a considerable extension of ACER's competences, which appears legally dubious and politically impossible. Therefore, it is worth reflecting on a third possible model, which represents a middle ground. Under this model, a network code or guideline could specify harmonised criteria for interconnector investment, while leaving the implementation of these criteria in the hands of the TSOs and NRAs, with the possibility to escalate investment decisions to ACER. The remaining question is whether the Commission can be empowered to adopt such rules in a network code or guideline. In the past, this question was answered in the negative in the literature.[479] However, the GC's recent judgment in *MEKH v ACER* comes to a different conclusion, stating that the Commission can be equipped with corresponding powers.[480]

The case, which is discussed in Papers 4 and 5—albeit briefly and in a different context— concerned a gas network code; nevertheless, the GC's legal reasoning can also be applied in the context of the electricity sector. The litigation revolved around the Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems (the CAM Network Code), which contained a procedure for so-called incremental capacity increases.[481] Chapter V of the CAM Network Code obliged gas TSOs to perform a market test to assess whether there is demand for additional cross-border capacity. If the assessment revealed such demand and an additional test confirmed the economic viability of the capacity increase, the concerned TSOs had to request permission to effectuate the capacity increase from the competent NRAs.[482] According to the CAM Network Code, the capacity

[477] The ITO model is regulated in Art. 46-51 ElDir-2019. Pursuant to Art. 51 ElDir-2019, the concerned TSO must submit a ten-year network development plan to the NRA biannually. Under Art. 51(7) ElDir-2019, the NRA can take various measures to oblige the concerned TSO to execute investments laid out in the plan if the TSO does not do so on its own accord, including '*to require the transmission system operator to execute the investments in question*'. A less stringent model applies to TSOs unbundled as independent system operators (ISO); pursuant to Art. 44(2)(c) ElDir-2019, a TSO may only be certified as an ISO if it '*has undertaken to comply with a ten-year network development plan monitored by the regulatory authority*'. Nevertheless, the NRA does not seem to have as far-reaching enforcement powers as is the case for the ITO model.

[478] Cf CEER, 'Status Review on the Implementation of Transmission System Operators' Unbundling Provisions of the 3rd Energy Package' (2016) 13–14, which states that 12 per cent of electricity TSOs had chosen the ITO model. Several TSOs subsequently switched from the ITO model to ownership unbundling, see CEER, 'Status Review on Implementation of TSO and DSO Unbundling Provisions—Update and Clean Energy Package Outlook' (2019), in particular 9.

[479] Calliess and Hey (n 320) 100; Hancher and Salerno (n 164) 375.

[480] *MEKH v ACER* (n 79); for a discussion of the case, see Aleksander Glapiak and Ignacio Herrera Anchustegui, 'The General Court on Network Codes: A Blow to the Commission and ACER in MEKH and FGSZ v ACER?' 21 Oil, Gas & Energy Law 13.

[481] Commission Regulation (EU) 2017/459 of 16 March 2017 Establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems [2017] OJ L72/1 (CAM-NC). It is worth recalling that in the gas sector, only network codes—but no guidelines—have been adopted under the Network Code Strategy thus far.

[482] Art. 22, 26, 27 and 28 CAM-NC.

increase could '*be offered based on investment in physical infrastructure or long-term capacity optimisation*'.[483]

In the events leading up to *MEKH v ACER*, the Austrian and Hungarian gas TSOs' assessment showed demand for incremental capacity at the Austrian-Hungarian border. However, the demand for additional capacity was higher on the Austrian side; consequently, whereas the Austrian NRA approved an incremental capacity increase, the Hungarian NRA refused to give a green light to investment in new cross-border transmission infrastructure. Due to the disagreement between the NRAs, the decision passed to ACER,[484] which according to the stipulations in the CAM Network Code ordered the Austrian and Hungarian gas TSOs to carry out a capacity auction to verify whether there was demand for incremental capacity on the Austrian-Hungarian border.[485]

The Hungarian NRA and gas TSO appealed ACER's decision to the Agency's Board of Appeal (BoA), which confirmed the Agency's decision.[486] However, upon further appeal, the GC annulled the decision. In the view of the GC, the Commission had acted *ultra vires* in adopting the incremental capacity procedure, because the Gas Regulation[487] did not delegate the corresponding powers to the Commission.[488] Moreover, it would amount to altering essential elements of the Gas Regulation if the Commission gave itself such powers in a network code, which is not permitted in delegated legislation.[489] In the words of the Court, '*the legislature made a political choice consisting of attributing the implementation of relevant EU rules relating to the creation of incremental capacity to the Member States alone, without delegating competence to that effect to […] the Commission.*'[490] Consequently, the GC declared Chapter V of the CAM Network as inapplicable and annulled the Agency's decision for lack of a legal base.

4.3.2. Electricity Interconnector Investment Regulation under the Network Code Strategy: an Improbable Scenario

As stated before, none of the network codes or guidelines for electricity contain similar rules as those under scrutiny in *MEKH v ACER*. Nevertheless, the judgment—which has not been appealed to the ECJ—allows to draw important conclusions on the possible scope for harmonised electricity interconnector investment rules under the Network Code Strategy. First, there is no convincing reason not to apply the Court's reasoning to the electricity sector, where the legal situation is

[483] Art. 3(1) CAM-NC.
[484] Art. 28(2) CAM-NC, Art. 6(10) ACERReg-2019.
[485] Decision 05/2019 of the Agency for the Cooperation of Energy Regulators of 9 April 2019 on the Incremental Capacity Project Proposal for the Mosonmagyaróvár Interconnection Point. It is worth noting that the auction did not confirm the need for incremental capacity, see Decision of the Board of Appeal of the Agency for the Cooperation of Energy Regulators in the Case A-004-2019_R [2023].
[486] Decision of the Board of Appeal of the Agency for the Cooperation of Energy Regulators in the Case A-004-2019 [2019].
[487] Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on Conditions for Access to the Natural Gas Transmission Networks (2009) OJ L211/36 (GasReg-2009).
[488] *MEKH v ACER* (n 79) para 135.
[489] ibid 136–143, referencing Art. 6(11), 7(3) GasReg-2009.
[490] *MEKH v ACER* (n 79) para 140.

comparable to the gas sector.[491] In particular, the Electricity Regulation grants the Commission similar powers as the Gas Regulation under scrutiny in *MEKH v ACER*. In the reading of the GC, the competence to adopt network codes and guidelines on capacity allocation and congestion management pursuant to Article 59(1)(b) of the Electricity Regulation therefore merely empowers the Commission to adopt rules concerning the utilisation of *existing* electricity interconnectors.[492] By contrast, the terms of delegation presently do not cover questions related to the investment in *new* interconnectors. Moreover, as in *MEKH v ACER*, the Commission may not alter these terms and equip itself with the competence to harmonise the terms for interconnector investment.[493]

Therefore, including this topic in the scope of the Network Code Strategy would require amending the Electricity Regulation. In this context, it is noteworthy how strongly the GC emphasised that the EU institutions could empower the Commission to adopt delegated legislation on interconnector investment, based on Article 114 TFEU[494] or 194(2) TFEU.[495] To be sure, whereas the path thus appears clear as far as the EU's competences in the Treaties are concerned, the GC has not analysed all legal questions related to the procedure set out in the CAM Network Code, eg whether the principle of proportionality permits imposing costly investments and the related risks on private actors for a purported pan-European greater good. These questions cannot be addressed here, either, and constitute an important and interesting avenue for future research. This point is valid even though—or perhaps because—the high degree of contestation inherent in electricity regulation makes it seem improbable that regulative investment norms will find their way into the European network codes or guidelines for electricity anytime soon.

Creating a suitable competence for the Commission in a future revision of the Electricity Regulation would have to follow the ordinary legislative procedure.[496] This, in turn, requires agreement between the European Parliament and the Council.[497] Such agreement appears unobtainable at present because investment in interconnectors constitutes a sensitive political subject.[498] For the

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[491] It may be noted that the general investment obligation of TSOs is worded differently from the ElDir-2019 in Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 Concerning Common Rules for the Internal Market in Natural Gas [2009] OJ L211/94 (GasDir-2009). As the Court notes in *MEKH v ACER* (n 79) para 120, Art. 13(2) GasDir-2009 explicitly '*requires transmission system operators to build "sufficient cross-border capacity to integrate European transmission infrastructure accommodating all economically reasonable and technically feasible demands for capacity and taking into account security of gas supply*".' In contrast, Art. 40(1)(a) ElDir-2019 speaks only of '*developing*' the grid, which however still obliges each TSO to make necessary infrastructure investments, as Paper 1 shows.

[492] *MEKH v ACER* (n 79) paras 103–108.

[493] ibid 139. For the existing guidelines: Art. 6(11), 7(3) ElReg-2009; for future guidelines adopted as delegated acts: Art. 290 TFEU.

[494] *MEKH v ACER* (n 79) paras 86–87.

[495] ibid 128. The GC only referred to the aim of increasing security of supply as a legitimate purpose for such legislation (Art. 194(1)(b) TFEU). Nevertheless, it seems evident that the functioning of the IEM or the promotion of interconnection would also serve as suitable objectives (Art. 194(1)(a) and (d) TFEU).

[496] Art. 194(2), 289, 294 TFEU.

[497] William Robinson, 'EU Legislation' in Ulrich Karpen and Helen Xanthaki (eds), *Legislation in Europe: A Comprehensive Guide for Scholars and Practitioners* (Hart Publishing 2017) 238–241.

[498] On the political contentiousness of interconnector investment, see Puka and Szulecki (n 33) 132; De Jong, Van der Lippe and Knops (n 475). As Birchfield (n 34) 246–247 points out, the Council—representing the governments of the Member States—has a tendency to '*put the brakes on*' progressive energy proposals. Along the same lines, but emphasising that the Commission also represents political choices, Joseph Halevi Horowitz Weiler, 'In the Face of

Member States, the flip side of increasing interconnection is a loss of political autonomy. The construction of an interconnector irrevocably exposes the domestic electricity sector to foreign competition, because EU legislation does not permit curtailing cross-border cables at will.[499] Consequently, Member States lose control over domestic electricity prices. Interconnection leads to price convergence on the connected markets, which is a euphemism for saying that some system users benefit from lower prices, while others suffer from higher prices.[500] In other words: market integration creates winners and losers.[501] This effect becomes more pronounced as the level of interconnection increases.[502]

While market integration leads to net gains from a pan-European perspective,[503] it is up to the Member States to ensure a fair distribution of the costs and benefits at national level.[504] Where system users feel this is not the case, interconnectors constitute a political bone of contention.[505] Furthermore, the construction of new interconnectors usually also requires expensive reinforcements of the local electricity network. The local system users often oppose the related projects, in part due to a general resistance against the impact of transmission infrastructure on the local landscape and wildlife, in part because the related costs increase the domestic transmission tariffs.[506] In the worst case, the losers in one Member State have to pay for the gains of the winners in another Member State, which is evidently undesirable.[507] Thus, it seems quite unlikely that the

Crisis: Input Legitimacy, Output Legitimacy and the Political Messianism of European Integration' (2012) 34 Journal of European Integration 825, 830.

[499] This follows principally from the 'maximum capacity principle', which is enshrined in Art. 16(8) ElReg-2019 and is analysed in s 2.2.3 above.

[500] The problem is explained in detail by Felix Höffler, *Engpassmanagement und Anreize zum Netzausbau im leitungsgebundenen Energiesektor: wirtschaftstheoretische Analyse und wirtschaftspolitische Handlungsempfehlungen* (Nomos 2009) 20; Stephan Spiecker, Philip Vogel and Christoph Weber, 'Evaluating Interconnector Investments in the North European Electricity System Considering Fluctuating Wind Power Penetration' (2013) 37 Energy Economics 114; Jacques Percebois, 'Electricity Liberalization in the European Union: Balancing Benefits and Risks' (2008) 29 The Energy Journal 1, 7–9; Paul Giesbertz and Machiel Mulder, 'Economics of Interconnection: The Case of the Northwest European Electricity Market' [2008] IAEE Newsletter 17, 18.

[501] Macatangay and Roeben (n 114) 186; Kevin Kolben, 'Compensation and Its Limits: Can Trade's Losers Be Made Whole?' (2021) 24 Journal of International Economic Law 683, 685; Spiecker, Vogel and Weber (n 500) 115–116; De Jong, Van der Lippe and Knops (n 475) 8.

[502] Makrygiorgou and others (n 458) 12–14 illustrate the price effects in South-East Europe.

[503] See n 430 above.

[504] The endeavour to create an IEM is founded on the belief that properly coordinated electricity market integration offers sufficient welfare gains to compensate losers for their losses. This is referred to as Kaldor-Hicks efficiency, see Kolben (n 501) 687; Macatangay and Roeben (n 114) 173–174; Eide and Stavang (n 103) 22. Nevertheless, EU energy law for the most part refrains from distributional policy, which thus remains a domain of the Member States.

[505] Escribano and others (n 12) 2; Macatangay and Roeben (n 114) 178–180; Paulina Beato, 'Issues and Options on Transnational Projects' (2008) 12 Integration & Trade 11.

[506] Hellmuth and Jakobs (n 360) 137–138; MJN van Werven and F van Oostvoorn, 'Barriers and Drivers of New Interconnections Between EU and Non-EU Electricity Systems' 17–18; European Commission, *Notice pursuant to Article 19(3) of Council Regulation No 17 concerning case COMP/E-3/37921—Viking Cable*.

[507] Puka and Szulecki (n 33) 132. For similar reservations against the special case of merchant investment based on the concern that 'the merchant takes it all', see C Gerbaulet and A Weber, 'When Regulators Do Not Agree: Are Merchant Interconnectors an Option? Insights from an Analysis of Options for Network Expansion in the Baltic Sea Region' (2018) 117 Energy Policy 228.

Member States would surrender their discretion concerning electricity interconnector investment to the EU institutions.[508]

These considerations notwithstanding, it should be noted that the Commission recently proposed as part of the Hydrogen and Decarbonised Gas Market Package to amend the Gas Regulation and make possible the adoption of delegated legislation on incremental capacity increases.[509] Surprisingly, this proposal has already found the approval of the Council,[510] so that the Commission is on a good way to obtain the power to adopt rules such as those at issue in *MEKH v ACER*—albeit only in the gas sector and against the geopolitical context of Russia's invasion of Ukraine. However, important differences between the electricity and gas sectors stand in the way of a similar development in EU electricity legislation. In contrast to electricity, gas can be stored with relative ease.[511] This has allowed several Member States to replace Russian pipeline gas with liquefied natural gas (LNG) shipments from other countries.[512] This wholesale switch of suppliers may change the previous, predominantly east-to-west flow of gas, to which the existing gas networks are adapted.

Three factors create an exceptional geopolitical situation that may explain why the Member States would be willing to entrust gas interconnector investment decisions to European bodies: (1) the vital importance of ensuring continued gas supply; (2) the urgency with which the gas networks must be realigned to new flows; and (3) the scope of the required changes. These factors strongly favour a highly coordinated approach to the restructuring of the European gas networks. In contrast, sources of electricity cannot be switched as easily as gas sources.[513] Each Member State ensures electricity supply through an individual array of generation technologies, whose composition results from the available natural resources and policy preferences.[514] Therefore, the Member States' motivations

[508] On the failed attempt to make the TYNDP binding, see the references above, at n 476. The Member States have further demonstrated their reluctance against incursions of the EU into what they perceive as the core of their national energy policy by 'watering down' the rules on the bidding zone review in Art. 14 ElReg-2019 considerably. For details, see Fridtjof Nansen Institute and Thema Consulting Group (n 189).

[509] See Art. 53(1)(c) in the Commission's Proposal for a Regulation of the European Parliament and of the Council on the Internal Markets for Renewable and Natural Gases and for Hydrogen (recast) [2021] (COM(2021) 804 final), which explicitly envisages a competence for adopting a network code to determine a '*procedure for existing, incremental, firm and interruptible capacity*'. For background information on the Commission's legislative initiative, see https://energy.ec.europa.eu/topics/markets-and-consumers/market-legislation/hydrogen-and-decarbonised-gas-market-package_en (accessed 13 October 2023).

[510] See Art. 53(1)(c) in European Council, 'General Approach to the Proposal for a Regulation on the Internal Markets for Renewable and Natural Gases and for Hydrogen' (2023) ST/INIT/7909/23.

[511] It is simply not feasible to switch from the transmission network to another mode of transportation, since the storage of electricity is subject to massive conversion losses, cf Shivakumar (n 14) 54.

[512] For the example of Germany, see https://www.cleanenergywire.org/factsheets/liquefied-gas-does-lng-have-place-germanys-energy-future (accessed 13 October 2023).

[513] The massive deployment of offshore RES envisaged for the coming decades could have a similar impact on the structure of European electricity supply, cf the numbers in European Commission, 'An EU Strategy to Harness the Potential of Offshore Renewable Energy for a Climate Neutral Future' (n 351) 1–2. This notwithstanding, this transition will occur over a much longer timespan, while the geopolitical context of the climate crisis is definitely no example of swift and decisive action on the part of the Member States. Apparently, the gas crisis following the invasion of Ukraine presents a much more urgent cause for joint intervention than the Commission's offshore strategy.

[514] Hawker, Bell and Gill (n 39) 51–52; Vinois (n 26) 32; Pielow and Lewendel (n 38) 265–266. On the German lignite sector as one example, cf Agora Energiewende, *Eleven Principles for Reaching a Consensus on Coal* (2016), available at https://www.agora-energiewende.de/en/publications/eleven-principles-for-reaching-a-consensus-on-coal/ (accessed 13 October 2023).

for building electricity interconnectors are extremely heterogeneous.[515] Countries like Norway, with large and generally cheap hydropower reserves, accept higher electricity prices resulting from price convergence because interconnectors function as an 'insurance' against years with low precipitation, which would result in even higher prices or even supply shortfalls. In contrast, countries with a large share of gas generation and generally higher electricity prices, like Italy, seek to gain access to cheaper power production abroad. In turn, countries with a high share of intermittent RES, like Denmark with its vast wind generation fleet, look for opportunities to export surplus electricity production during high winds, while also hedging against prolonged low-wind spells that would result in extreme electricity prices or blackouts. Thus, the incentives in the electricity sector appear too diverse for investment in interconnection to be elevated to the supranational sphere.

These political considerations make it unlikely that the Member States would agree to empower the Commission to adopt procedures to ensure electricity interconnector investment. Apparently, not even the energy price crisis of 2022 has aligned the interests of the Member States sufficiently, seeing as the Commission's most recent proposal to revise the Electricity Regulation contains no such rules.[516] As far as can be seen, electricity interconnector investment decisions will thus continue to be taken at Member State level, at the discretion of the TSOs and the respective NRAs and with only facultative coordination at EU level. This may prove unfortunate for the EU's ambitious energy policy aims, seeing as the latest TYNDP for electricity asserts an investment gap corresponding to a quarter of the identified investment needs until 2030.[517] Regulative norms on interconnector investment at EU level could help close this gap—yet they also raise important, unanswered legal questions that should be addressed in future research. As Paper 3 points out, political considerations may well influence how the ECJ would answer these legal questions.

4.4. Managing Challenges in Interconnector Regulation

The discussion so far shows that implementing the Network Code Strategy is not a matter of 'simple' technical standardisation, but often concerns more far-reaching issues that require the mitigation of conflicts among the involved actors.[518] The Electricity Regulation recognises this and states in its preamble:

> '*The network codes and guidelines have therefore become extensive and comprehensive and encompass both technical and general issues.*'[519]

[515] Joerges and Kreuder-Sonnen (n 4) 132 point to a similar issue in the context of the European Monetary Union.
[516] European Commission, Proposal for a Regulation to Improve the Union's Electricity Market Design. For an analysis of different positions on how to redesign the European electricity markets, see Michael Pollitt and others, 'The European Wholesale Electricity Market: From Crisis to Net Zero' (Centre on Regulation in Europe 2022).
[517] ENTSO-E, 'High-Level Report TYNDP 2022' (n 20) 6. See also Sikow-Magny (n 117) 73–74, who discusses possible reasons for investment gaps in transmission infrastructure.
[518] Arguably, standardisation always requires resolving conflicts of interest, cf Kenneth W Abbott and Duncan Snidal, 'International "Standards" and International Governance' (2001) 8 Journal of European Public Policy 345, 363. Also Ștefan and Petri (n 228) 527 point out that with regard to ACER's decision-making powers in the context of the Network Code Strategy, '*the line between what is technical and what is normative is fairly thin*'.
[519] Recital (71) ElReg-2019.

As all Papers illustrate, both technical complexity and conflicting interests encumber the implementation of the Network Code Strategy. In its proposals for the Clean Energy Package, the Commission named the issue of congestion management in central Europe—referring to the implementation of the CACM Guideline in the Core CCR—as an example of '*technically complex conflicts with significant distributive effects between Member States*', with '*divergent national interests [leading] to significant delays on the way to more market integration.*'[520] However, the combined findings of the Papers, as well as the preceding sections and the case studies discussed therein, show that the Network Code Strategy often does not to resolve these issues, but rather reveals where the remaining technical challenges and points of contention lie. This is a risky approach: whereas this revelatory function of the Network Code Strategy may help develop the legal framework for electricity further even where conflict resolution fails, it also exposes the implementation procedure to regulatory capture.[521]

This raises the question to what extent the legal rules informing the rule-making process under the Network Code Strategy allow each of the involved actors to affect the content of the legal framework for EU interconnector regulation. This is in line with the third subquestion this dissertation seeks to answer. To engage with this question, this section begins by examining what interests each actor typically represents, and where the lines of conflict run (subsection 4.4.1). Building on this typification, subsection 4.4.2 discusses how the Network Code Strategy uses formal regulatory control, as well as negotiation in networks, to resolve conflicts and counteract regulatory capture. Nevertheless, gaps remain in the chain of regulatory control, as subsection 4.4.3 discusses using a case study for substantiation: in exceptional constellations, particular interests may lead to the adoption of regional methodologies that breach EU law.

4.4.1. The Main Interests and Points of Contention in the Network Code Strategy

This subsection reviews on a high level what interests drive the different actors involved in rule-making under the Network Code Strategy. As is apparent from the discussion in section 4.1, the legal framework divides these actors into two groups: the drafters and the regulators. In this context, it is vital to recall that while the actors within each group share the same task, they represent heterogeneous interests.[522] This leads to conflicts between the groups, but also within each respective group. Note that the full picture is more complex than the following account, as the specific motivations of each actor may vary in the context of every network code, guideline or methodology. Understanding the different interests at work provides the necessary context for the legal issues related to regulatory capture resulting from the architecture of the Network Code Strategy.

[520] See European Commission, Proposal for the ACERReg-2019 10 in the explanatory memorandum.
[521] See Macatangay and Roeben (n 114) 176–177.
[522] For an overview over the typical interests of different stakeholders in the electricity market, see Fink and others (n 34) 319–321; Eckert (n 25) 34; Jevnaker (n 65) 928–929.

The group of drafters is comprised of the TSOs and the NEMOs, private parties operating for profit.[523] It is reasonable to assume that the drafters will favour a regulatory framework that (1) does not increase the risk of their operations and that (2) does not negatively affect their commercial interests. Concerning the first point, due to their responsibility for operational security and the technical complexity of the grid, TSOs will want to retain a larger degree of discretion in their operations.[524] This also benefits the NEMOs, whose business model depends on stable electricity grids. With regard to the second point, however, the commercial interests of TSOs and NEMOs are opposed. As power exchanges charging a fee on all electricity transactions, NEMOs directly profit from greater cross-border trade volumes.[525] In contrast, for the TSOs, this involves higher costs and possibly lower profits, so that they have fewer financial incentives to increase cross-border trade, as Paper 2 explains.[526] This structurally encumbers cooperation between TSOs and NEMOs.[527]

However, these conflicts not only arise between TSOs and NEMOs, but also among TSOs or among NEMOs, respectively. The CACM Guideline explicitly fosters competition among the NEMOs.[528] The need to cooperate with competitors in developing rules for market coupling evidently creates friction, as the numerous inter-NEMO conflicts during the drafting of the methodologies in the context of electricity market coupling illustrate.[529] In contrast, since the transmission system is a natural monopoly, conflicts among the TSOs do not arise from competition, but stem from the respective structure of the different transmission grids. The situation at the German-Polish border provides an example. In Germany, internal grid bottlenecks cause loop flows in the grids of its Eastern neighbours.[530] Such loop flows arise when trade patterns do not represent the actual physical flows on the grid.[531] Trade between Germany and Austria regularly exceeded the physical capacity on the border, and the resulting physical flows followed the path of least resistance, which happened

[523] Cf the discussions in ss 2.2.3 and 2.2.4 above.
[524] Jevnaker and others (n 393) 5–6.
[525] See also the List of Services and Prices of the power exchange EEX AG, available at https://www.eex.com/de/maerkte/handel/preisliste (accessed 13 October 2023). The parent company to EEX AG, EPEX Sport SE, is designated as a NEMO in 14 Member States at the time of writing, see https://www.nemo-committee.eu/designated-NEMOs.pdf (accessed 13 October 2023).
[526] Similarly, Macatangay and Roeben (n 114) 188.
[527] ACER, 'CACM and FCA Implementation Report' (n 189) s 3.3 describes several conflicts that arose between TSOs and NEMOs in the context of implementing market coupling.
[528] For a critical discussion of this approach, see Bjørndalen and others (n 208). Art. 5 CACM-GL establishes grandfathering rules that allow Member States to maintain legal monopolies for the NEMO activity in case such a monopoly was in force at the time the CACM-GL entered into force. The ECJ recently decided on the scope of this exception in *Bursa Română de Mărfuri* (n 205).
[529] Interestingly, the Commission fined the power exchanges EPEX Spot and NordPool AS for breaching Art. 101 TFEU by entering into a non-competition agreement on the occasion of an '*in-depth cooperation to develop innovative solutions*' in the context of market coupling; see *Commission Decision of 5.3.2014 addressed to: EPEX Spot and Nord Pool Spot AS relating to a proceeding under Article 101 of the Treaty on the Functioning of the European Union and Article 53 of the EEA Agreement (Case AT.39952—Power Exchanges)* [2014], in particular [25].
[530] The loop flows originating in Germany have been a point of contention for a considerable time, cf Gräper and Webster (n 21) 645. The negative repercussions of the structural internal congestion in Germany are nevertheless not limited to Eastern Europe, cf Energimarknadsinspektionen, 'Capacity Limitations between the Nordic Countries and Germany' (2015).
[531] ACER considers the high volume of loop flows as one of the main obstacles to achieving sufficient interconnection capacity, cf ACER, '2023 70 Per Cent Report' (n 12) 6.

to be through the neighbouring grids to the east.[532] This was convenient for the Austrian and German TSOs, because the bottlenecks in their grids materialised outside their own control area. In other words, these bottlenecks became someone else's problem—and financial burden. Not surprisingly, the Austrian and German TSOs were less eager to resolve the situation—which entailed higher remedial action costs—than their Eastern European counterparts.[533]

On the other hand, the interests in the group of regulators are no less diverse.[534] The underlying assumption in EU energy law appears to be that NRAs faithfully represent EU energy policy.[535] Yet despite their nominal independence,[536] the NRAs represent the positions and preferences of their home states or interest groups and may have a limited national perspective.[537] Domestic energy policy preferences will thus often cause disagreement among the NRAs when implementing EU energy policy—such as when adopting regional methodologies. Consequently, NRAs may seek to keep domestic energy prices as low as possible,[538] even if this is to the detriment of other Member States. This is exemplified by the practice of the Austrian NRA, E-Control,[539] in the loop flow dilemma underlying the case *E-Control v ACER*, which has been introduced in the previous paragraph. In the resulting litigation, the Austrian NRA staunchly fought for maintaining a bidding zone configuration that served the interests of Austrian national energy policy, even though it had a negative impact on some Eastern European Member States.[540] Likewise, in *MEKH v ACER*, E-Control's position reflected Austrian energy policy and the interests of the Austrian energy industry, whereas the Hungarian NRA, MEKH,[541] represented the corresponding Hungarian interests.[542]

In turn, as an EU agency, ACER most clearly represents EU energy policy.[543] Yet it must not be forgotten that the Agency builds on the legacy of the previous voluntary cooperation networks of the NRAs, such as the Florence forum.[544] Decisions by ACER are taken in the Board of Regulators by representatives from all NRAs and the Commission deciding with qualified majority.[545] ACER's

[532] See also the explanation at Kühnert, Böhler and Polster (n 17) 52. On the issue in general, see Schoser and Sandberg (n 183) 384.
[533] Decision of the Board of Appeal of the Agency for the Cooperation of Energy Regulators in the Case A-001-2017 (consolidated) [2017] para 15.
[534] Hancher and Rumpf (n 228); Jevnaker and others (n 393) 6–7; de Hauteclocque and Perez (n 35) 14–15.
[535] Case C-378/19 *Prezident Slovenskej republiky* [2020] ECLI:EU:C:2020:462 [54].
[536] Art. 57(4) ElDir-2019. See also the discussion and references above, at s 2.2.5.
[537] NRAs are national authorities that, in the words of Vivien A Schmidt, 'Democracy and Legitimacy in the European Union Revisited: Input, Output and "Throughput"' (2013) 61 Political Studies 2, 10, operate '*in the "shadow of politics"*' and are thus indirectly politically accountable. Similarly, Macatangay and Roeben (n 114) 176–177; Tangerås (n 220) 1645; Lavrijssen and Hancher (n 215) 28.
[538] Hannah Katharina Müller, 'Can We Build It? Yes We Can: A Legal Analysis of How to Enable a Transnational Offshore Grid' in Catherine Banet and Martha M Roggenkamp (eds), *European Energy Law Report*, vol XI (Intersentia 2017) 150.
[539] The full title is Energie-Control Austria für die Regulierung der Elektrizitäts- und Erdgaswirtschaft.
[540] The political dimension of the conflict is further illustrated by the fact that the Member States Poland and the Czech Republic intervened on behalf of ACER (and against E-Control) in the pursuant case, *E-Control v ACER* (n 62) paras 1–11. See also Board of Appeal Decision A-001-2017 on Capacity Calculation Regions para 78.
[541] The full title is Magyar Energetikai és Közmű-szabályozási Hivatal.
[542] Note that E-Control intervened in support of ACER in this case, since the Agency's decision was in line with Austrian energy policy; see *MEKH v ACER* (n 79) paras 7–9.
[543] Jevnaker and others (n 393) 7–8; Macatangay and Roeben (n 114) 191–193; Ermacora and Tremmel (n 226).
[544] Gräper and Webster (n 21) 604–606; Cameron (n 32) 566–567; Eberlein (n 21).
[545] Art. 22(1) ACERReg-2019.

inception as a 'networked agency'[546] is very much desirable as far as the cooperative resolution of cross-border regulatory issues is concerned, but also under the principle of subsidiarity.[547] Interestingly, instead of succumbing to internal squabbles among the constituent NRAs, ACER has developed its own voice, frequently pushing for centralised solutions at European level.[548] Nevertheless, the NRAs have proven resolute to cut back on any attempts by the Agency to pass them over, and defend their own regulatory autonomy and discretion by regularly submitting ACER's decisions to legal control before the European Courts.[549]

4.4.2. Complementary Safeguards against Regulatory Capture

The Network Code Strategy endeavours to manage the conflicts discussed in the previous subsection and the resulting hazard of regulatory capture using a combination of formal and informal safeguards. These safeguards are complementary; whereas they appear inadequate on their own, together, these safeguards are effective at ensuring that no actor can exert excessive control over the Network Code Strategy. This subsection reviews reasons for the isolated inefficiency and the combined efficiency of these safeguards. The discussion is restricted to two safeguards, ie the submission of drafts to (1) a hierarchical chain of scrutiny and (2) negotiation in networks. Other safeguards, such as the submission of drafts to stakeholder consultations, are not addressed here since they impact the power balance between drafters and regulators only indirectly.

First, the Network Code Strategy aims to resolve conflicts of interest by providing a formal chain of scrutiny. The regulators may revise the drafters' proposals and thus retain the last say on the outcome of the rule-making process under the Network Code Strategy.[550] However, hierarchy alone has proved insufficient to resolve many of these conflicts because of asymmetry of knowledge and resources between regulators and drafters.[551] Eckert and Eberlein consider the formal role the drafters play in the Network Code Strategy as '*a lateral displacement of authority, from public to private actors*'.[552] Where the regulators consider the submitted drafts deficient and lack the expertise or resources to revise these drafts themselves, they need to request amendments from the drafters—which the drafters have simply ignored on occasion.[553] Hierarchy alone thus does not give the regulators full control over rule-making under the Network Code Strategy.

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[546] For example, Levi-Faur (n 221) 825–826 and Lavrijssen and Hancher (n 215) 24 consider ACER a 'network(ed) agency' that has replaced a previous European regulatory network.
[547] Art. 5(3) TEU; see also European Commission, Proposal for the ACERReg-2019 9–11 and 16–17.
[548] For examples, see *APG and Others v ACER (aFRR)* (n 142); ACER, 'CACM and FCA Implementation Report' (n 189) para 58.
[549] See the proceedings listed in n 237 above.
[550] For network codes and guidelines, see Art. 59(11)-(14), 61 ElReg-2019 and 5(1)(c) ACERReg-2019. For methodologies, see Art. 5(6) ACERReg-2019.
[551] This is an established problem when decision-making is delegated for reasons of lacking expertise; for a discussion of the Commission's discretion in the context of the comitology procedure, see Giandomenico Majone, 'The European Commission as Regulator' in Giandomenico Majone (ed), *Regulating Europe* (Routledge 1996) 72–74.
[552] Eckert and Eberlein (n 65) 60–61.
[553] For an example, see *BNetzA v ACER* (n 77) para 9. While outside the scope of this dissertation, it would be worthwhile to assess empirically to what extent the drafter's proposals are modified during scrutiny.

Therefore, as a second safeguard, the Network Code Strategy submits all drafts to several stages of negotiation in networks before their adoption.[554] This has prompted Kohlbacher and Lavrijssen to describe the Network Code Strategy as a '*network of networks*'.[555] These negotiations start when the drafters prepare their proposals. Both for network codes or guidelines,[556] as well as methodologies,[557] the drafters must carve out a compromise based on qualified majority voting. At this stage, the negotiations act as a first filter for particular interests before the regulators are even concerned with the respective proposal. At the same time, hierarchy—ie the knowledge that their proposal will be submitted to regulatory scrutiny—provides the pressure to facilitate agreement on a solution that is in line with EU law. For the drafters, it is arguably preferable to agree to a compromise than to let the regulators devise a solution on their own terms. Still, in practice, conflicts sometimes stall the negotiations among the drafters, forcing the regulators to deal with deficient drafts.[558]

Regulatory scrutiny also takes place in networks and under the weight of hierarchy.[559] ACER adopts its decisions in its Board of Regulators with a two-thirds majority of the NRAs' and Commission's representatives. Thus, also decisions by ACER are the product of negotiation and coordinated compromise-building among NRAs, which provides an opportunity to balance out national political influences or particular interests that the NRAs may be exposed to.[560] At the same time, ACER's decisions are subject to hierarchy insofar as they are subject to several stages of review—first, before the Agency's BoA and second, before the European Courts.[561] By contrast, regional methodologies fall into the competence of ad hoc networks composed of the NRAs of the respective

[554] Hancher and Rumpf (n 228), as well as Fink and others (n 34) 314–316 point out that these negotiations do take place in the shadow of hierarchy, in particular due to ACER's expansive interpretation of its own competences. It is debatable whether it is justified to qualify the Network Code Strategy as 'bottom-up', cf *APG and Others v ACER (aFRR)* (n 142) para 33.

[555] Kohlbacher and Lavrijssen (n 65) 42.

[556] The drafting of a network code or guideline takes place within a drafting committee convened by ENTSO-E, which must '*consist of representatives of ACER, the ENTSO for Electricity, where appropriate the EU DSO entity and NEMOs, and a limited number of the main affected stakeholders*', Art. 59(10) ElReg-2019. The corresponding procedure under the Third Energy Package did not include a drafting committee, but tasked ENTSO-E with drafting the network codes. This is irrelevant for this discussion, as ENTSO-E is also a network.

[557] Art. 9(1)-(3) CACM-GL.

[558] For examples, see *APG and Others v ACER (aFRR)* (n 142); *BNetzA v ACER* (n 77); ACER, 'Implementation Monitoring Report of the System Operation Guideline' (n 422); ACER, 'CACM and FCA Implementation Report' (n 189).

[559] See Hancher and Rumpf (n 228), who speak of a '*shadow of hierarchy*'; Fink and others (n 34) 323 reach the same conclusion; similarly, Vlachou (n 65) 276–279; Lavrijssen and Hancher (n 215).

[560] Art. 22(1) ACERReg-2019. See also *APG and Others v ACER (aFRR)* (n 142) paras 52–53. See also Tangerås (n 220) 1654; Martino Maggetti, 'De Facto Independence after Delegation: A Fuzzy-Set Analysis' (2007) 1 Regulation & Governance 271, 274–275.

[561] Art. 28, 29 ACERReg-2019. See s 2.2.5 above for an introduction to the BoA and Hancher and Rumpf (n 228) for an encompassing discussion. Both drafters and NRAs readily use this option, see Cases C-282/23 P and C-281/23 P *Polskie sieci elektroenergetyczne and Others v ACER*; Cases T-484/21 and T-483/21 *Polskie sieci elektroenergetyczne v ACER*; Case T-482/21 *TenneT TSO and TenneT TSO v ACER*; Case T-476/21 *TransnetBW v ACER*; Case T-472/21 *RTE v ACER*; Case T-607/20 *Austrian Power Grid and Others v ACER* [2023] ECLI:EU:T:2023:65; *APG and Others v ACER (aFRR)* (n 142); Case T-333/17 *Austrian Power Grid and Vorarlberger Übertragungsnetz v ACER* [2019] ECLI:EU:T:2019:760 and the proceedings referenced in n 237 above.

region, which have to decide unanimously.[562] Where opposing national interests impede agreement, the decision passes to ACER.[563] Again, this formal element of hierarchy provides the regional NRAs with an incentive to find a compromise, since it is presumably better to agree on a compromise than to lose competence to ACER. As the GC recently ruled, once a decision is referred to ACER, the Agency is not bound by previous agreements among the NRAs.[564]

Yet what happens if the NRAs of a region agree on a compromise that is in breach of EU electricity regulation? Against the unanimity requirement, this appears as an unlikely scenario. Nevertheless, the NRAs are exposed to the political pressure of their home state. This gives the Member States an (informal and invisible) seat at the negotiation table, resulting in a danger that even NRAs may prioritise particular interests over EU rules in exceptional circumstances. To discuss this issue in context, the next subsection discusses the CCM for the Hansa CCR as a case study for such collusive behaviour.

4.4.3. Case study 3: Collusive Regional Methodologies—the Hansa Capacity Calculation Methodology

As the previous subsection has shown, hierarchy and negotiation work together to avoid a capture of the regulatory processes under the Network Code Strategy for the most part. However, the Capacity Calculation Methodology (CCM) for the Hansa capacity calculation region (CCR) provides a precedent where NRAs agreed on a regional methodology that violated superior EU law.[565] It is worth recalling that as a matter of principle, regional methodologies are adopted as decisions under national law by the NRAs in each of the concerned Member States. This makes external control of regional methodologies formally difficult and politically awkward, so that regional methodologies constitute the Achilles heel in the complementary safeguards built into the Network Code Strategy. This shortcoming should be taken seriously, since regional methodologies are important building blocks for the IEM. This applies especially to CCMs, which determine the available interconnector capacity.[566]

The CCM for the Hansa CCR is noteworthy for several reasons. As Figure 6 below shows, the Hansa CCR encompasses the interconnectors between the Netherlands, Germany, Poland, and several bidding zones in southern Scandinavia.[567] It is situated between the Core and Nordic CCRs, the first CCRs to use flow-based capacity calculation.[568] The Core and Nordic CCRs are strategically important for the creation of the IEM; while the Nordic market enjoys a reputation of exceptionally good regional integration, the Core region encompasses several large electricity markets in central Europe, inter alia France and Germany. The interconnectors of the Hansa CCR

[562] Art. 5(3) ACERReg-2019, Art. 9(7) CACM-GL. Art. 9(10) CACM-GL obliges the NRAs of the concerned region to '*consult and closely cooperate and coordinate with each other in order to reach an agreement*'.
[563] Art. 6(10) ACERReg-2019, Art. 9(11) CACM-GL. For an example, see *E-Control v ACER* (n 62).
[564] *BNetzA v ACER* (n 77) para 61.
[565] The Hansa CCM is available at https://extranet.acer.europa.eu/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/16%20CCM/Approved/Action%2016a%20-%20CCM%20Hansa%20DA+ID%20approved%20TCM.pdf (accessed 13 October 2023).
[566] See s 4.2.3 above for details.
[567] See also Art. 4 of ACER Decision 08/2023 on the Amendment to the Determination of Capacity Calculation Regions.
[568] Cf above, at s 4.2.3.

(the red lines in Figure 6) hence constitute vital bridges between the vibrant electricity markets in Northern and Central Europe.

Figure 6: The Hansa Cacpacity Calculation Region (CCR)[569]

Among the Hansa interconnectors, the Kriegers Flak 'combined grid solution' stands out. Kriegers Flak is unique because it not only serves as an electricity interconnector between Denmark and Germany, but also as a connection for offshore wind farms in the Baltic Sea.[570] The Electricity Regulation denotes such constellations as 'offshore hybrid assets'.[571] Many stakeholders, including the Commission, regard hybrid assets as a key element for integrating, in a cost-effective way, the immense offshore electricity production capacities required to attain the EU's decarbonisation aims,

[569] The map is taken from the Appendix to Annex I to ACER Decision 08/2023 on the Amendment to the Determination of Capacity Calculation Regions.
[570] The structure and rationale of Kriegers Flak is described in Commission Decision (EU) 2020/2123 of 11 November 2020 Granting the Federal Republic of Germany and the Kingdom of Denmark a Derogation of the Kriegers Flak Combined Grid Solution Pursuant to Article 64 of Regulation (EU) 2019/943 of the European Parliament and of the Council [2020] OJ L426/35 paras 3–8; Kriegers Flak remains one of its kind, cf Elia Group, 'Harvesting Europe's Full Offshore Wind Potential: Elia Group's White Paper on Promoting Hybrid Offshore Interconnectors' 7. For additional background information, see https://www.50hertz.com/en/Grid/Griddevelopement/Concludedprojects/CombinedGridSolution (accessed 13 October 2023).
[571] Cf recital (66) ElReg-2019.

while also providing much-needed interconnection for the IEM and the Energy Union.[572] Hybrid assets are thus regarded as an interconnector model of the future.[573]

However, the dual purpose of Kriegers Flak created a regulatory dilemma, since the limited cross-border capacity on Kriegers Flak had to be divided between cross-border flows and the electric energy produced by the connected offshore wind farms. Under the Third Energy Package, the offshore wind farms enjoyed priority grid access and priority dispatch, whereas the maximum capacity principle generally impeded reducing cross-border transfers.[574] There was no clear indication in the legislation on how to resolve this conflict. The literature at the time mostly considered that the maximum capacity principle took precedence over the priority rights of the offshore wind farms, as Paper 2 points out.[575] Nevertheless, the NRAs of the Hansa CCR decided to go against the current and adopted a CCM that only made a 'residual capacity' available for cross-border trade on Kriegers Flak, reduced by the amount of electricity produced by the wind farms.[576] At least since the Clean Energy Package, this solution in the Hansa CCM evidently violates the Electricity Regulation, which states in Article 12(7) that '*[p]riority dispatch shall not […] be used as a justification for curtailment of cross-zonal capacities […]*'.[577] However, the Hansa NRAs did nothing to rectify the situation; instead, Denmark requested and obtained a derogation pursuant to Article 64(1) of the Electricity Regulation from the Commission that exempted Kriegers Flak from the 70 per cent rule, legalising the solution in the Hansa CCM *ex post*.[578]

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[572] European Commission, 'An EU Strategy to Harness the Potential of Offshore Renewable Energy for a Climate Neutral Future' (n 351) 11–14; European Commission, 'A Future-Proof Market Design for Offshore Renewable Hybrid Projects' (n 427) 1; European Commission, 'Market Arrangements for Offshore Hybrid Projects in the North Sea' (2020) 8; European Commission, 'Hybrid Projects: How to Reduce Costs and Space of Offshore Developments' (2018) 8; Elia Group (n 569) 14.

[573] See Sunila and others (n 339) 780. Several TSOs in the EU are currently considering the construction of hybrid projects; for examples, see https://www.amprion.net/Press/Press-Detail-Page_51648.html and https://www.tennet.eu/news/tennet-and-national-grid-collaborate-proposed-first-kind-anglo-dutch-electricity-link (both accessed X). Further projects are discussed in European Commission, 'Hybrid Projects: How to Reduce Costs and Space of Offshore Developments' (n 571).

[574] Art. 16(2) of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy From Renewable Sources [2009] OJ L140/16 (RESDir-2009), Art. 16(3) ElReg-2009.

[575] König, 'Congestion Management and the Challenge of an Integrated Offshore Infrastructure in the North Sea' (n 179) 183; Müller (n 102) 294–299; Franz-Jürgen Säcker, Lydia Scholz and Carsten König, *Der regulierungsrechtliche Rahmen für ein Offshore-Stromnetz in der Nordsee: rechtliche Hemmnisse und Vorschläge für deren Überwindung* (2014) 96. See also European Commission, 'Market Arrangements for Offshore Hybrid Projects in the North Sea' (n 571) 14.

[576] Art. 4(3), 11(1)(c) of the Hansa CCM. See also Commission Decision (EU) 2020/2123 on the Derogation for Kriegers Flak para 13.

[577] It should be noted that Art. 12(7) ElReg-2019 establishes a general principle that applies to all generation installations benefitting from priority dispatch. The prohibition to use priority dispatch as a justification for interconnector curtailments thus also applies to old generation installation eligible for 'grandfathering' pursuant to Art. 12(6) ElReg-2019, ie the offshore wind farms connected to Kriegers Flak.

[578] Commission Decision (EU) 2020/2123 on the Derogation for Kriegers Flak. The issue is discussed by CT Nieuwenhout, 'Dividing the Sea into Small Bidding Zones? The Legal Challenges of Connecting Offshore Wind Farms to Multiple Countries' (2022) 40 Journal of Energy & Natural Resources Law 315, 324–325. One could argue that the derogation has not, in fact, legalised the breach inherent in the Hansa CCM, since it only exempts Kriegers Flak from the 70 per cent rule, but not from the obligation to maximise the capacity on an interconnector for cross-border trade. The question whether a derogation from the 70 per cent rule implies a derogation from the maximum capacity principle remains unexplored in legal literature and constitutes an interesting avenue for future research, as does the more general question on the precise relationship between both stipulations.

There are certainly good reasons for the 'collusion' of the Hansa NRAs. Kriegers Flak was an innovative project without precedent, and EU interconnector regulation put (and still puts) hybrid assets at a disadvantage.[579] The rules on congestion management stood in the way of a politically desired investment that might not have taken place without bending the rules.[580] From a commercial viewpoint, the solution in the Hansa CCM is sensible.[581] From a legal perspective, however, the breach of the maximum capacity principle cannot be ignored. This raises concerns that NRAs may disregard EU energy law also in other instances, possibly for domestic political motives. The European courts share these concerns. In two recent cases—*Austrian Power Grid and Others v ACER* and *BNetzA v ACER*—the GC reasoned that when deciding on a referred regional methodology, ACER must be able to overrule the originally competent NRAs' position if the Agency considers this position in breach of EU law.[582]

The collusion of the Hansa NRAs was possible because at the time the Hansa CCM was adopted, ACER was only competent to decide on regional methodologies if the competent NRAs failed to reach an agreement, or upon their explicit request.[583] In the case of the Hansa CCM, the NRAs did agree—however disregarding superior EU law. In the meantime, the Clean Energy Package has given ACER the additional power to intervene in the adoption of regional methodologies *ex officio*. The new Article 5(3) of the ACER Regulation stipulates:

> '*The Director or the Board of Regulators, acting on its own initiative or on a proposal from one or more of its members, may require the regulatory authorities of the region concerned to refer the proposal to ACER for approval. Such a request shall be limited to cases in which the regionally agreed proposal would have a tangible impact on the internal energy market or on security of supply beyond the region.*'

In principle, this gives ACER far-reaching powers of intervention, since most regional methodologies have the required interregional impact. However, replacing the originally competent NRAs is almost certain to lead to a political backlash for the Agency. When the Agency overrides the views of an NRA, these frequently react by opening legal proceedings against the ACER's decision before the European Courts.[584] Therefore, the proviso just cited seems as a politically difficult option for the Agency, and it remains to be seen whether ACER will make use of it; so far, this has not been the case.

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[579] For discussions of the challenges that hybrid assets face under EU electricity regulation, see Nieuwenhout (n 578); Elia Group (n 569) 15; Commission Decision (EU) 2020/2123 on the Derogation for Kriegers Flak paras 39–40; European Commission, 'Market Arrangements for Offshore Hybrid Projects in the North Sea' (n 571) s 2; Ronán Long, 'Harnessing Offshore Wind Energy: Legal Challenges and Policy Conundrums in the European Union', *Energy from the Sea* (Brill 2015).

[580] Nieuwenhout (n 102) 84; Säcker, Scholz and König (n 575) 99–100.

[581] Nieuwenhout (n 578) 325.

[582] *APG and Others v ACER (aFRR)* (n 142) para 50; *BNetzA v ACER* (n 77) para 50.

[583] Art. 8(1) ACERReg-2009. Today, Art. 6(10) ACERReg-2019.

[584] See the proceedings enumerated in n 237. It should be recalled that for procedural reasons, legal control by the European courts requires a previous appeal to ACER's BoA. The BoA's decision can then be appealed further to the GC pursuant to Art. 28-29 ACERReg-2019.

This places ACER in a quandary, since it is the only way for the Agency to avoid the adoption of an illegal regional methodology. Once adopted, ACER cannot challenge regional methodologies legally. Paper 5 finds that legal control of regional methodologies, which takes place at Member State level, suffers from issues of legal standing and a lack of coordination among the competent national courts. The Agency's mandate is restricted to monitoring the implementation of the concerned methodology, whereas enforcement is in the hands of the NRAs, as Paper 4 emphasises.[585] The guidelines do not clarify whether ACER can request the drafters to amend an illegal regional methodology adopted by the competent NRAs.[586] Yet even if that were the case, the same NRAs that adopted the illegal methodology would in any case retain the competence to decide on the amended proposal. Ultimately, if national interests encumber the implementation of European energy policy aims, the only thing that ACER can do is flag this in its reports.[587]

Once adopted, illegal regional methodologies are potentially long-lived, as the remaining options of legal review are politically awkward and thus seldom used. The Commission could initiate infringement proceedings under Article 258 TFEU, but often refrains from doing so where the outcome of the proceeding seems less than certain due to the potential political backlash.

4.5. Interim Conclusion: An Intricate Framework for Revealing Points of Contention

EU interconnector regulation has undergone a thorough transformation under the Network Code in the matter of little more than a decade. The Network Code Strategy greatly increases the complexity of EU electricity regulation, resulting in new challenges. This especially concerns the utilisation of interconnectors. Whereas this topic was addressed through wide, general principles up to the Third Energy Package, today we find a comprehensive framework that implements a sophisticated market coupling mechanism. Still, the harmonisation of capacity calculation is lagging behind, which possibly contributes to the persistent underutilisation of existing electricity interconnectors. Moreover, private actors retain a significant amount of discretion, and the overall degree of harmonisation achieved thus far may be more modest than intended.[588] Likewise, electricity interconnector investment is currently hardly covered by the Network Code Strategy and will likely remain off limits in the foreseeable future. Whereas the implementation of the Network Code Strategy thus proceeds at a slower pace and smaller scale than planned, the underlying processes appear to be effective at ensuring that the harmonisation occurs according to EU energy law and policy—as opposed to particular interests—for the most part. However, a gap remains concerning external control of regional methodologies.

[585] Cf Art. 5(1)(e) ACERReg-2019 and Art. 59(1)(b) ElDir-2019.
[586] The wording of Art. 9(13) CACM-GL suggests that only the originally competent NRAs may request amendments to adopted methodologies.
[587] ACER, '2023 70 Per Cent Report' (n 12); ACER, 'Implementation Monitoring Report of the System Operation Guideline' (n 422); ACER and CEER, 'Electricity Wholesale Markets Monitoring Report 2019' (n 140). For examples, see ACER, 'CACM and FCA Implementation Report' (n 189).
[588] Zeitlin and Rangoni (n 425) 129; Fink and others (n 34) 325.

Therefore, when seen in context, the Network Code Strategy is no fast lane to ensuring sufficient interconnection for the Energy Union. The case studies used in this chapter exemplify how technical complexity and conflicting interests delay the implementation of the Network Code Strategy.[589] While this may seem unsatisfactory, it should be kept in mind that the Network Code Strategy was devised to ensure access to expert knowledge and resources that the EU institutions do not possess themselves. The emergence of dissent during implementation may also provide the regulators with a clearer understanding of where the technical problems and lines of conflict within EU electricity regulation lie. Therefore, in contrast to the Papers, this Enveloping Discussion does not regard the emergence of conflicts in the context of implementing the Network Code Strategy only as a legal problem, but also considers them as an important source of information for developing EU electricity regulation further. In the past, the Commission relied on sector inquiries to identify market failures and areas that required further regulatory intervention. In the future, the issues arising in the context of implementing the Network Code Strategy may serve a similar function. Converting 'unknown unknowns' into 'known unknowns' would be an important contribution of the Network Code Strategy to EU electricity regulation, even if the implementation does not always result in the adoption of the envisaged rules within the envisaged time-frame.

At the same time, the EU institutions appear to regard a stronger centralisation of EU electricity regulation as a silver bullet for overcoming remaining conflicts, and funnel more and more decisions towards ACER '*to streamline the procedures for the regulatory approval*'.[590] The planned revision of the CACM Guideline under the moniker 'CACM 2.0'[591] and the Commission's recent proposal on the revision of the electricity market design continue this trend and envision an even stronger Agency as the hub of a more centralised electricity governance system. From a legal point of view, this is not unproblematic.[592] The findings of this discussion thus indicate several interesting subjects for future research. For one, at which point will ACER's competences cease to be in line with the *Meroni* doctrine? Moreover, do rules adopted by ACER instead of NRAs enjoy the same level of acceptance—particularly in the face of the numerous appeals against ACER-adopted methodologies? Furthermore, is it desirable to place the adoption of methodologies in the hands of a centralised Agency when the guidelines clearly aim for regionalisation? And ultimately, how long can ACER handle the ever-increasing workload that comes as a result?

[589] Trude Myklebust, 'Fair, Orderly and Sustainable Financial Markets? Exploring Regulatory Challenges Arising in a Complex, Interconnected and Evolving Financial System amidst Increased Societal Expectations.' (University of Oslo 2022) 87 points to similar issues in the field of financial regulation, which also involves private actors in the development of delegated legislation.
[590] Recital (20) ACERReg-2019.
[591] For more information, visit ACER's website 'ACER Consults on Reasoned Amendments to the Capacity Allocation and Congestion Management Regulation' at https://documents.acer.europa.eu/Media/News/Pages/ACER-consults-on-reasoned-amendments-to-the-Capacity-Allocation-and-Congestion-Management-Regulation-(CACM-2-0).aspx> (accessed 13 October 2023).
[592] In the same vein, Ștefan and Petri (n 228) 529–530.

5. Conclusion: the Network Code Strategy as a 'Complexifier' of EU Electricity Regulation

The aim of this dissertation has been to gain a better understanding of how EU law seeks to ensure sufficient electricity interconnection for achieving its energy policy aims under the Energy Union. It is motivated by a puzzling question: '*Why is the progress so slow, despite the seemingly obvious benefits of interconnectors?*'[593] This thesis has approached this puzzle through a main research question, viz *how does the EU use legislation to increase the level of electricity interconnection?* This broader research question was divided into three subquestions, which have been discussed in the Papers as well as this Enveloping Discussion. These subquestions are (1) *how does EU law pursue to optimise the utilisation of existing interconnectors?*; (2) *how does EU law promote investment in new interconnectors?*; and (3) *how does EU law manage technical complexity and conflicting interests as inherent challenges in electricity regulation?*[594] The individual findings of the Papers are discussed in chapter 3. Fusing these findings, chapter 4 has discussed the encompassing and sophisticated regulatory strategy that the EU follows in the electricity sector at present. This chapter concludes the Enveloping Discussion with reflections on the contribution of this dissertation to the research field (section 5.1), as well as the resulting implications for policy, practice, theory and research (sections 5.2 to 5.3). This chapter closes with reflections on the current state of EU electricity interconnector regulation under the Network Code Strategy (section 5.4).

5.1. Contributions and Findings

This thesis provides us with a better understanding of EU legislation on electricity interconnectors, as well as legal issues and other factors that contribute to insufficient interconnection. Especially the in-depth study of the guidelines and methodologies adds a novel perspective to EU legal research that is lacking even in dedicated legal studies on EU electricity regulation.[595] From a methodological perspective, the identification and discussion of the Network Code Strategy offers a framework that allows for an encompassing (as opposed to fragmented) discussion of the current regulatory approach of EU electricity regulation and related legal issues.

Four of the insights gained through this thesis are particularly noteworthy. First, the Network Code Strategy transcribes the technical intricacy of electricity interconnector regulation into equally technical and intricate EU rules. Second, the resulting complex new legal framework nevertheless does not address all key issues related to EU regulation of electricity interconnectors, and frequently remains ambiguous at the core. With regard to interconnector utilisation, the Network Code Strategy has achieved harmonisation, however at a smaller scope and at a slower speed than intended. This

[593] Quoted from Puka and Szulecki (n 33) 126.
[594] For details on the research questions and the scope of the thesis, see above, at s 1.3 and 1.4.3.
[595] Most exceptions stem from the 'Implementing Network Codes' research project at the Fridtjof Nansen Institute, see Torbjørg Jevnaker, Leigh Hancher and Karianne Krohn Taranger, 'The Evolving Role of Acer—Emergence, Practice and Review of Terms, Conditions and Methodologies (TCMs)' (Fridtjof Nansen Institute 2022) available at https://www.fni.no/publications/the-evolving-role-of-acer-emergence-practice-and-review-of-terms-conditions-and-methodologies-tcms (accessed 13 October 2023); Jevnaker and others (n 393); Ruffing, Schwensen Lindgren and Jevnaker (n 56). For further exceptions, see Sophia Alexis Dyrby, 'Den rettslige statusen til vedtak om metoder og vilkår («TCM»)' (Universitet i Oslo 2021); Kühnert, Böhler and Polster (n 17).

is not the case for interconnector investment, which occurs at the initiative and discretion of national actors, with only some coordination provided through non-binding EU instruments.

Third, due to the way it responds to technical complexity and conflicting interests, the Network Code Strategy displaces these inherent challenges instead of resolving them. While new EU rules on electricity interconnector mirror the technical complexity of the sector almost unmitigated, underlying conflicts are displaced unto the implementation level, where they cause delays. Technical considerations—such as the reliability of the networks or the efficiency of the electricity market—figure prominently in the network codes, guidelines and methodologies, and serve as important normative objectives in the regulation of electricity interconnectors. As far as can be seen, despite an overall denser regulatory framework, this focus on technical topics maintains and may even extend the margin of discretion of technical experts, such as the TSOs. Far from being 'self-enforcing', the development, implementation and enforcement of this new and complex sectoral framework therefore requires even more regulatory oversight and control.

Fourth, the Network Code Strategy adds additional—and genuinely new—layers of complexity to EU electricity regulation and thus acts as a 'complexifier'.[596] EU electricity regulation is currently one of the legally, structurally and semantically most complex areas of EU regulation. The widely recognised, innate complexity of the sector alone does not explain this observation. It is not only the fact that EU legislation on electricity interconnectors routinely uses complex technical language and concepts; also the number of rules under the network codes, guidelines and methodologies is overwhelming, as is the intricate and dispersed multi-level regulatory landscape that these rules create. What is more, this thesis observes a 'backflow' effect, and since the inception of the Network Code Strategy, each Package has been vastly more complex than its predecessors. The Commission's 2023 proposals to reform EU electricity regulation continue this trend.[597] The jump in complexity resulting from the Network Code Strategy constitutes a new challenge of its own.

These findings are all the more remarkable because the legislative sprawl under the Network Code Strategy has not resolved the puzzle that has motivated this dissertation. As far as can be seen, the level of electricity interconnection in the EU is still inadequate for reaching the ambitious goals of the Energy Union, and will remain to be lacking in the foreseeable future—based on the 70 per cent rule as a benchmark.[598] This raises questions with important implications for policy, practice and theory, as well as further research, which are addressed in the following sections of this chapter.

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[596] In an attempt to examine the complexity of policy issues, Blom-Hansen developed three indicators, viz the existence of preparatory documents, involving experts in the drafting and the use of highly detailed annexes; see Jens Blom-Hansen, *The EU Comitology System in Theory and Practice: Keeping an Eye on the Commission?* (Palgrave Macmillan 2011) 128–131. The Network Code Strategy ticks all of these boxes: ACER's framework guidelines prepare the development of network codes or guidelines; technical experts are not only involved in, but responsible for drafting legislation; and the high level of detail of the network codes, guidelines and methodologies speaks for itself. I am grateful to my colleague Trude Myklebust for introducing me to this term, cf her presentation 'When Law Is the Complexifier' (Seminar in Honour of Inger Johanne Sand, Oslo, 25 May 2023).

[597] Inter alia, the Commission proposes to amend the ElReg-2019 by introducing 'virtual trading hubs' for the forward market that develop the single allocation platform created according to the FCA Guideline further; see Art. 1(6) of European Commission, Proposal for a Regulation to Improve the Union's Electricity Market Design.

[598] Cf ACER, '2023 70 Per Cent Report' (n 12) in particular 5-6.

5.2. Implications of the Findings

The implications of the aforementioned legal findings materialise in different ways for the different stakeholders in the European electricity system, ie (1) the regulators; (2) market participants, such as customers; (3) policymakers and legislators; (4) the Member States; and (5) the legal community, including academics, lawyers and judges.

First, for regulators, the sprawling legislation and the convoluted institutional landscape under the Network Code Strategy pose, in the words of ACER, '*a tremendous challenge […] not only for the complexity of the issues*'.[599] So far, the regulators seem to cope with their taxing mandate to ensure that the rules adopted under the Network Code Strategy are legally, technically and economically sound, and enforced in accordance with a complex normative framework.[600] However, developing and implementing the Network Code Strategy binds vast regulatory resources. Especially the implementation of the guidelines through the methodologies has substantially increased the workload of the NRAs, as well as ACER: almost three quarters of the decisions adopted by the Agency at the time of writing concern methodologies. Because these decisions concern displaced conflicts, time-consuming litigations before the European Courts are frequent, further increasing the workload for all involved actors.[601]

Second, for the vast majority of market participants, most importantly customers, the regulatory landscape for EU electricity regulation may already have become entirely incomprehensible.[602] The legal and institutional framework that sprouts under the Network Code Strategy is no longer accessible for anyone but the most dedicated experts, and possibly not even for them. While not relating to EU electricity regulation, Li et al. succinctly capture the core problem of the Network Code Strategy: '*The agglomeration of rules and regulations over time has produced a body of legal code that no single individual can fully comprehend.*'[603] An inaccessible legal framework undermines legal certainty, which is a crucial prerequisite for economic activity in the energy sector.[604] This may lead to alienation, which is troubling given that the legitimacy of EU energy policy received a heavy blow during the 2022 energy price crisis. Why should citizens and enterprises trust in or support a system that is too complex for them to understand? And, worse yet:

[599] ACER, 'Annual Activity Report for the Year 2017' (2018) 7.
[600] Art. 59(1)(b) ElDir-2019.
[601] This issue is discussed by Hancher and Rumpf (n 228).
[602] Similarly, Fink and others (n 34) 321.
[603] Quoted from William Li and others, 'Law Is Code: A Software Engineering Approach to Analyzing the United States Code' (2015) 10 Journal of Business & Technology Law 297. This challenge applies to regulators, as well.
[604] Bradbrook (n 86) 214. Similarly, but without reference to the energy sector, Brian Z Tamanaha, *Law as a Means to an End: Threat to the Rule of Law* (Cambridge University Press 2006) 129; Robert Baldwin, 'Why Rules Don't Work' (1990) 53 The Modern Law Review 321. On effective legislation in general, see Helen Xanthaki, 'An Enlightened Approach to Legislative Scrutiny: Focusing on Effectiveness' (2018) 9 European Journal of Risk Regulation 431, 434. For a contrasting view, consult Jack Stark, 'Should the Main Goal of Statutory Drafting Be Accuracy or Clarity?' (1994) 15 Statute Law Review 207. On the difficulty of defining even simple concepts unambiguously, see Peter M Tiersma, 'Some Myths about Legal Language' (2006) 2 Law, Culture and the Humanities 29, 40–44.

a system that fails to deliver on its promise to put consumers first?[605] Before the 2022 energy price crisis, electricity prices on the wholesale markets dropped constantly, yet electricity household prices kept increasing.[606] Furthermore, the introduction of new actors with new roles and tasks upsets the flow of information as well as the power balance between the existing actors.

Third, for policymakers, this dissertation therefore sounds a note of caution. Judging from the findings of this thesis, the Network Code Strategy has a paradoxical effect: the more aspects of EU electricity regulation it harmonises, the more new aspects requiring harmonisation it creates. In addition, the technical complexity of the electricity sector will increase further due to technological advances and a higher share of RES.[607] Under the Network Code Strategy, EU legislation for electricity can be expected to absorb this increased complexity in the form of new network codes, guidelines and methodologies.[608] ACER has recently stated that already now, the regulatory cycle of EU electricity regulation is too slow to meet the contemporary technical needs and changes.[609] This raises the question whether the Network Code Strategy constitutes a sensible and viable approach to EU electricity regulation in the long run. In particular, policymakers should not extend the model of the Network Code Strategy to other areas of sectoral EU regulation without critical evaluation.[610]

Fourth, for the Member States, the Network Code Strategy provides new areas of contestation.[611] The combination of complexity, vagueness and political awkwardness provides for a virtually interminable source of conflicts. In this context, the recent recognition of the principle of energy solidarity as an enforceable right and obligation by the ECJ is highly interesting.[612] The ECJ

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[605] Cf the speech titled '*A New Deal for Europe's Energy Consumers*' of 12 December 2015 by Commissioner Miguel Arias Cañete at the Citizens Energy Forum, London, available at https://ec.europa.eu/commission/presscorner/detail/de/SPEECH_15_4596 (accessed 13 October 2023).

[606] While electricity wholesale prices decreased by 6.4 per cent between 2010 and 2017, household prices effectively increased by 19.3 per cent in the same timeframe, see European Commission, 'Fourth Report on the State of the Energy Union' (n 141) 7. For a discussion of the development of retail electricity prices in Europe, see Ernesto Cassetta, Consuelo R Nava and Maria Grazia Zoia, 'EU Electricity Market Integration and Cross-Country Convergence in Residential and Industrial End-User Prices' (2022) 165 Energy Policy 112934; European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Energy Prices and Costs in Europe' (2020) COM(2020) 951 final 3–4.

[607] Boqiang Lin and Chenchen Huang, 'How Will Promoting the Digital Economy Affect Electricity Intensity?' (2023) 173 Energy Policy 113341; Billimoria, Mancarella and Poudineh (n 269) 2–3; Penelope Crossley, 'How Will Energy Market Regulation Have to Change in the Era of Energy 4.0?' in Peter D Cameron, Xiaoyi Mu and Volker Röben (eds), *The Global Energy Transition: Law, Policy, and Economics for Energy in the 21st Century* (Hart Publishing, an imprint of Bloomsbury Publishing 2020); Vinois (n 26) 32–33.

[608] Sunila (n 102) 46; Vogel (n 4) 34–35. For an example, consult ACER's draft for public consultation of new Framework Guidelines for Demand Response, available together with more background information at https://extranet.acer.europa.eu/Official_documents/Public_consultations/Pages/PC_2022_E_05.aspx (accessed 13 October 2023).

[609] The statement can be found in ACER and CEER, 'Reaction to the European Commission's Public Consultation on Electricity Market Design' (n 331) 34. On the Council of European Energy Regulators (CEER), see n 223 above. A similar argument is made by Crossley (n 607) 150–151.

[610] Art. 69(1) of the Electricity Regulation may provide an opportunity to get rid of some of the complexity generated under the Network Code Strategy. By 1 July 2025, this 'decluttering clause' orders the Commission to review the existing network codes and guidelines to decide which of them can be '*appropriately incorporated into legislative acts of the Union concerning the internal electricity market*'—possibly with a lower degree of detail and complexity.

[611] Similarly with regard to the Energy Union: Bocquillon and Maltby (n 34) 52–53.

[612] See Case C-848/19 P *Germany v Poland* [2021] ECLI:EU:C:2021:598. The decision, as well as the preceding decision by the GC, raised considerable attention in the scientific community, see Münchmeyer (n 35); Mykola Iakovenko, '*Case C-848/19 P: Germany v Poland* and Its Outcomes for EU Energy Sector: An Extended Case Note on

understands this principle as a mutual obligation not only between the EU and its Member States (vertical solidarity), but also among the Member States (horizontal solidarity).[613] For example, a Member State could proceed on the basis of Article 263 TFEU against the Commission for adopting a network code or guideline that violates their interests and thus the principle of energy solidarity, or on the basis of Article 259 TFEU against a neighbouring Member State for adopting a regional methodology in breach of the principle of energy solidarity.[614] However, the recognition of the principle as legally enforceable is still recent at the time of writing, so that it remains to be seen if and how the principle is mobilised in the context of the Network Code Strategy. At any rate, the impact of the energy solidarity principle on EU electricity regulation constitutes a promising area for future research.

Fifth and finally, legal academics and professionals will struggle with the complex language of the network codes, guidelines and methodologies. The Network Code Strategy aims to create harmonised, legally binding rules.[615] Yet what is the point in making legally binding rules if the language they use is adapted to engineers rather than the legal community? Legislation cannot be effective unless its entire target audience can understand it.[616] This is a grave problem that encumbers legal control.[617] The target audience of the network codes, guidelines and methodologies includes the judicative, which must be able to issue authoritative statements on the interpretation of these acts.[618] A more technical language increases the risk of misinterpreting the legal texts or applying the legal wording in a way that does not conform to the technical requirements of electricity network operation—especially since judicial review of methodologies is restricted to a check for 'manifest errors'.[619]

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the European Court of Justice Judgment in the OPAL Case' (2022) 14 The Journal of World Energy Law & Business 436; Anatole Boute, 'The Principle of Solidarity and the Geopolitics of Energy. Poland v. Commission (OPAL Pipeline)' (2020) 57 Common Market Law Review 889.

[613] In *Germany v Poland* (n 612) para 49, the ECJ emphasised that the principle of energy solidarity also applies horizontally (ie, between the Member States). See also Münchmeyer (n 35) 927; Anne-Marie Kehoe and Leigh Hancher, 'Governance of the Energy Union' in Athir Nouicer and others, *The EU Clean Energy Package (2020 ed.)* (Publications Office of the European Union 2020) 23–24.

[614] See above, at s 2.2.2. For a similar view, refer to Münchmeyer (n 35) 928.

[615] Cf recitals (4)-(6) ElReg-2009. See also European Commission, Proposal for the ACERReg-2019 7–10 in the explanatory memorandum.

[616] Maria Mousmouti, 'Making Legislative Effectiveness an Operational Concept: Unfolding the Effectiveness Test as a Conceptual Tool for Lawmaking' (2018) 9 European Journal of Risk Regulation 445, 455; Xanthaki (n 604) 432 and 434.

[617] This problem is discussed using examples from practice by Fokke Elskamp, 'Als Juristen Met Technische Begrippen Gaan Rommelen' in Ruven Fleming and others (eds), *A Force of Energy: Essays in Energy Law in Honour of Professor Martha Roggenkamp* (University of Groningen Press 2022). Further studies that raise this point in the context of the Network Code Strategy include Fink and others (n 34) 321 and Ştefan and Petri (n 228) 549–550. Damien Geradin and Nicolas Petit, 'Judicial Review in European Union Competition Law: A Quantitative and Qualitative Assessment' [2011] TILEC Discussion Paper DP 2011-008 10 raise this issue in the general context of competition law enforcement.

[618] So far, the European Courts have resolved the litigations that have arisen in the context of the Network Code Strategy on the basis of procedural rules, however given the large amount of proceedings in this context (see the enumerations in n 237 and n 561), it is only a question of time before the ECJ or GC must decide on a technical issue.

[619] On the limited intensity of legal review with regard to technical assessments, see *ACER v Aquind* (n 73) para 57. See also Joerges and Kreuder-Sonnen (n 4) 128, who consider this a problem of judicial accountability.

5.3. Directions for Future Research

The findings of this thesis point to various routes for further research, in particular for legal scholarship concerned with EU law on electricity market integration. Among the several issues this thesis raises for this field of research, questions concerning the scope of the 70 per cent rule and its relationship to the maximum capacity principle must be addressed with urgency and will only become more acute in the future. Moreover, legal inquiry into the remaining timeframes of electricity trade besides the spot market is still lacking; due to the differences between the respective timeframes, the emerging, highly complex legal frameworks for the balancing and forward timeframes constitute valuable objects of examination. Finally, a dedicated investigation into the legal problems and limits of creating regulative norms on interconnector investment in EU law would address a pressing issue in practice, yet is missing from the body of knowledge. Similarly, the incentive measures to further interconnector investment that had to remain outside the scope of this dissertation are further important areas for future research.

In addition, the findings of this study are relevant for scholars interested in sectoral EU legislation also outside EU energy law. In particular, the research underlying this thesis could prove symbiotic with legal research on financial regulation, since the EU's regulatory approach to governing the energy and financial sectors is similar.[620] The 2022 energy price crisis has brought the couplings between the financial and energy markets to the fore,[621] including in the Commission's recent proposals for revising EU electricity legislation.[622] ACER and the European Securities and Markets Authority (ESMA), the corresponding EU agency for the financial market,[623] have established a joint 'task force' to better understand and impede market manipulation on the energy spot and derivative markets.[624] This dissertation could inform a future, broader research schedule that splices together existing studies on EU financial and energy market legislation and develops them further.

From the more general perspective of legal dogmatics, the analysis of the guidelines and methodologies in this dissertation highlights the importance of engaging with new forms of delegated legislation in EU electricity regulation. Investigating the legal nature of the methodologies and the limits to delegation under the ECJ's *Meroni* doctrine in greater depth than what has been possible in this dissertation appears particularly pressing.

Finally, the findings of this thesis that cast a spotlight on the deep delegation that takes place under the Network Code Strategy feed into streams of investigation that encompass a political science

[620] For examples of studies that analyse and compare banking and electricity, see Zeitlin and Rangoni (n 425); Eckert (n 25).
[621] Legal studies on this interface are still scarce; for an exception, see Wasenden (n 276).
[622] See Art. 1(14) in the Commission's Proposal for a Regulation to Improve the Union's Electricity Market Design.
[623] For an introduction to ESMA, see Pierre Schammo, 'The European Securities and Markets Authority: Lifting the Veil on the Allocation of Powers' (2011) 48 Common Market Law Review 1879.
[624] See ACER's press release, 'ACER and ESMA Enhance Cooperation to Strengthen Oversight of Energy and Energy Derivative Markets' (18 October 2022), available at https://www.acer.europa.eu/news-and-events/news/acer-and-esma-enhance-cooperation-strengthen-oversight-energy-and-energy-derivative-markets (accessed 13 October 2023). A similar cooperation has been launched between the Swedish surveillance authorities for the energy and financial sectors, see 'Ökat samarbete för att övervaka elmarknaden' (14 December 2022), available at https://ei.se/om-oss/nyheter/2022/2022-12-14-okat-samarbete-for-att-overvaka-elmarknaden (accessed 13 October 2023).

perspective with normative aspirations. For research on EU law that focuses on the legitimacy of the European integration project, such as the 'integration through law' agenda, the additional strain that the deep delegation under the Network Code Strategy puts on an already fragile chain of legitimacy poses pressing questions that currently remain unanswered. In this sense, the Network Code Strategy goes even further than the established modes of delegation and agencification under the 'new governance' turn.[625] Such research has, in recent years, often focused on the financial sector and EU interventions in the aftermath of the financial crisis, especially the European system of financial supervision.[626] However, the 2022 energy price crisis and the ever-more acute climate crisis constitute the crises of our time. The electricity sector is pivotal for handling these crises, making it a valuable object of study for pure as well as interdisciplinary legal and political research. The new impulses this thesis provides could revitalise the 'integration through law' debate, possibly in combination with the cross-sectoral research approach discussed in the previous paragraph.

Ultimately, these theoretical contributions and implications also illustrate the need for an interdisciplinary study of the issues addressed in this thesis. Whereas this dissertation shows that in order to be successful, EU legislation on electricity interconnectors must respond to inherent challenges of the sector—viz, technical complexity and conflicting interests—exploring these challenges from a fully informed standpoint would require a more holistic research agenda that combines and enhances the legal findings of this dissertation with an interdisciplinary perspective, including political science, economics and engineering. This dissertation lays the groundwork for such future research. A comprehensive perspective on the problematique would yield additional, important insights that could help master the pressing real-world challenge of insufficient interconnection in the European electricity sector. The scope of such research could also be widened to include other countries or regions beside the EU, which struggle with similar challenges.

5.4. Final Reflections: a Verdict on the Network Code Strategy

The purpose of this dissertation has been to gain a better understanding of how EU electricity legislation endeavours to increase the interconnection of the European electricity networks in order to reach the EU's energy policy aims under the Energy Union. This study has identified the Network Code Strategy as the EU's response at the level of legislation to the inadequacy of electricity interconnection. The fact that interconnection remains insufficient to attain the aims of the Energy Union makes it tempting to assess whether the Network Code Strategy is a success or a failure, whether the EU should abandon, reform or hold on to this strategy. However, the findings of this legal study can only provide a starting point for such an assessment, which in addition would need

[625] Christian Joerges, 'Integration Through Law and the Crisis of Law in Europe's Emergency' in Damian Chalmers, Markus Jachtenfuchs and Christian Joerges (eds), *The End of the Eurocrats' Dream* (1st edn, Cambridge University Press 2016) 307–311; Rainer Nickel, 'From Integration Through Law to Integration Through Conflict' in Daniel Augenstein (ed), *Integration Through Law Revisited: The Making of the European Polity* (Ashgate Pub 2012) 130–131.

[626] Joerges and Kreuder-Sonnen (n 4); Weiler (n 498). Volume 5 of the 'Integration through Law' series addresses integration of markets for primary energy sources, however excluding '*the electricity-generating phase of the energy process*'; moreover it predates the First Electricity Package by almost a decade, see Terence Daintith and Stephen F Williams, *The Legal Integration of Energy Markets* (de Gruyter 1987).

to consider technical, economic and political aspects. Nevertheless, this dissertation has revealed some key advantages and drawbacks of the Network Code Strategy.

On the one hand, the Network Code Strategy has removed grey areas in EU electricity regulation, which were previously governed by contracts or facultative standards and procedures agreed between private actors.[627] Whereas the Network Code Strategy initially aimed for a fuller degree of harmonisation, the guidelines and methodologies have introduced an unprecedented level of harmonisation in the regulatory framework for the utilisation of electricity interconnectors, at least at regional level. Some endeavours under the Network Code Strategy, such as market coupling, produce considerable welfare gains in this context. On the other hand, such progress comes at the price of a contested and increasingly unnavigable regulatory landscape. Ultimately, this could lead to an unmanageable level of complexity in EU electricity regulation. At the same time, the underlying problem of insufficient interconnector capacity remains unresolved. Also, the delays and discord accompanying the development of the methodologies suggest that underlying political conflicts—which the extensive use of delegated legislation presumably ought to remove from the picture—nevertheless emerge during implementation and limit the scope for further harmonisation.

Therefore, one way to look at the Network Code Strategy is to assert that it focuses too much on formalised procedures and too little on the conflicts that overburden these procedures. The designers of the Network Code Strategy may simply have underestimated the gravity of these conflicts when adopting the Third Energy Package. In hindsight, the Commission's notion that implementing the Network Code Strategy '*will take the form of a constructive and continuous dialogue between the Agency, transmission system operators and the Commission*' appears downright naïve.[628] However, another way to look at the dilemma is that the implementation of the network codes and guidelines uncovers lines of conflict, which is a necessary first step towards their resolution. Prior to the Network Code Strategy, EU electricity legislation did not engage with technical issues in detail, so that the technical complexity of EU electricity regulation concealed underlying conflicts.

Under the Network Code Strategy, these conflicts play out on a different stage. Addressing the points of contention at the implementation level and within the formalised structures of the Network Code Strategy strikes an interesting balance. On the one hand, tackling technical issues heads-on drags the underlying conflicts into the open; on the other, while the Network Code Strategy inevitably touches upon political issues, the resulting conflicts are framed as technical rather than political. The Network Code Strategy may thus facilitate the adoption of appropriate solutions that would meet opposition in a politicised forum such as the ordinary legislative procedure.[629] Be they incidental or intentional, these effects of the Network Code Strategy constitute a valuable contribution to the further development of EU electricity regulation.

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[627] This issue is discussed in detail by Lucila de Almeida, 'Integration through Self-Standing European Private Law: Insights from the Internal Point of View to Harmonization in Energy Market' (European University Institute 2017) especially 178-190.

[628] European Commission, Proposal for the ElReg-2009 11 in the explanatory memorandum.

[629] It is true that Germany—in its capacity as a Member State—is proceeding against the CCM for the Core CCR; see Case T-283/19 *Germany v ACER* (pending). This shows that the Network Code Strategy is not entirely under the political radar. However, the cited case remains the only example at the time of writing.

Future research should observe attentively whether the positive effects of the Network Code Strategy still justify the implementation effort and the costs. In the meantime, this dissertation raises numerous issues that show the urgency of engaging in a critical debate on this regulatory strategy. This debate is particularly important because the Network Code Strategy covers issues that are decisive for the continued success of the Energy Union. Moreover, the Network Code Strategy could readily be adapted for application in other sectors. The findings of this dissertation suggest that this debate should centre on a simple, yet neglected consideration: '*[m]aking legislation simpler and less burdensome also improves implementation and enforcement, and ultimately delivers better results.*'[630] Today, the Energy Union stands for electricity market integration, but also for energy independence and the EU's ambitious decarbonisation targets. These are vital concerns related to the continued security and prosperity of the EU Member States, which however will remain precarious unless sufficient interconnection is secured. Therefore, getting electricity interconnector regulation right does matter.

[630] Quotation from European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Better Regulation: Taking Stock and Sustaining Our Commitment' (2019) COM(2019) 178 final 10. In the same vein: European Commission, 'Better Regulation: Joining Forces to Make Better Laws' (n 157) 7.

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Part 2

The Papers

Paper 1

Just How Much Is Enough? EU Regulation of Capacity and Reliability Margins on Electricity Interconnectors

Julius Rumpf and Henrik Bjørnebye (2019) 37 Journal of Energy & Natural Resources Law 67-91.

https://doi.org/10.1080/02646811.2018.1471802

Paper 2

Congestion Displacement in European Electricity Transmission Systems—Finally Getting a Grip on It? Revised Safeguards in the Clean Energy Package and the European Network Codes

Julius Rumpf (2020) 38 Journal of Energy & Natural Resources Law 409-436.

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Congestion displacement in European electricity transmission systems – finally getting a grip on it? Revised safeguards in the Clean Energy Package and the European network codes

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During the last three decades, the European Union has worked on creating a pan-European internal market for electricity, aiming to establish an 'Energy Union' of unrestricted cross-border electricity trade. Under the 'Clean Energy for all Europeans Package' and the European network codes, the legal framework for the electricity sector has recently received a comprehensive update. However, electricity trade between the Member States is still severely limited due to insufficient transmission capacity on cross-border interconnectors. One reason is that network operators restrict cross-zonal capacity in order to relieve congestion inside the domestic grids, effectively pushing congestion to the border. This practice entails partial market foreclosure and is of vast practical significance, but has only received limited attention from energy law scholars. Since the borders between the Member States remain obstacles to the free trade of electricity despite political endeavours and extensive regulation of the electricity sector, one might ask whether the legal framework on congestion management in electricity networks provides sufficient incentives to relieve congestion where it occurs, that is, within the congested network. To answer this question, this study will scrutinise the pertinent provisions of EU energy law – with a particular focus on recent revisions under the Clean Energy Package and the European network codes – against the background of several case studies. The objective is to identify relevant legal, economic and political contributing factors and assess whether EU energy law addresses them adequately.

Keywords: electricity networks; transmission system operation; congestion management; internal congestion; electricity interconnectors; Energy Union; EU law; competition law; Clean Energy Package; network codes

1. Introduction

1.1. *Background*

With the adoption of the 'First Energy Package' in 1996, the liberalisation of the European energy markets began in earnest. Since then, the European Union – spearheaded by the European Commission[1] – has worked on creating a pan-European internal market for energy, adopting numerous measures to create the necessary 'hard-ware' – meaning grid infrastructure, as well as the right 'software' – meaning effective

1 In the following also referred to as 'Commission'. On the historical background, see Sirja-Leena Penttinen, 'The Treaty Freedoms in the Energy Sector – Overview and State of Play' in Ioanna Mersinia and Sirja-Leena Penttinen (eds), *Energy Transitions: Regulatory and Policy Trends* (Intersentia 2017) s 2.1.

rules on the operation of that infrastructure in a fully liberalised setting. Since 2015, the EU has intensified its efforts on the political level under the 'Energy Union' strategy.[2] Just months ago, the legal framework for the electricity sector was thoroughly revised through a fourth legislative package, dubbed the 'Clean Energy for All Europeans Package'.[3] At the same time, network operators and regulators work together on implementing novel European network codes, which aim to harmonise the operation of electricity networks and markets to foster cross-zonal trade. The centrepiece of this joint effort is the creation of methodologies that govern vital aspects of the electricity sector in minute detail.

The main characteristic of the internal energy market envisioned by the EU is unrestricted cross-border trade of electricity over so-called interconnectors.[4] This is believed to lower electricity prices, increase security of supply and help integrate renewable energy sources (RES).[5] Yet in reality, cross-zonal trade remains limited and the Energy Union therefore a work in progress. Its success depends on sufficient transmission[6] capacity, since '[e]lectricity can reach the citizens of the Union only through the network'.[7] Transmission systems, like all electricity grids, have a limited capacity and can only accommodate a certain amount of electricity at any moment. If the demand for capacity exceeds the amount that can be allocated, the concerned grid is congested. The responsibility for operating and developing the transmission system to provide sufficient capacity for electricity trade rests with the transmission system operators (TSOs).[8] The TSOs also essentially control the calculation of how much capacity can be allocated.[9]

2 For the current state, see European Commission, 'Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: Fourth Report on the State of the Energy Union' COM(2019) 175 final (9 April 2019).

3 See https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans accessed 8 December 2019. In the following cited as 'Clean Energy Package'.

4 Art 2(1) of Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity [2019] OJ L158/54 (ElReg) defines an interconnector as 'a transmission line which crosses or spans a border between Member States and which connects the national transmission systems of the Member States'. While this definition only encompasses lines traversing political borders, lines across domestic bidding zone borders are treated like interconnectors in practice under the uniform European rules for market coupling. The term is therefore used here in the technical sense to denote lines across both political and bidding zone borders.

5 Commission Expert Group on Electricity Interconnection Targets, 'Report of the Commission Expert Group on Electricity Interconnection Targets' (2017) 10–14.

6 'Transmission' is defined as 'the transport of electricity on the extra high-voltage and high-voltage interconnected system with a view to its delivery to final customers or to distributors, but [not including] supply', see Art 2(34) of Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (recast) [2019] OJ L158/125 (ElDir).

7 Recital (2) in the preamble to the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management [2015] OJ L197/24 (GL-CACM).

8 See Art 2(35) ElDir.

9 While EU energy law foresees assigning the actual calculation process to separate entities in the future, TSOs devise the methodology and provide the data for capacity calculation, can 'correct' the result and thus retain a decisive influence on the amount of capacity available for allocation. See Arts 16(3), 37(1)(a) ElReg and Arts 20-30 GL-CACM. Cf also Julius Rumpf and Henrik Bjørnebye, 'Just How Much Is Enough? EU Regulation of Capacity and Reliability Margins on Electricity Interconnectors' (2019) 37 Journal of Energy & Natural Resources Law 67, s 4.2.

1.2. *Defining 'congestion displacement'*

Congestion is not a problem per se – electricity demand fluctuates throughout the day, so that constructing a completely congestion-free network would likely be inefficient.[10] However, grid areas that are structurally congested, so-called bottlenecks, are both problematic and common throughout Europe. Since interconnectors cannot transmit more electricity than the connected grids can accommodate,[11] these bottlenecks lead to (partial) market foreclosure and hamper market integration – the European Agency for the Cooperation of Energy Regulators (ACER) estimates that on average, just under half of the technical capacity is allocated on most bidding zone borders.[12] Even electricity markets with seemingly ideal conditions for integration are affected. Augmenting electricity trade between Sweden, Denmark and Germany could create vast synergies, for instance. Whereas particularly Germany's power sector is struggling to substitute fossil-fuelled and nuclear power with intermittent RES under the country's energy transition strategy (*Energiewende*), the Scandinavian countries exhibit high levels of cross-zonal trade and a relatively successful integration of RES. In theory, cheap and CO_2-free hydropower from Sweden could fill electricity supply gaps in Germany and Denmark, while excess wind power could be exported back at even lower prices, thereby easing the load on the German and Danish grids. Yet in reality, cross-zonal capacities between Germany and its northern neighbours are regularly curtailed due to internal congestion.[13]

The practice of handling internal congestion by limiting interconnector capacity is often described as 'pushing congestion to the border' or as 'undue discrimination between internal and cross-zonal exchanges'.[14] This study will use the more concise term 'congestion displacement'.[15]

1.3. *Scope of the study*

Congestion displacement constitutes 'a serious obstacle to the development of a functioning internal market in electricity'.[16] Nevertheless, it is widespread and appears to be tolerated to a certain extent. This study aims to identify the main contributing factors – be they legal, economic or political – and assess whether they are addressed adequately in EU energy law.

To this end, I will first describe how EU law addresses congestion displacement (see section 2). Then, I will present three cases that illustrate the causes and effects of

10 Michel Rivier, Ignacio J Pérez-Arriaga and Luis Olmos, 'Electricity Transmission' in Ignacio J Pérez-Arriaga (ed), *Regulation of the Power Sector* (Springer London 2013) 268–69.

11 The general rule in EU energy law is that trade must not jeopardise security of supply, cf Art 16(4) ElReg.

12 ACER and CEER, 'Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2017 – Electricity Wholesale Markets Volume' (2018) 6–9.

13 Energimarknadsinspektionen, 'Capacity Limitations between the Nordic Countries and Germany' (2015) 9–12; ACER and CEER (n 12) 25–28.

14 ACER, 'Monitoring Report on the Implementation of the CACM Regulation and the FCA Regulation' (2019) 3. See also *DE/DK Interconnector* (Case AT.40461) Commission Decision 2019/C 58/09 [2019] OJ C58/7 paras 56–67.

15 Cf the term 'congestion shifting' in Małgorzata Sadowska and Bert Willems, 'Power Markets Shaped by Antitrust' (2013) 9 European Competition Journal 131.

16 See recital (27) in the preamble to the ElReg. See also *DE/DK Interconnector* (n 14) para 66.

congestion displacement in practice (see section 3). The main part of the article is dedicated to the question of whether the revised legal framework addresses these common issues adequately (see sections 4 and 5). Finally, a conclusion and outlook will be offered (see section 6).

2. EU regulation of congestion displacement

2.1. *Primary law: energy policy aims and competition law*

Primary law does not contain detailed rules on congestion management, but is nevertheless essential for the issue at hand.[17] It establishes the aims of EU energy policy, namely a functioning energy market on interconnected networks, security of supply and the promotion of RES and energy efficiency. These objectives are realised 'in the context of the establishment and functioning of the internal market' and 'in a spirit of solidarity between Member States'.[18] The measures 'necessary to achieve [these] objectives' are implemented through secondary law. The objectives defined in primary law therefore have significant implications for the application of EU energy law, including the congestion management regime. Given the EU's overarching rationale of economic integration, the benchmark for the functioning of the internal energy market is economic efficiency, that is, achieving a (re-)distribution of resources that improves social welfare.[19] Moreover, the referral to solidarity and the presence of strong economies of scale in electricity transmission systems[20] dictate a perspective that encompasses EU-wide welfare effects, lest national or individual interests jeopardise the efficiency of energy market integration.[21] Therefore, energy market integration pursues an optimisation of social welfare, measured at EU level.[22] However, any sort of economic integration must occur under the caveat of operational security and due to the potentially disastrous consequences of blackouts, safeguarding reliability enjoys the highest priority. At the same time, sustainability concerns and endeavours to decarbonise the electricity sector also contribute specific targets for market integration. For instance, RES enjoy certain privileges that break with a strictly economic paradigm for electricity transmission system operation. The rules on congestion management must be interpreted and applied according to these energy policy aims.[23]

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17 Cf also Rumpf and Bjørnebye (n 9) 70–71.

18 Art 194(1) of the Treaty on the Functioning of the European Union [2012] OJ C326/47 (TFEU).

19 See Art 3(3) of the Treaty on European Union [2012] OJ C326/13 (TEU). Cf also Mariano Ventosa, Pedro Linares and Ignacio J Pérez-Arriaga, 'Power System Economics' in Ignacio J Pérez-Arriaga (ed), *Regulation of the Power Sector* (Springer London 2013) 48–49.

20 Ventosa, Linares and Pérez-Arriaga (n 19) 59.

21 Individual stakeholders will inevitably suffer welfare losses when integrating markets with different price levels – eg, generators in the former high-price market must sell at lower prices, while consumers in the former low-price market must pay more. For a simple theoretical example, see Felix Höffler, *Engpassmanagement und Anreize zum Netzausbau im leitungsgebundenen Energiesektor: wirtschaftstheoretische Analyse und wirtschaftspolitische Handlungsempfehlungen* (Nomos 2009) 19–20.

22 An interesting question that cannot be addressed here is to what extent welfare effects in non-EU countries with significant interconnections to the EU Member States, such as Norway, must be considered.

23 See Case C–17/03 *VEMW, APX & Eneco NV v DTE* [2005] ECR I–4983, para 41. Cf also Arts 1(a) and (d), 12(2) and (7), 16(4) and (8) ElReg.

Another significant contribution of primary law to the present discussion concerns the competences of the European Commission in the area of competition law. By investigating instances of systematic congestion displacement as an abuse of a dominant position,[24] the Commission has achieved that the concerned TSOs committed themselves to align their management of internal congestion with the rules in EU energy law. These cases are discussed below.[25]

2.2. *Sector-specific secondary law, network codes and methodologies*

Most of the secondary law framework for the energy sector has been adopted in the form of packages, that is, several interdependent and complementary acts. After ten years under the 'Third Energy Package', a recently adopted fourth package – dubbed the 'Clean Energy for All Europeans Package' – has 'updated' the regulatory framework significantly. The most relevant acts for the issue at hand are the Electricity Directive and the Electricity Regulation.[26]

For purposes of orientation, I will first address the factual and legal principles of congestion management (2.2.1) before presenting specific safeguards against congestion displacement (2.2.2).

2.2.1. Congestion management in a nutshell

EU energy law defines congestion as

> a situation in which all requests from market participants to trade between network areas cannot be accommodated because they would significantly affect the physical flows on network elements which cannot accommodate those flows.[27]

Congestion can be temporary (eg, because of a technical outage, also called contingency) or structural.[28] In principle, congestion is a reliability issue,[29] yet since trade can only happen within reliability boundaries, congestion causes trade restrictions. Flows on electricity networks follow complex physical laws, and the amount of electricity each connection point – or node – can accommodate depends both on its location within the grid and on the operating conditions at any given moment. Nevertheless, the pertinent rules in EU law mostly disregard this fact in order to facilitate electricity trade. As a result, capacity is only allocated at the borders between 'bidding zones',[30] whose borders in theory represent structural bottlenecks.[31] In contrast, the bidding zones themselves, which usually cover the entire transmission network in a Member

24 Art 102 TFEU.
25 See s 3.
26 See n 4 (the Regulation) and n 6 (the Directive).
27 Art 2(4) ElReg.
28 Art 2(6) ElReg and Art 2(19) GL-CACM both define '"structural congestion" [as] congestion in the transmission system that can be unambiguously defined, is predictable, is geographically stable over time and is frequently reoccurring under normal power system conditions'.
29 On the term 'reliability', see Rumpf and Bjørnebye (n 9) 75–76.
30 According to Art 2(65) ElReg, 'the largest geographical area within which market participants are able to exchange energy without capacity allocation'.
31 See Art 14(1) and recitals (19) and (30) ElReg. For details, see ACER and CEER (n 12) 85.

State,[32] are regarded as allegorical 'copper plates' and transactions within bidding zones generally enjoy unrestricted network access. Owing to this singular focus on bidding zones, capacity constraints always materialise at their borders, even if the bottleneck is located inside a bidding zone.[33]

When congestion occurs, EU energy law tasks TSOs to alleviate it within the boundaries of system reliability and economic efficiency.[34] The TSOs' 'toolkit' for congestion management encompasses long-term measures that require considerable implementation time and effort, such as grid reinforcements or redefining bidding zones.[35] In addition, TSOs employ short-term 'remedial actions'.[36] For reasons of economic efficiency, TSOs must first exhaust remedial actions with lower costs, such as switching operations.[37] If these are insufficient, TSOs can, for instance, buy energy in the congested area and sell it in a congestion-free area (countertrading),[38] or request power plants on both sides of the bottleneck to adapt their production so that the excess electricity can 'drain' to an area with sufficient capacity (redispatching).[39] This also works across borders: since opposing flows between two bidding zones are netted,[40] trading 'against the current' or redispatching power plants on both sides of an interconnector can reduce the flows into the congested area over that interconnector.[41] Owing to the mutual influences between interconnected grids, neighbouring TSOs must coordinate the use of remedial actions to avoid negative effects on adjacent grids.[42] Congestion displacement is sometimes discussed as another congestion management option,[43] yet EU energy law treats it as a matter of

32 Some countries, particularly the Scandinavian countries, have defined several bidding zones according to internal congestion. While Denmark and Norway did so voluntarily, the splitting of the Swedish power market is the result of an investigation by the European Commission under the rules of EU competition law; this case will be discussed below, at s 3.1.

33 ACER considers the current bidding zone configuration inefficient; cf ACER, GL-CACM and GL-FCA Implementation Report (n 14) s 3.6.

34 Art 16(1), (4) ElReg; Art 25 GL-CACM; Art 20 of Commission Regulation (EU) 2017/1485 of 2 August 2017 establishing a guideline on electricity transmission system operation [2017] OJ L220/1 (GL-SO).

35 For example, the introduction of a new bidding zone border between Germany and Austria due to structural congestion created considerable controversy between the involved national regulatory authorities (NRAs) and ACER; cf the recent judgment of the General Court (GC) in Case T–332/17 *E-Control v ACER* (GC, 24 October 2019).

36 According to Art 2(13) GL-CACM, a '"remedial action" means any measure applied by a TSO or several TSOs, manually or automatically, in order to maintain operational security'.

37 Cf Art 21(2)(a) GL-SO.

38 Despite the strict unbundling rules in chap VI of the ElDir that forbid TSOs to engage in generation or trade activities, TSOs still may buy or sell electricity for system operation purposes, eg, countertrading.

39 Previously, both measures were sometimes indiscriminately referred to as 'countertrading', eg, by the Commission in *Swedish Interconnectors* (Case COMP/39.351) Commission Decision 2010/C 142/08 [2010] OJ C142/28, para 37. This is no longer valid; see the pertinent definitions in Art 2(26) and (27) ElReg.

40 Art 16(11) ElReg.

41 This depends on the layout of the affected network. The actual flows on alternating current (AC) lines can only be controlled to a limited extent, especially in meshed grids. See Rivier, Pérez-Arriaga and Olmos (n 10) s 6.1.3. In contrast, the direction and volume of flows on direct current (DC) lines is determined by the operator. DC lines are often used for long-distance transmission of large amounts of electricity, eg, on interconnectors.

42 Art 23(2) GL-SO.

43 *Swedish Interconnectors* (n 39), para 37.

last resort, so that TSOs must generally exhaust remedial actions before curtailing cross-border capacity.[44]

Another important factor to bear in mind is that electricity is traded in different timeframes.[45] The calculated cross-zonal capacity is allocated iteratively across these timeframes, so that any 'leftover' cross-zonal capacity from each timeframe remains available during the remaining timeframes.[46] Accordingly, early cross-zonal capacity curtailments compromise market integration in all remaining timeframes. To avoid premature capacity restrictions, remedial actions must therefore already be considered when calculating the available capacity.[47] If congestion develops at a later stage, TSOs can – and must[48] – employ remedial actions to maintain the allocated level of cross-zonal capacity. If remedial actions are insufficient, the cross-zonal trade volume can be curtailed curatively.[49] Hence, there are numerous opportunities for TSOs to compensate for an overly optimistic capacity estimate without endangering system reliability. Yet in practice, cross-zonal curtailment during capacity calculation appears to be more readily applied than curtailment after capacity allocation. Whereas EU energy law treats both kinds of curtailment differently, they are indiscriminately referred to as 'curtailments'.[50] Enhancing the terminology on the subject to better reflect this problem would contribute to a clearer discussion of congestion displacement and help shift the focus on the core of the issue, namely premature limitations.[51] I will therefore distinguish between *preventive curtailments* (during capacity calculation) and *curative curtailments* (after capacity allocation).[52]

2.2.2. Safeguards against congestion displacement

This section will provide a brief outline of the principles in EU energy law that are relevant for the issue of congestion displacement. In broad terms, these principles prohibit the use of congestion displacement save for exceptional situations, where requirements of reliability or economic efficiency can justify the reduction of cross-zonal capacity to

44 For details, see s 4.1 below.

45 The long-term forward market primarily serves for hedging against future electricity price risks, see Art 9 ElReg. Today, most trading occurs on the spot market, which comprises trading during the day-ahead (up to 12:00 noon of the day preceding physical delivery) and intraday (up to one hour before physical delivery) timeframes, see Arts 7, 8 ElReg. The balancing market, which takes place during the remaining hour up to physical delivery, allows TSOs to compensate remaining imbalances to maintain reliability, see Art 6 ElReg.

46 Art 17 ElReg.

47 Art 25 GL-CACM.

48 See Art 16(2) ElReg and Art 20 GL-SO.

49 As a general rule, the capacity allocated for a timeframe becomes firm after trading for that timeframe ends and can only be curtailed in emergency situations afterwards; cf Arts 70, 71, 72(1) GL-CACM and 16(2) ElReg.

50 Cf the ambiguous use of the term 'curtailment' in different contexts in recital (27) and Arts 12(7), 16(2) ElReg, as well as recital (10) GL-CACM.

51 ACER appears to use the term 'limitations' for *ex ante* capacity restrictions and 'curtailment' for *ex post* restrictions; see ACER and CEER (n 12); ACER, 'Recommendation of the Agency for the Cooperation of Energy Regulators No 02/2016 of 11 November 2016 on the Common Capacity Calculation and Redispatching and Countertrading Cost Sharing Methodologies' (2016). However, as shown in n 50, this terminology is not used in EU energy law.

52 Note that on the forwards market, the distinction would be between restrictions before and after nomination.

relieve internal congestion.[53] This approach was already laid down in the Third Energy Package and has received only minor revisions under the Clean Energy Package, the most notable being the establishment of a new compulsory minimum capacity value to be provided on all bidding zone borders.[54]

In principle, the general obligation to address congestion 'with non-discriminatory market-based solutions which give efficient economic signals to the market participants and transmission system operators involved'[55] already appears to prohibit excessive congestion displacement, which leads to market foreclosure and provides distorted economic signals. In addition, TSOs are obliged to maximise cross-zonal capacity while maintaining reliability, which I will refer to as 'maximum capacity principle' in the following. Under the Clean Energy Package, TSOs are explicitly obliged to use remedial actions to maximise cross-zonal capacity (at least) to a certain minimum level:

> The maximum level of capacity of the interconnections and the transmission networks affected by cross-border capacity shall be made available to market participants complying with the safety standards of secure network operation. Counter-trading and redispatch, including cross-border redispatch, shall be used to maximise available capacities to reach the minimum capacity [of 70% of the transmission capacity respecting operational security limits].[56]

Moreover, EU energy law contains an explicit prohibition against congestion displacement:

> [TSOs] shall not limit the volume of interconnection capacity to be made available to market participants as a means of solving congestion inside their own bidding zone or as a means of managing flows resulting from transactions internal to bidding zones.[57]

This prohibition is a reiteration of the general non-discrimination obligation in EU energy law. In its *VEMW* judgment, the European Court of Justice (ECJ) established that the prohibition on discrimination extends to all acts of network operation, particularly as concerns prioritising certain kinds of electricity transactions.[58] Congestion displacement amounts to favouring internal transmission over cross-zonal transmission and is thus discriminatory.[59] Furthermore, curtailing cross-zonal capacity to

53 A more comprehensive discussion of possible justifications for congestion displacement under the recently adopted Clean Energy Package can be found in ss 4.1 and 4.2 below.

54 An exhaustive discussion of this new threshold is beyond the scope of this study. For ACER's (non-binding) position, cf 'Recommendation No 01/2019 of the European Union Agency for the Cooperation of Energy Regulators of 08 August 2019 on the Implementation of the Minimum Margin Available for Cross-Zonal Trade Pursuant to Article 16 (8) of Regulation (EU) 2019/943' (2019).

55 Art 16(1) ElReg.

56 Art 16(4), (8) ElReg. See also Art 16(11) ElReg, which obliges TSOs to net opposing flows over the same line 'in order to use that line to its maximum capacity'. These obligations are complemented by the NRAs' specific duty of 'ensuring that transmission system operators make available interconnector capacities to the utmost extent pursuant to Article 16 [ElReg]', see Art 59(1)(h) ElDir.

57 Art 16(8) ElReg.

58 See Art 40(1)(f) ElDir; *VEMW* (n 23) paras 45–48. For further details, see Rumpf and Bjørnebye (n 9) s 2.2.2.

59 See Art 21 GL-CACM, which determines that capacity calculation methodologies must contain, inter alia, 'rules for avoiding *undue discrimination between internal and cross-zonal exchanges* to ensure compliance with [the prohibition on congestion displacement]' (emphasis author's own). Cf also ACER Recommendation No 01/2019 (n 54) s 1.

relieve internal congestion entails a differential treatment of domestic market participants[60] and those abroad: whereas consumers and generators within the affected bidding zone enjoy unrestricted access to the congested underlying transmission network, market participants beyond the bidding zone border are precluded from using the congested grid, be it to import electricity (if the wholesale price in the congested bidding zone is lower) or to export electricity (in case of a higher wholesale price in that bidding zone).[61] However, this does not mean that internal transactions must always be curtailed before cross-zonal transactions, which could also be considered discriminatory. Instead, any curtailment – be it of internal or cross-zonal flows – must occur according to objective criteria, namely, reliability and/or economic efficiency. Accordingly, when employing remedial actions to relieve congestion, TSOs must choose the most efficient measures from the options that are available within and outside the congested grid, particularly countertrading or (cross-border) redispatch.[62]

However, the aforementioned principles are not absolute and recognise that reliability concerns, as well as economic efficiency can potentially justify congestion displacement. These justifications will be discussed in detail below.[63]

2.2.3. The role of the network codes and guidelines

The aforementioned general principles are complemented by the European network codes and guidelines.[64] Although these acts are adopted as regulations, they are pieces of delegated legislation and thus cannot override, but rather complement, the general rules on congestion management for facilitating their implementation in practice.[65] Therefore, they must be interpreted in the light of the general framework under the Clean Energy Package. Yet whereas the eight network codes and guidelines adopted

60 According to Art 2(25) ElReg, a market participant is

> a natural or legal person who buys, sells or generates electricity, who is engaged in aggregation or who is an operator of demand response or energy storage services, including through the placing of orders to trade, in one or more electricity markets, including in balancing energy markets.

61 Cf the reasoning of the Commission with a focus on consumers in *Swedish Interconnectors* (n 39) paras 42–45 and with a focus on generators in *DE/DK Interconnector* (n 14) para 60, both with reference to several ECJ judgments of the same tenor. Also see ACER Recommendation No 02/2016 (n 51) 7.

62 Art 16(4) ElReg.

63 See ss 4.1 and 4.2.

64 For details on the procedure underlying the existing network codes and guidelines, see Charikleia Vlachou, 'New Governance and Regulation in the Energy Sector: What Does the Future Hold for EU Network Codes?' (2018) 9 European Journal of Risk Regulation 268. Future network codes and guidelines will be developed by TSOs, distribution system operators (DSOs), ACER and the Commission according to a procedure laid out in Art 58 ElReg.

65 According to Arts 6(11) and 18(5) of the predecessor of the current ElReg, Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003 [2009] OJ L211/15 (ElReg-2009), the existing network codes and guidelines are 'designed to amend non-essential elements of [the ElReg-2009] by supplementing it'. In their preambles, all of the codes explicitly establish the aim to further harmonise the 'non-discriminatory rules' contained in the ElReg-2009 '[i]n order to move towards a genuinely integrated electricity market' and/or for reasons of operational security. To my mind, this establishes that the network codes shall not override, but further specify the broad rules and principles contained in the ElReg-2009. This reasoning extends to future network codes and guidelines, which are to be adopted as delegated or implementing acts in the meaning of Arts 290, 291 TFEU; see Arts 59 and 61 ElReg.

for the electricity sector so far together comprise more than 450 pages and 670 interdependent provisions in the English language version, most of them – and perhaps the most controversial ones[66] – are adopted as non-exhaustive guidelines that require further implementation. The Guideline on Capacity Allocation and Congestion Management is arguably the most relevant for the practice of congestion displacement.[67] However, the network codes and guidelines form a densely meshed and interlocked system, so that usually, several of them contain relevant provisions. For instance, since the rules on congestion management invariably take reliability concerns into consideration, the Guideline on Electricity Transmission System Operation is also significant.[68]

For their implementation, the guidelines order the creation of detailed rules in the form of so-called methodologies. Again, these methodologies may not go beyond what is provided for in the more or less specific outlines provided by the corresponding guideline.[69] These methodologies are currently being developed by TSOs and regulators without mandatory involvement of the EU's legislative institutions. The creation of common capacity calculation methodologies (CCMs) is just one example that illustrates the relevance of this process for the matter at hand.[70] While not all CCMs have been adopted and it is therefore too early to draw definite conclusions, it is worth noting that a recent report by ACER concludes that the TSOs' proposals so far have 'largely ignored' the issue of congestion displacement.[71] It remains to be seen whether the CCMs will be efficient in reducing the current levels of congestion displacement.

2.3. *Summary*

Together with security of supply and environmental goals, EU energy law aims at maximising social welfare across Europe through electricity market integration. Sector-specific secondary law must be interpreted and applied according to these aims.

With regard to congestion management, EU energy law establishes the maximum capacity principle, that is, TSOs must manage congestion in a way that maximises cross-zonal capacity while maintaining reliability. To this end, TSOs must employ long-term network reinforcements and short-term remedial actions. Since congestion displacement is discriminatory, EU energy law explicitly prohibits this practice with narrow exceptions, namely for reasons of reliability and economic efficiency. These safeguards were essentially already contained in the Third Energy Package, and the most substantial modification under the Clean Energy Package consists in the prescription of a new minimum capacity level to be made available on all borders. Currently, the extent of congestion displacement in practice illustrates that these principles are not respected sufficiently. As far as can be seen, the adoption of European

66 Paul Giesbertz, 'The EU Network Codes' (*The Power Market Design Column*, 18 December 2017) www.linkedin.com/pulse/power-market-design-column-eu-network-codes-paul-giesbertz accessed 8 December 2019.

67 See n 7. According to Art 3(j) GL-CACM, the guideline explicitly aims at 'providing non-discriminatory access to cross-zonal capacity'.

68 See n 34.

69 Cf ACER, 'Opinion of the Agency for the Cooperation of Energy Regulators No 03/2018 on the Application of Article 5 and Article 141(2) of Commission Regulation (EU) 2017/1485 Establishing a Guideline on Electricity Transmission System Operation' (2018).

70 Art 20(2) GL-CACM.

71 ACER, GL-CACM and GL-FCA Implementation Report (n 14) para 163.

network codes and guidelines and their implementation through detailed methodologies cannot guarantee that this situation will improve.

3. Congestion displacement in practice: three illustrative case studies

The previous section showed that EU energy law contains dedicated safeguards against congestion displacement, but it is a different question whether this framework is effective in practice. The task of enforcing EU energy law (and derived national law) rests primarily with the national regulatory authorities (NRAs), yet congestion displacement has also been addressed under EU competition law rules by the Commission. This section will present three cases that illustrate the challenges associated with keeping a check on congestion displacement. As extensive notes on these cases are outside the scope of this article, I will provide a summary of the most relevant facts and arguments for the discussion at hand.

3.1. Swedish Interconnectors *case*

In 2009, the European Commission initiated an investigation against the Swedish TSO Affärsverket svenska kraftnät (SvK) based on the suspicion that SvK curtailed cross-zonal capacity in case of internal congestion in order to reduce remedial action costs and to keep spot market prices in Sweden low.[72] In its preliminary assessment, the Commission concluded that SvK had indeed systematically displaced internal congestion and thus abused its dominant position on the Swedish market for electricity transmission.[73] The Commission argued that this market encompassed the Swedish high-voltage grid and any interconnectors connected to it. The reason to include cross-zonal lines was that SvK can, through its ownership of the Swedish transmission grid, control the capacity of all adjacent interconnectors, even those SvK does not own.[74]

The case was settled when SvK offered to split the Swedish power market into bidding zones reflecting the structural bottlenecks within the Swedish transmission grid and to resolve internal congestion through countertrading.[75] In contrast, SvK would address structural congestion in the so-called 'West Coast Corridor' on the Swedish west coast, where introducing a bidding zone border was deemed ineffective for technical reasons, through grid reinforcements.[76] The Commission accepted these commitments, arguing that splitting the Swedish power market into bidding zones would render curtailing cross-zonal capacities unnecessary thanks to the use of implicit auctions and the possibility to employ countertrading.[77] Furthermore, the Commission considered it 'proportionate to exclude the West Coast Corridor from the commitments of bidding zones and counter-trade' in the face of the proposed grid reinforcements.[78]

72 *Swedish Interconnectors* (n 39) paras 6 and 7.
73 *Ibid* paras 38–46.
74 *Ibid* para 21.
75 *Ibid* para 47. Even though SvK's commitment reads '[managing] congestion in the Swedish transmission system without limiting trading capacity on interconnectors', the remainder of the decision explicitly refers to the use of countertrading, which is also meant to include redispatching, cf n 39.
76 *Ibid* para 48.
77 *Ibid* paras 80–82.
78 *Ibid* para 90.

SvK's commitments are binding for ten years, theoretically permitting the return to a single Swedish bidding zone from 2020.[79]

The number of capacity curtailments on the Swedish borders initiated by SvK has decreased after the Commission's intervention. Nonetheless, curtailments of cross-zonal capacities due to congestion in the West Coast Corridor are still frequent, even though the infrastructure reinforcement referred to in the Commission's decision was commissioned in 2012.[80] This led to the Commission formally requesting SvK to explain the apparent inadequacy of the realised network reinforcements. In its response, SvK pointed out an increase in wind and nuclear production in the area following the reinforcement as one of the main causes of the continued congestion.[81] Furthermore, SvK argues that the exemption for the West Coast Corridor is still valid today, despite subsequent network reinforcements. As a result, SvK refuses to employ countertrading to resolve congestion in the West Coast Corridor.[82] At the time of writing, neither the Commission nor the competent NRAs have taken further action in this context, despite continued complaints from market participants.

3.2. DE/DK Interconnector *case*

The Commission's second investigation into systematic congestion displacement concerned the German TSO TenneT TSO GmbH (TenneT).[83] TenneT regularly curtailed the cross-border lines between Germany and Western Denmark (the 'DE-DK1 Interconnector') to resolve internal congestion caused by high wind production. As in the *Swedish Interconnectors* case, the Commission classified TenneT's congestion displacement strategy as an unjustified discrimination between internal and cross-zonal requests for electricity transmission[84] and as an abuse of TenneT's dominant position on the relevant markets.[85]

Again, the case was settled based on commitments. Initially, TenneT proposed committing itself to using countertrading and redispatch to offer the 'maximum capacity on the DE-DK1 interconnector, complying with safety standards of secure network operation[, in] any event a minimum guaranteed hourly capacity of 1300 MW', with a ramp-up phase of up to six months.[86] Following a public consultation on the proposed commitments, TenneT modified and extended these to account for

79 *Ibid* Art 1. For a demand to this effect, cf Mats Nilsson, 'Sverige bör återgå till ett budområde' (*Second Opinion*, 20 September 2018) https://second-opinion.se/sverige-bor-aterga-till-ett-budomrade accessed 8 December 2019. Note that any reconfiguration of bidding zones is subject to a formalised review process, discussed below in s 5.2.

80 Svenska Kraftnät, 'Swedish Interconnectors – COMP Case No 39351 – Monitoring Report No 15' (2019); ACER and CEER (n 12) 25.

81 Svenska Kraftnät, 'Reply to the European Commission's Request for Information in the Case 39351 Swedish Interconnectors (2014/228)' 3–5; Svenska Kraftnät, 'Reply to the European Commission's Request for Information in the Case 39351 Swedish Interconnectors (2015/228)' 3–4.

82 Svenska Kraftnät, 'Reply to the European Commission's Request for Information in the Case 39351 Swedish Interconnectors (2015/228)' (n 81) 3–6.

83 *DE/DK Interconnector* (n 14).

84 Interestingly, while it had assumed a discrimination against the Danish customers in *Swedish Interconnectors* (n 39), the Commission discussed a discrimination against Danish generators in the present case; cf n 61.

85 *DE/DK Interconnector* (n 14) paras 40–74.

86 *Ibid* para 76.

planned grid reinforcements and to address ambiguities identified by market participants. According to the final commitments, the 'guaranteed hourly capacity' will iteratively increase to 2625 MW by 1 January 2026, corresponding to 75 per cent of the commercial capacity of the DE-DK1 Interconnector after the planned reinforcements.[87] TenneT further affirmed that maximising the capacity on the DE-DK1 Interconnector will not entail capacity curtailments on other borders of TenneT's network.[88] Finally, the DE-DK1 Interconnector will only be curtailed to the degree that is 'strictly necessary for TenneT to ensure security of supply', and only in 'narrowly defined exceptional circumstances' that endanger reliability, and never below 500 MW.[89] TenneT's compliance with its commitments will be monitored by an independent trustee.[90]

In the *DE/DK Interconnector* case, the Commission follows the reasoning established in the *Swedish Interconnectors* case that congestion displacement is discriminatory, generally incompatible with the EU rules on congestion management and that the dominant position of a TSO in its control area extends to adjacent interconnectors. Furthermore, it states unequivocally that individual economic interests of a TSO cannot justify congestion displacement: 'TenneT, like any other TSO, cannot resort to behaviour which contravenes Union competition rules and impedes the functioning of the internal electricity market on the basis that it would otherwise have to incur extra-costs.'[91] However, there are some differences between both cases: for one, the Commission did not address instances of systematic congestion displacement on other German borders.[92] Also, the Commission did not follow proposals from the public consultation to split the German market into several bidding zones, since its task in this proceeding was confined to assessing TenneT's proposed commitments, not imposing possible alternative measures.[93] Coincidentally, this caters to the German strategy of maintaining a single German bidding zone in spite of considerable structural internal congestion.[94]

3.3. Baltic Cable *case*[95]

In contrast to the previous cases, another piece of litigation concerning systematic congestion displacement by TenneT took place before domestic German institutions without participation by the Commission. Interestingly, the reasoning of the German

87 *Ibid* para 86. Note that this increase is conditional on the timely realisation of planned reinforcement projects; in case of delay, the capacity will be increased following their commissioning. However, the Commission does not consider a delay as a likely scenario.

88 *Ibid* para 89.

89 That is, in case certain critical grid elements fail, or in emergency situations where redispatch and countertrading capacities are insufficient or another TSO requests assistance to maintain security of supply.

90 *DE/DK Interconnector* (n 14) paras 77–80 and 87–88.

91 *Ibid* para 67.

92 The investigation against SvK originally only concerned the interconnectors between Sweden and Denmark, before the Commission extended the scope to all Swedish cross-zonal connections, cf *Swedish Interconnectors* (n 39) para 9.

93 *DE/DK Interconnector* (n 14) para 83. In this context, it should be noted that TenneT – in contrast to SvK – is not the sole operator of the German transmission system and thus could hardly propose a bidding zone split over the heads of the remaining German TSOs.

94 See Höffler (n 21) s 3.1.2.

95 For a more comprehensive discussion, see Julius Rumpf, 'Does the Energy Union End at the Baltic Sea Coast? Capacity Curtailments on the Baltic Cable' (2019) 3 European Competition and Regulatory Law Review 298.

authorities diverges completely from that of the Commission despite almost identical facts, the only difference being that the Baltic Cable is not part of the 'national' transmission network, but owned by a third party, the Swedish Baltic Cable AB (BC). As on the DE-DK1 Interconnector, preventive curtailment of the Baltic Cable between Sweden and Germany by TenneT is frequent, so that cross-zonal trade of electricity is reduced considerably.[96] Again, TenneT points to the expansion of wind generation in its control area as the main reason for these curtailments. Since BC and TenneT were not able to reach a bilateral solution, BC initiated proceedings against TenneT before the German NRA, the Bundesnetzagentur (BNetzA).

BC's core argument was that the curtailments constituted discriminatory refusals of network access that were incompatible with the principles of congestion management. The BNetzA rebutted BC's reasoning completely.[97] BC had no success appealing the BNetzA's decision to the competent regional court, the Oberlandesgericht (OLG) Düsseldorf. The OLG upheld the BNetzA's decision in its entirety.[98] At the time of writing, BC has appealed the case to the German Supreme Court (Bundesgerichtshof).

The OLG did not consider the curtailments discriminatory, arguing that BC – itself being a TSO – has no right to network access, but only a right to network connection (which the court deemed fulfilled).[99] Without discussing a possible infringement of the general prohibition to discriminate, the OLG nevertheless stated several justifications for a hypothetical discrimination. For one, it argued that the Connection Agreement between BC and TenneT allowed the German TSO to reduce cross-zonal capacities on the Baltic Cable without compensation whenever it considered grid reliability at risk, making this more economically efficient than other measures.[100] Moreover, the OLG regarded curtailing the Baltic Cable as the only viable countermeasure for technical reasons,[101] in part due to the fact that the congestion was caused by RES (which enjoy preferential grid access).[102] Furthermore, the OLG argued that the obligation for TSOs to coordinate their use of remedial actions made BC – and not TenneT – responsible for managing the causative congestion in TenneT's control area.[103] For the same reasons, it considered that TenneT's purported compliance with the German congestion management rules precluded a breach of the corresponding rules in EU law.[104] Finally, the OLG refused to submit the case to the ECJ for a preliminary ruling, stating that there was 'no reasonable doubt' that the curtailments of the Baltic Cable comply with EU law.[105]

96 Energimarknadsinspektionen (n 13) s 3.2, particularly fig 7 and tables 1 and 2. Note that the Baltic Cable is also curtailed by SvK and due to maintenance work, but to a much lesser extent; see Svenska Kraftnät, 'Swedish Interconnectors – COMP Case No 39351 – Monitoring Report No 15' (n 80).

97 *Baltic Cable AB v TenneT TSO GmbH* [2016] Bundesnetzagentur BK6-14-130.

98 *Baltic Cable AB v Bundesnetzagentur* [2019] OLG Düsseldorf VI-3 Kart 81/16 [V].

99 *Ibid* [87]–[90]. On the distinction between both rights, see Case C–239/07 *Julius Sabatauskas and Others* [2008] ECR I–7523, paras 40–41.

100 *Baltic Cable AB v Bundesnetzagentur* (n 98) [108]–[111], [116].

101 For instance, it considered the closest conventional power plants too far away for effective redispatching.

102 *Baltic Cable AB v Bundesnetzagentur* (n 98) [112]–[115].

103 *Ibid* [142]–[145] and [159]–[162].

104 *Ibid* [147].

105 *Ibid* [167]–[168]. Translation author's own.

3.4. *Summary*

In the *Swedish Interconnectors* case, the Commission reasoned that congestion displacement is discriminatory, detrimental to market integration and thus constitutes an abuse of a dominant position of the respective TSO. SvK proposed market splitting as a remedy, together with the use of remedial actions and network reinforcements. While these measures have improved the situation, structural congestion in the West Coast Corridor still leads to frequent cross-border curtailments, without the Commission or the competent NRAs taking further action.

In the *DE/DK Interconnector* case, the Commission pursued the same reasoning and classified congestion displacement as discriminatory. Instead of market splitting – which appears to be out of the question in Germany – TenneT offered to use remedial actions to manage internal congestion and guarantee a certain minimum capacity on the interconnector. This guaranteed capacity will increase with the realisation of undergoing network reinforcements. Again, the Commission's intervention proved exceedingly effective in (potentially) resolving the long-standing congestion issues on the Danish–German border.

Unfortunately, the stance on congestion displacement appears to depend greatly on the actors involved, as the *Baltic Cable* case illustrates. Without involvement of the Commission, this litigation had an entirely different outcome despite striking parallels to the other two cases. The German institutions did not consider the systematic congestion displacement on the German–Swedish border discriminatory and argued that a (hypothetical) discrimination would nevertheless be justified for reasons of reliability and economic efficiency. Moreover, they deemed BC – and not TenneT – responsible for managing the congestion in the German grid.

Comparing the case studies reveals that TSOs primarily rely on two justifications for congestion displacement: reliability risks due to excessive RES production and economic efficiency. The cases also exhibit a quite different understanding of the aims of congestion management, depending on whether European or national authorities are involved. These common issues, which appear to contribute to excessive congestion displacement and hinder enforcement, will be scrutinised specifically in the upcoming sections 4 and 5.

4. Legal challenges: when is congestion displacement justified?

This section aims to determine whether the framework formed by the Clean Energy Package and the European network codes adequately addresses the legal issues identified in the previous section by examining the scope of the potential justifications for congestion displacement: reliability concerns (see 4.1) and economic efficiency (see 4.2).

4.1. *Reliability concerns*

In *VEMW*, the ECJ established that any justification for differential treatment of transmission requests must be enshrined in EU law,[106] and EU energy law recognises that

106 *VEMW* (n 23) paras 56–63.

displacing congestion can be necessary to safeguard reliability. The maximum capacity principle only obliges TSO to provide an amount of capacity 'complying with safety standards of secure network operation'; likewise, the new minimum capacity is calculated 'respecting operational security limits'.[107] For example, a TSO might not have access to sufficient remedial actions to completely alleviate internal congestion, as TenneT successfully argued before the Commission.[108] The technical characteristics of affected grid elements are also important – redispatching a distant power plant will not necessarily relieve an overloaded line, an argument that was accepted in the *Baltic Cable* case.[109] In such situations, curtailing cross-border capacities can be justified, but only as a measure of last resort.

4.1.1. Measure of last resort

For the case of curative curtailment, the Electricity Regulation clarifies that allocated capacity may only be curtailed 'in emergency situations, namely where the transmission system operator must act in an expeditious manner and redispatching or countertrading is not possible'.[110] With a view to preventive curtailment, TSOs are explicitly mandated to use '[c]ounter-trading and redispatch, including cross-border redispatch, … to maximise available capacities …'.[111] Ergo, only the amount of internal congestion that cannot be handled by countertrading and redispatching – or other suitable remedial actions – may justify congestion displacement for reliability reasons.

The Guideline on Electricity Transmission System Operation further specifies how reliability risks and violations are to be handled through remedial actions, including the use of preventive and curative curtailment as well as countertrading and redispatching.[112] TSOs are obliged to 'give preference to remedial actions which make available the largest cross-zonal capacity for capacity allocation, while satisfying all operational security limits'.[113] Curtailing cross-border capacity is therefore formally subordinate to other remedial actions with less negative impact on interconnector capacity. The Guideline names further secondary criteria to determine which of several equally 'interconnector-friendly' remedial actions the TSOs shall adopt. These other criteria are – in no particular order – effectiveness and economic efficiency, how close to real time a remedial action can be activated and its risk of failure.[114] Seeing as the wording of the list of criteria strongly suggests that it is exhaustive ('… each TSO shall apply *the following* criteria'),[115] curtailing cross-zonal capacity constitutes a measure of last resort to safeguard reliability.[116]

107 Art 16(4) and (8) ElReg.
108 *DE/DK Interconnector* (n 14) paras 77 and 88.
109 See n 41 and n 101.
110 Art 16(2) ElReg.
111 Art 16(4) ElReg.
112 Art 22(1)(d), (e), (f) and (i) GL-SO.
113 Art 21(2)(d) GL-SO.
114 Art 21(2)(a) through (c) GL-SO.
115 Art 21(2) GL-SO; emphasis author's own.
116 See also *DE/DK Interconnector* (n 14) paras 37–39, 62 and 67.

To avoid using reliability concerns as a pretext for congestion displacement, the involved TSO has to provide transparent and comprehensive documentation that proves a risk to reliability and the proportionality of the curtailment.[117]

4.1.2. No priority for RES

In all litigations discussed above, the involved TSOs seemed to assume – wrongly, as will be seen – that in case of internal congestion, interconnectors must be curtailed before redispatching RES. This issue will grow even more acute in the future due to the unabated proliferation of RES and the persistence of grid bottlenecks.

It is true that RES enjoy certain privileges, including, until recently, priority access to the grids.[118] It was unclear whether these privileges also applied in a cross-border context. Existing statements of the ECJ on the relationship between free movement of goods and environmental objectives in cases such as *PreussenElektra* and *Ålands Vindkraft*[119] concerned RES promotion schemes by Member States and are thus not transferable to the application of congestion management rules by private actors. As far as can be seen, this issue was only discussed explicitly in the context of so-called 'combined grid solutions' (CGS), that is, offshore transmission infrastructure serving both as a connection line for offshore wind farms and as an interconnector, with most scholars concluding that the obligation to maximise cross-border capacity required curtailing any connected wind farms before reducing the cross-zonal capacity of the CGS.[120] However, that argumentation cannot be applied to the issue at hand, since it pertains to access of RES to an interconnector *that is itself congested*, while the present discussion concerns limitations of cross-zonal capacities due to *congestion in adjacent grids* caused by RES.[121]

The Clean Energy Package has sharpened the regime for RES and the rules on congestion management to address this issue. Most importantly, RES are no longer

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117 Art 6(2) ElDir. Further note the reporting obligations in Art 26(5) GL-CACM in case of capacity reductions.

118 Art 16(2) Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC [2009] OJ L140/16. For a comprehensive account, consult Andrea Hercsuth, 'Grid Issues' in Paul Hodson and Andrea Hercsuth (eds), *Renewable Energy Law and Policy in the European Union* (Claeys & Casteels 2010) s 3.3.

119 Cf Dominik Thieme and Beate Rudolf, 'Case Note on Case C-379/98, PreussenElektra AG v. Schleswag AG' (2002) 96 American Journal of International Law 225, 230; Anouk van Der Wansem, 'Judgment of the European Court of Justice, 1 July 2014: Case C-573/12, Ålands Vindkraft AB v. Energimyndigheten' (2015) 42 Legal Issues of Economic Integration 401, 408; Penttinen (n 1) s 2.

120 Cf Carsten König, 'Congestion Management and the Challenge of an Integrated Offshore Infrastructure in the North Sea' (2014) 446 MarIus 183; Hannah Katharina Müller, *A Legal Framework for a Transnational Offshore Grid in the North Sea* (Intersentia 2016) 294–99. Current examples of such CGS include the Cobra Cable between Denmark and the Netherlands and Kriegers Flak between Denmark and Germany.

121 It should be noted that the CCM for the 'Hansa' capacity calculation region, which covers the borders between Germany, Denmark, Sweden and Poland, adopts a different stance in Art 4(3). In the case of Kriegers Flak, only the 'leftover' capacity not used for transmission of offshore wind production is made available for cross-zonal trade. It is outside the scope of this article to discuss the compatibility of this solution with EU energy law. The methodology has been approved, see https://acer.europa.eu/en/Electricity/MARKET-CODES/CAPACITY-ALLOCATION-AND-CONGESTION-MANAGEMENT/Pages/16-CCM—Approved.aspx accessed 8 December 2019.

explicitly granted priority access to the grids. Nevertheless, most RES still benefit from priority in the dispatch order due to extensive grandfathering.[122] One could argue that despite the removal of priority access, priority dispatch still obliges TSOs to reduce interconnector capacity before curtailing RES. Then, removing priority dispatch for future RES installations would have little impact, because the existent installations already cause significant internal congestion. However, this argumentation does not convince. The priority dispatch rights for RES only concern the choice between different electricity generation technologies *within* a TSO's control area. Interconnectors are not regarded as a (re-)dispatchable power source and are thus not part of that choice.[123] Consequently, the Electricity Regulation clarifies that '*[p]riority dispatch … shall not be used as a justification for curtailment of cross-zonal capacities* beyond what is provided for in the [general principles of capacity allocation and congestion management]'.[124] As has been shown, these principles only permit congestion displacement after all other remedial actions, including redispatching, are exhausted. In addition, redispatching is explicitly 'open to all generation technologies',[125] also RES. Thus, priority dispatch cannot justify a reduction of cross-zonal capacity.[126]

The other remaining RES privileges cannot constitute a justification for congestion displacement, either. While RES still enjoy a right to guaranteed transmission and TSOs are still obliged to minimise redispatching of RES within the boundaries of reliability,[127] neither of these privileges has cross-zonal implications. First, guaranteed transmission concerns only the transport of electricity that has already been fed into the grid.[128] That privilege cannot implicitly convey guaranteed access to the grid, since preferential grid access for RES was intentionally abolished in the Clean Energy Package. Furthermore, the mandate to minimise curtailment of RES is subject to the general principles of congestion management, which do not establish any specific preference for RES.

122 Although there is a capacity threshold for newly commissioned RES installations, existing RES generation units that enjoyed priority dispatch under the Third Package are still privileged, regardless of their generation capacity, cf Art 12(6) ElReg.

123 Art 13(2) ElReg.

124 Art 12(7) ElReg; emphasis author's own. Due to its systematic positioning after the provisions determining which RES enjoy priority dispatch, this clarification concerns all RES, including existing RES that fall under the grandfathering clause in Art 12(6) ElReg.

125 Art 13(1) ElReg.

126 This is reflected in the wording of Art 12(2) ElReg, which gives RES priority dispatch 'in so far as the secure operation of the *national* electricity system permits' (emphasis author's own). Floris Gräper, Christof Schoser and Jan Papsch, 'Third Party Access' in Christopher Jones (ed), *EU Energy Law*, vol I (4th edn, Claeys & Casteels 2016) 35–38 warn of 'abusing' priority dispatch to justify congestion displacement. Thomas Deruytter and Wouter Geldhof, 'Legal Issues Concerning the Decentralised Energy Production Investment Climate' in Bram Delvaux, Michaël Hunt and Kim Talus (eds), *EU Energy Law and Policy Issues* (Intersentia 2014) 185–87 supply a detailed order of curtailment according to the generation technology; see also Franz-Jürgen Säcker, Lydia Scholz and Carsten König, *Der regulierungsrechtliche Rahmen für ein Offshore-Stromnetz in der Nordsee: rechtliche Hemmnisse und Vorschläge für deren Überwindung* (2014) 167 (English) and 98 (German); Hercsuth (n 118) para 6.59.

127 See Art 13(5) ElReg.

128 Cf also the definition for transmission cited above in n 6.

4.1.3. Summary

The revised principles on congestion management and the network codes only permit congestion displacement as a measure of last resort. During the capacity calculation process, TSOs must consider all remedial actions at their disposal, including redispatching RES, before preventively curtailing interconnector capacities. When maintaining operational security through the curative activation of remedial actions, TSOs must generally exhaust all (cross-border) redispatch options, including curtailing RES, before resorting to curative curtailment of cross-zonal capacities. Only if these measures are insufficient to warrant secure network operation is congestion displacement justified for reasons of reliability.

4.2. *Economically efficient congestion displacement*

Electricity market integration is guided by economic efficiency.[129] While increasing cross-border capacity throughout Europe currently furthers all of the objectives of EU energy law,[130] welfare gains diminish and disappear beyond a certain level of interconnection.[131] For instance, further increases in cross-zonal capacity can be inefficient in the case of two bidding zones with similar prices and high remedial action costs. There is thus an optimal level of market integration and, accordingly, an optimal level of congestion. Therefore, some authors advocate a form of 'controlled' congestion displacement that maximises social welfare gains.[132] This is in line with the congestion management principles, which in principle allow displacing congestion for purposes of economic efficiency. While the Third Package followed a case-by-case approach in this context,[133] the Clean Energy Package establishes a rigid threshold. Under the revised rules, it is considered that a TSO complies with the prohibition to displace congestion if 70 per cent of the capacity at the border is made available.[134] Whereas the TSOs now enjoy complete discretion as long as they provide 70 per cent capacity, this appears as an obvious improvement: ACER's estimate is that on average, only about half of the capacity at most European borders is available.[135]

However, it is unclear how the total capacity is calculated. This can be seen from the *DE/DK Interconnector* case, where the Commission had considerable difficulties in determining the current technical capacity of the DE-DK1 Interconnector.[136] The Commission's final estimate diverges by over 10 per cent from the estimate of the Swedish

129 Note that 'economic efficiency' is used here to mean 'maximisation of social welfare on a European scale'; see above at 2.1 and cf Ventosa, Linares and Pérez-Arriaga (n 19) s 2.3.2.

130 Commission Expert Group on Electricity Interconnection Targets (n 5) 10–14; ACER and CEER (n 12) 39–41.

131 See Höffler (n 21) 39.

132 Malgorzata Sadowska and Bert Willems, 'Market Integration and Economic Efficiency at Conflict? Commitments in the Swedish Interconnectors Case' (2013) 36 World Competition 99.

133 See para 1.7 of Annex I to ElReg-2009 and ACER Recommendation No 02/2016 (n 51) 4.

134 Art 16(8) ElReg.

135 ACER and CEER (n 12) s 3 estimate an average of 49 per cent at the European AC borders. The corresponding report for the year 2018 only provides numbers for certain borders, cf ACER and CEER, 'Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2014' (2015) s 3.

136 The Commission assumes a current technical capacity at the DE-DK1 border of 'at least' 1582 MW, see *DE/DK Interconnector* (n 14) para 24.

NRA.[137] This hints at practical challenges in enforcing the new threshold.[138] Moreover, depending on the conditions at each bidding zone border, a higher or lower level of cross-zonal capacity might provide higher welfare gains than the fixed threshold. In this context, TenneT's commitments in *DE/DK Interconnector* reveal another potential issue. Therein, TenneT guarantees to make at least 75 per cent of the capacity of the DE-DK1 Interconnector (based on the Commission's estimate) available in the future. This number corresponds with the first proposal for a fixed capacity threshold introduced during the legislative process for the Clean Energy Package.[139] This indicates that TSOs have no motivation to deviate from the legally established minimum capacity value, which might be either insufficient or excessive from a social welfare perspective at the bidding zone border in question.

These deficits notwithstanding, the new binding minimum value has potential to facilitate the enforcement of the maximum capacity principle in practice. For one thing, the previous regime was more ambiguous – determining economic efficiency is a matter of interpretation, so that a fixed threshold increases legal certainty. Moreover, the challenging case-by-case assessment under the previous flexible solution might have been a disincentive to regulators to investigate possible instances of excessive congestion displacement. Nevertheless, the fact that TSOs may request a derogation from the new minimum capacity threshold imposes a new and complex task on the NRAs with high potential for conflict.[140] Therefore, the impact of the new pragmatic 'one size fits all' approach in practice should be carefully monitored.[141]

5. Practical challenges: overcoming particular and national interests

In spite of a plea for 'solidarity between Member States' in primary law and tight regulation in secondary law, individual economic interests and political agendas encumber the formation of an Energy Union as envisioned by the EU. The main responsibility to ensure that electricity markets operate according to the guiding principles of EU energy law rests with the NRAs. Owing to scarce resources and the complexity of the matter, they are facing a formidable effort. This section will describe possible economic (see 5.1), as well as political (see 5.2) considerations that may contribute to excessive

137 Energimarknadsinspektionen (n 13) 9.

138 Although ACER's recent Recommendation No 01/2019 (n 54) aims to resolve numerous issues related to implementing the new minimum threshold, it is not binding and it remains to be seen whether the principles contained therein will be applied in practice.

139 In the course of the adoption of the ElReg, the minimum value was lowered from 75 per cent to 70 per cent; see Fridtjof Nansen Institute and Thema Consulting Group, 'Clean Energy Package – The Battle on Bidding Zones and Cross-Zonal Capacity Allocation' (2019) REMAP Insight 3–2019 www.fni.no/getfile.php/139736-1559128718/Filer/Publikasjoner/REMAP%20Insight%203%20-%20Bidding%20zones%20and%20capacity%20allocation.pdf accessed 8 December 2019.

140 Art 16(9) ElReg. For instance, SvK has applied for a derogation due to the structural congestion in the West Coast Corridor, which should have been resolved years ago according to the TSO's argumentation in *Swedish Interconnectors* (n 39); see Svenska Kraftnät, 'Request of Svenska Kraftnät for a Derogation from the Minimum Level of Capacity to be Made Available for Cross-Zonal Trade (2019/3188)' 6–7.

141 For a critical analysis of the potential consequences, see Konrad Purchała, '75% Capacity Thresholds – Do We Really Know What We Are Doing?' (*EURACTIV*, 17 December 2018) www.euractiv.com/section/energy/opinion/75-capacity-thresholds-do-we-really-know-what-we-are-doing accessed 8 December 2019.

congestion displacement and assess the efficacy of countermeasures provided by EU energy law.

5.1. *Individual economic interests*

Like the proverbial stick and carrot, EU energy law provides not only mechanisms that aim to ensure effective enforcement, but also incentives to the involved stakeholders. In particular, the assignment of costs and benefits of maximising interconnector capacity has a significant steering function with regard to TSOs. The aim of this section is not to provide a fully fledged economic analysis of TSO regulation, but to comment on some possibly adverse incentives that the current regulatory framework provides with regard to congestion displacement. To begin with, TSOs must be regarded as rational actors in the economic sense, that is, their behaviour follows their own interest to maximise their profit, by either increasing their revenues and/or reducing their costs.[142] To explore possible reasons for excessive congestion displacement, the two approaches will be discussed separately.

5.1.1. Maximising revenues

The TSOs' default source of revenues consists in the tariffs they charge on market participants using their network. However, since transmission networks are natural monopolies, the TSOs' revenues are regulated and capped.[143] Whereas the details of tariff regulation differ significantly between Member States and cannot be dealt with exhaustively here, EU energy law establishes the basic condition that the TSOs' revenues obtained through tariffs may not exceed what is necessary to cover the costs of transmission system operation (including congestion management costs) and to provide incentives for sufficient investments in the grid.[144] Furthermore, the NRAs must thus adopt a restrictive stance when fixing transmission tariffs, so that the TSOs bear the risk that some of their investments or congestion management costs cannot be recovered. Judging from the current preponderance of internal bottlenecks, the incentive effect of tariff regulation seems to be limited. In addition, practical challenges – including, but not limited to, local opposition against transmission infrastructure projects – may further compromise the financial incentives provided. Even though the precise impact of these two factors – the risk of non-recoverable costs or practical issues – cannot be analysed here, both of them could motivate TSOs to avoid or delay necessary investments or to eschew congestion management costs, resorting instead to congestion displacement as an interim solution until practical challenges are resolved.

In addition to collecting tariffs, TSOs earn so-called congestion income by allocating the available cross-border capacity, corresponding to the product of the price difference in two connected biding zones and the amount of electricity transmitted between

142 Cf N Gregory Mankiw, *Principles of Economics* (4th edn, Thomson South-Western 2007) 317.
143 *Ibid* 327–28.
144 See Art 59(7)(a) and recital (81) ElDir. Cf also Art 59(5)(d) ElDir, which in principle only applies to TSOs certified as independent system operators, but makes explicit the general rule that tariffs must provide for 'adequate remuneration of the network assets and of any new investments made therein'. On remedial action costs, cf ACER and CEER (n 12) 8.

these zones.[145] In theory, TSOs thus have a strong incentive to maximise cross-zonal capacity. However, congestion income is also subject to restrictive regulation. It would be unjust if network users bore the costs of congestion management (in the form of tariff increases) while the TSOs received the gains as windfall profits (in the form of congestion income). To avoid resulting inequities, congestion income is 'earmarked' under EU law.[146] The Clean Energy Package has sharpened the pertinent provisions, which define certain 'priority purposes' that congestion income shall be used for. These are: guaranteeing the actual availability of allocated capacity (including covering 'firmness compensation' resulting from curative curtailment); optimising interconnector capacity through coordinated remedial actions; and necessary network investments. Only once these possibilities are 'adequately fulfilled' may congestion income be used for lowering network tariffs, subject to approval by the competent NRA. Any residual congestion income must be placed on a separate internal account until it can be used for one of the priority purposes.[147] In principle, congestion income thus does not serve as a regular revenue for TSOs and provides only limited incentive to maximise cross-zonal capacities. A less rigid application of the earmarking regime that allows for some of the congestion income to be used as revenues – subject to strict control by the competent NRAs – might help to increase interconnector capacity both when investing and when managing congestion, thus contributing to the EU's energy policy aims more strongly.[148] One example is the 'cap and floor' regime applied, inter alia, by the British NRA (Ofgem), which aims to encourage investment by providing a 'safety net' of minimum congestion income – subject to a certain minimum availability of the interconnector – that is sufficient for covering the operating costs of an interconnector (the floor) and some returns to the investors – possibly including a bonus if a certain availability target is met (the cap). Any congestion income beyond the cap is used for lowering network tariffs.[149]

5.1.2. Minimising costs

Seeing as the TSOs' options to increase their profit through augmented revenues are severely limited, options to reduce the costs of congestion management gain importance. This concerns both long- and short-term costs, namely, investments and congestion management costs.

Maximising cross-border capacity generally necessitates expensive reinforcements of the internal network. TSOs bear these costs in the first instance and thus incur the associated financial risks.[150] Whereas a few large reinforcements seem to be more efficient than several smaller investments,[151] the execution of several consecutive

145 Art 2(16) GL-CACM. For the day-ahead timeframe, see Art 42(1) GL-CACM.

146 For a detailed account of the (theoretical) merits of earmarking congestion income, see Höffler (n 21) s 2.4.2.

147 Art 19(2) and (3) ElReg. Note that Art 63(1) ElReg allows for exemptions in the case of new merchant interconnectors.

148 Cf Case C–454/18 *Baltic Cable AB v Energimarknadsinspektionen* [2019], Opinion of AG Tanchev (14 November 2019), paras 78–79, who assumes that under the earmarking regime it is not prohibited 'to make a reasonable profit' from congestion income.

149 Cf Ofgem, 'Cap and Floor Regime: Unlocking Investment in Electricity Interconnectors' (2016) www.ofgem.gov.uk/system/files/docs/2016/05/cap_and_floor_brochure.pdf accessed 8 December 2019. It is outside the scope of this article to assess the compatibility of this solution with EU energy law.

reinforcements in relatively short time spans both in the Swedish West Coast Corridor and in Northern Germany shows that in practice, investments stay shy of the economic optimum. It is beyond the scope of this article to judge whether this is the result of (overly zealous) endeavours to impede overinvestment through restrictive tariff regulation. Nevertheless, the apparent tendency to underinvest rather perpetuates existing bottlenecks and contributes to excessive congestion displacement.

In addition, short-term congestion management causes considerable costs, such as compensation paid to redispatched generators, particularly RES. As SvK's and TenneT's reasoning in the cases discussed here demonstrates, TSOs aim to avoid these costs. Although the network codes envision a system for sharing the costs associated with remedial actions among the involved TSOs, this system is still under development and will only provide *ex post* compensation, so that even under a flawless cost-sharing system, it would take considerable time to extenuate any existent motivations to displace congestion.[152] Furthermore, TSOs face the risk of additional costs in the form of financial compensation to affected market participants in case of curative curtailment.[153] This risk can be averted through more conservative capacity estimates, that is, preventive curtailment. For this reason, some authors propose the issue of non-firm capacity rights that can be curtailed without compensation.[154] However, EU energy law does not follow this reasoning and establishes instead that capacity for the spot market 'should be firm'.[155] Hence, overcoming the resulting adverse incentives again requires regulatory oversight.

Congestion management costs can be covered with congestion income, however this only provides limited incentives to the TSO to incur them in the first place. It is true that a quicker and less bureaucratic possibility of recovering these costs than through transmission tariffs should incentivise TSOs to forgo congestion displacement, maximise cross-zonal capacities and increase congestion income. However, these incentives are inherently limited, since the wholesale prices on the connected markets converge with increased cross-zonal trade, so that congestion income tends to diminish with increased trade volume. In the case of full price convergence, congestion income disappears entirely.[156] In addition, the economic risk of congestion displacement is ultimately borne by the market participants. For one thing, wholesale price inefficiencies resulting from lower cross-border trade are largely irrelevant for the TSOs. In fact, these inefficiencies entail higher price differences, which dampens the losses in congestion income to a certain extent. Moreover, the fact that congestion

150 TSOs can obtain loans and other funding for infrastructure projects from national and EU sources; however, these do not mitigate the financial risk entirely and will thus not be discussed in detail here.

151 Cf Ventosa, Linares and Pérez-Arriaga (n 19) 59.

152 See Art 74 GL-CACM. On the substantial implementation issues, see ACER, GL-CACM and GL-FCA Implementation Report (n 14) s 3.5.1.2.

153 Art 16(2) ElReg, Art 72 GL-CACM.

154 See Carsten König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* (Nomos Verlagsgesellschaft 2013) 211.

155 Arts 69–72 and recital (17) of the GL-CACM.

156 Therefore, TSOs have an incentive to keep cross-zonal capacity well below the level where price differences vanish, when investing in new interconnectors, when reinforcing the internal grids and when managing congestion, cf *Baltic Cable AB v Energimarknadsinspektionen*, Opinion of AG Tanchev (n 148) para 43. See also Rivier, Pérez-Arriaga and Olmos (n 10) 290, who use merchant interconnectors as an example.

income is earmarked for the benefit of market participants also makes maximising cross-zonal capacity a zero-sum game for the TSO at best.[157] If, in turn, a TSO cannot expect with certainty that the costs of resolving congestion are at least compensated by an increase in congestion income, the same TSO would be financially better off by displacing the congestion instead. Any incentives to maximise cross-zonal capacity disappear altogether in the case of interconnectors that are owned by third parties, such as interconnectors operating under a 'merchant' scheme.[158] Then, the congestion income is assigned to the third party, the TSO cannot even expect that its congestion management costs are offset by congestion income and congestion displacement becomes the most financially advantageous option.

This leaves the potential costs of fines and damages to be paid as a result of competition or regulatory law infringements as a potential deterrent. However, the cases discussed above suggest that the associated risk is rather low. In the competition law cases, both SvK and TenneT were able to avoid fines or other sanctions for prolonged and systematic congestion displacement by committing themselves to measures they were obliged to take under EU energy law in the first place. Likewise, BC's claims for damages were entirely rejected by the OLG Düsseldorf, just as its requests to impose sanctions on TenneT. Therefore, the steering function of these costs appears negligible at present. Owing to the factors addressed in the upcoming section, the imposition of stricter sanctions in the near future seems unlikely.

5.2. *Political considerations*

The previous section highlighted that regulatory control remains indispensable in order to get a grip on congestion displacement. Whereas this presupposes strong and independent regulators that enforce the aims and provisions of EU energy law,[159] this is not always the case: although this subject is naturally not discussed explicitly in litigations, there are numerous indications that national political considerations – principally, the explosive topic of increasing domestic power prices – contribute to inappropriate congestion management despite welfare losses on the European level. This has repercussions in both the private and the public sphere.

On the one hand, TSOs are under considerable pressure to keep their tariffs low. In Germany, soaring remedial action costs are inflating network tariffs,[160] so that TenneT might feel compelled to limit these costs by curtailing the interconnectors with Denmark and Sweden despite welfare losses resulting from less efficient wholesale price formation across these countries.[161] Similarly, political pressure to avoid price increases might drive NRAs to tolerate congestion displacement in spite of their formal independence. For example, SvK's initially unopposed curtailing of interconnector capacities also stabilised wholesale prices in Sweden to the detriment of

157 Note that a less strict interpretation of the earmarking regime that allows for a modest revenue to be derived from congestion income might extenuate these effects, cf s 5.1.1 above.

158 See Art 63 ElReg. While not a merchant line, the Baltic Cable is another example. Accordingly, ACER does not consider full price convergence an end in itself, see ACER and CEER (n 12) para 3.

159 Art 59(1)(b), (e), (f), (h) ElDir.

160 See the BNetzA's annual electricity market monitoring reports www.bundesnetzagentur.de/berichte.html accessed 8 December 2019.

161 Cf Energimarknadsinspektionen (n 13) 27; ACER and CEER (n 12) s 3.3.2.

Danish market participants.[162] Moreover, NRAs depend on a good working relationship among each other and with the TSOs. Hence, they might choose to remain passive in the face of purportedly minor infringements instead of engaging in long legal battles with uncertain results. The *Baltic Cable* case provides one example: in my view, the decisions by the German institutions in this litigation effectively legalise systematic congestion displacement beyond what is provided for in EU energy law – coincidentally limiting domestic congestion management costs in the short run, although increasing electricity trade with Sweden could produce higher welfare gains.[163] Another example is the tolerance of SvK's ongoing refusal to employ remedial actions to address structural congestion in the Swedish West Coast Corridor despite SvK not providing convincing reasons: whereas excess wind production cannot justify congestion displacement,[164] neither can high nuclear power production, which does not even enjoy priority dispatch. Moreover, it is rather doubtful whether the exemption from SvK's commitments for the West Coast Corridor is still valid. The context of the decision rather suggests that the exemption was conditional on the realisation of certain grid reinforcements, which have been operational for years. It appears especially troubling that the Commission, as a potential external controlling body, seems uninterested in reopening this settled case. This leniency creates a regulatory vacuum and gives wrong signals.

Yet political considerations might also exacerbate issues of a wider scope, such as an inappropriate use of congestion income or failures to recognise structural internal bottlenecks in the bidding zone configuration.[165] Contrary to the earmarking regime just discussed, the bulk of congestion income in Europe is used not for covering congestion management costs, but for lowering local network tariffs – with formal approval by the NRAs.[166] While this practice may appease network users, it also defers the removal of congestion. The resulting higher degree of separation of the connected wholesale markets entails higher market concentration and contributes to inefficient wholesale prices, since inefficient generators are not supplanted by more efficient producers from across the border. This reduces the welfare gains that can be obtained from market integration.[167] The NRAs' tolerance of this situation could be explained by endeavours to prevent stranded generation investments, particularly in high-price countries: due to the proliferation of RES, conventional generation technologies suffer from declining wholesale prices, and importing more and cheaper electricity could sound the death knell for generators already struggling to stay competitive, which could ultimately compromise security of supply.[168] If, in contrast, wholesale prices are usually low, tendencies to protect customers – particularly the industry –

162 Sadowska and Willems (n 132) 100.
163 Rumpf (n 95).
164 See s 4.1.2.
165 For the case of Germany, see Höffler (n 21) s 3.1.2.
166 ACER and CEER, 'Market Monitoring Report 2014' (n 135) 173. Later available market monitoring reports no longer scrutinise the use of congestion income due to a lack of resources.
167 Cf König (n 154) 79–86.
168 One notable example concerns the gas-fired blocks 4 and 5 of the Irsching power plant in Germany, commissioned in 2010/2011. Despite this being one of the most efficient gas power plants in the world, power production from these blocks is not competitive under the current wholesale price levels in Germany and the owners push for their partial decommissioning. The BNetzA has ordered the affected blocks to remain available as a reliability reserve.

from the price increases resulting from increased power export might provide an explanation. It seems that when facing the difficult task of striking a balance between two mutually dependent evils – higher tariffs or inefficient wholesale prices – it is thus safer for NRAs to opt for lower tariffs (which appease market participants) at the cost of segregated wholesale prices (which benefit either domestic producers or customers, depending on the prevalent price level[169]). Although the revisions of the Clean Energy Package have rendered the wording of the earmarking rules somewhat stricter, the NRAs retain considerable discretion concerning the use of congestion income. Recognising this issue, the revised rules also oblige the TSOs to submit by 5 July 2020 a proposal for a methodology that determines the use of congestion income, subject to approval by ACER. In addition, TSOs are required to report on the use of congestion income to the NRAs, who in turn are to inform ACER.[170] These changes could lead to a more impartial control over the use of congestion income, yet their efficacy in practice depends on how ACER's competences are interpreted. One crucial issue in this context is whether ACER has competence to unilaterally alter an unsatisfactory proposal from the TSOs, or if ACER only may request the TSOs to amend the methodology. While reasons of efficacy speak in favour of understanding ACER's competence extensively, the wording is ambiguous.[171] Moreover, where the reports reveal an inappropriate use of congestion income, external regulatory intervention is not foreseen.

Similar issues seem to lie behind the failure to optimise the current, inefficient European bidding zone configuration, as foreseen in EU energy law through a regular review process.[172] In its report on the recent first review, ACER concludes that the TSOs did not act neutrally, but rather actively encumber the review process and only considered bidding zone configurations that they deemed economically favourable or politically acceptable, so that the review ended in a stalemate.[173] The apparent general reluctance of most stakeholders – including the NRAs – to change the status quo despite detected inefficiencies may, according to ACER, 'partly be understood from a political perspective' and owing to 'partial interests, which sometimes correspond to national interests and sometimes to specific industry's interest'. Against this background, a reinforcement of the regulatory framework at EU level appears necessary, so that 'EU interest becomes the main driving force' and the electricity market design envisioned by EU energy law – that is, a zonal system based on efficient bidding zones – can be implemented.[174] Unfortunately, the Clean Energy Package contributes little in this context. While it strengthens ACER's role during the review process, it also reduces the pressure to actually change inefficient bidding zones. Whereas under the Third Energy Package, it was the TSOs who were responsible for implementing 'appropriate congestion-management methods … *immediately*' in case of structural congestion,[175]

169 Cf n 21 above.
170 Art 19(4) and (5) ElReg.
171 Cf Decision of the Board of Appeal of the Agency for the Cooperation of Energy Regulators in the Case A-001-2017 (consolidated) 2017 12–15. While this decision was annulled recently by the GC in *E-Control v ACER* (n 35), this judgment is based entirely on procedural considerations and does not discuss whether ACER's competence includes a right to modifying the proposals it decides on.
172 Arts 32–34 GL-CACM. See also Art 14 ElReg.
173 ACER, GL-CACM and GL-FCA Implementation Report (n 14) 60.
174 *Ibid* 61, 63.

this task has shifted to the Member States. What is more, they may now choose freely between a bidding zone split and creating an 'action plan' to address structural congestion.[176] As experiences from Germany show, it is doubtful that action plans will be effective in removing internal structural congestion: the severely delayed realisation of the 'power highways' from Northern to Southern Germany (contained in the investment plans of the German TSOs) due to vehement local opposition illustrates that plans are of limited value if their implementation fails.[177] Coincidentally, it was Germany that pushed decisively for a 'softer' bidding zone regime during the negotiations for the Clean Energy Package.[178] The resulting changes to the review process appear as a missed opportunity to accelerate the optimisation of the European bidding zones. Meanwhile, maintaining an inefficient bidding zone configuration will require excessive use of remedial actions, lead to further congestion displacement and constrict welfare gains.[179]

6. Conclusion and outlook

This study has examined the practice of congestion displacement – that is, curtailing cross-zonal capacity to relieve internal congestion – in European electricity transmission systems. With the help of relevant case studies, it has identified several factors that contribute to excessive congestion displacement, followed by scrutiny of whether the recently updated legal framework for the electricity sector addresses these factors adequately.

Since congestion displacement is discriminatory, leads to partial market foreclosure and reduces the economic gains of market integration, EU energy law prohibits this practice with narrow exceptions, namely for reasons of reliability and economic efficiency. While this was already the case under the Third Energy Package, the cases discussed here show that this prohibition was not always effective in practice. These cases also make it possible to identify common factors that contribute to excessive congestion displacement. These are diverging reliability standards, different approaches to economic efficiency and adverse particular and national interests. The Clean Energy Package and the European network codes address these contributing factors and establish reinforced safeguards against congestion displacement.

In general, the recent revisions of the regulatory framework appear sensible. First, it has become clearer when congestion displacement is justified for reliability reasons. It

175 Para 1.4 of Annex I to the ElReg-2009 (emphasis author's own).

176 Art 14(7), 15 ElReg.

177 See the press release from the German Ministry of Economic Affairs and Energy, '#NetzeJetzt: Minister Altmaier Takes Grid Expansion into His Own Hands' (24 September 2018) www.bmwi-energiewende.de/EWD/Redaktion/EN/Newsletter/2018/08/Meldung/topthema.html accessed 8 December 2019.

178 See Fridtjof Nansen Institute and Thema Consulting Group (n 139).

179 For a model examining the (positive) effects of market splitting on the Swedish market, see Sadowska and Willems (n 132), particularly table 3. At the time of writing, the TSOs have proposed alternative bidding zone configurations according to Art 14(5) ElReg. In the case of Sweden, the proposal put forward is to maintain several bidding zones and optimise the border configuration. In contrast, the German TSOs considered several options to split the DE/LU bidding zone, but could not agree on one approach and thus propose to maintain the status quo. The alternative bidding zone configurations and explanatory documents are available at www.entsoe.eu/news/2019/10/07/bidding-zone-review-methodology-assumptions-and-configurations-submitted-to-nras accessed 8 December 2019.

is now clearly established that congestion displacement is a subordinate measure of last resort and that priority dispatch for RES must not lead to congestion displacement. These clarifications increase legal certainty in transmission system operation, thus hopefully contributing to reduction of the current amounts of congestion displacement to economically sound levels. To the same effect, establishing a fixed minimum capacity for all bidding zone borders and reinforcing the earmarking regime for congestion income further reduces the space for inappropriate economic considerations in congestion management. However, it seems fit to mention that a 'one size fits all' approach to cross-border capacity levels might be too schematic, and further adjustments might be needed in the future to attain an economically optimal level of market integration.

Moreover, the success of these revisions depends on their implementation and enforcement in practice. Unfortunately, the examined revisions are notably more conservative in this regard. Some of the changes in the Clean Energy Package – particularly the newly introduced option to address structural internal congestion through national 'action plans' – seem to be rather a regression. It must be hoped that this is not a sign of diminishing ambitions at the European level, especially since this study has demonstrated that national and even particular interests further encourage congestion displacement. This can be seen in the continued tolerance of systematic congestion displacement on many European borders, or in the failure to optimise the current, inefficient bidding zone configuration. Additional competences and resources could help regulators to push for sensible compromises in the interest of market integration, yet the revised framework for the electricity sector delivers only a modest bolstering of their powers.

To conclude, no single entity or obvious failure in the regulatory framework can be held responsible for the current prevalence of congestion displacement. Rather, this phenomenon results from the interaction of several factors. Therefore, despite decades of liberalisation and continual refinement of the legal framework, the success of the Energy Union still depends most upon continued regulatory intervention. With regard to getting a grip on congestion displacement, progress will consist of small steps instead of giant leaps unless the Member States begin to consider the electricity sector a European – instead of a national – concern. In view of a distressing resurgence of nationalistic tendencies in many Member States, this seems anything but certain. Meanwhile, congestion displacement must be expected to prevail or even increase in the face of the continued proliferation of RES and persistent internal capacity bottlenecks. This is regrettable, since a more efficient management of internal congestion according to the maximum capacity principle could contribute significantly to the economic and environmental goals of the EU for the power sector.

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Paper 3

Statutory Transmission Monopolies in EU and EEA Law – Why a European Energy Union Cannot Tolerate National Transmission Monopolies

Julius Rumpf (2023) 48 European Law Review 167-186.

Available for download at
https://www.jus.uio.no/nifs/english/people/aca/juliusr/rumpf_2023_48_elrev_issue_2_offprint.pdf*

Paper 4

Energy Law

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23. Energy law

Julius Rumpf and Catherine Banet

1. INTRODUCTION

Enforcement of European Union (EU) energy law is a two-sided affair. In the big picture, the EU has successfully liberalized and integrated the European energy markets. It has recognized new rights for energy consumers and ensured more transparent and liquid energy trading. Whereas the energy sector used to be a national domain, today energy is traded and transported across borders, based on common EU rules. Energy is a strategic domain for States individually and for their collaboration with the EU, as revealed by the energy price and supply crisis that started in the winter of 2021/22. Yet beyond areas of common interest, differences between the EU and the Member States concerning energy policy goals remain (Szulecki et al. 2016; McCown 2016). As per its usual approach, the EU endeavours to create an internal energy market (IEM) with minimum rights for market players and consumers, and to overcome nationalistic reservations against its energy policy goals by harmonizing the legal framework (Chapter 18 in this Handbook). This has resulted in a comprehensive and prescriptive legal framework that relies on a mix of substantive and technical legal requirements to facilitate enforcement. Nevertheless, the implementation of the legal framework, as well as the investigation and sanctioning of breaches, starts at Member State level.

In this chapter, we explain the progressive and accelerating evolution of EU energy law from non-existence to an established vein of regulation in a matter of a few decades (section 2). We explore factors for the success in enforcing EU energy law, notably with liberalizing the sector and integrating the segregated national energy markets (section 3). Finally, we comment on current trends and outline possible legal limits to today's enforcement strategy in EU energy law (section 4). Due to space limitations, we focus on the EU's market-building competences and interventions to create the IEM, with electricity and gas as the main energy carriers. The full picture is more complex, as the aims of EU energy law have evolved beyond 'simple' market integration (Heffron and Talus 2016). The Treaty on the Functioning of the European Union (TFEU), in Article 194, names sustainability, effective competition and security of supply, sustainability and interconnections. Following the Commission's 'Energy Union' strategy (European Commission 2015), recent secondary legislation aims to 'put citizens at [the] core' (Directive 2019/944 – the Electricity Directive – Recital (4)). EU energy legislation on aspects of heating and cooling, as well as energy efficiency or support to renewable energy sources, now stands alongside market rules. Moreover, the weighting of the different objectives of EU energy policy constantly evolves in the wake of changing policy preferences. Over time, decarbonization efforts have gained importance. Recent examples of this development include the above-mentioned 'Energy Union' project, the European Green Deal and the 'Fit for 55' package. In February 2022, Russia's invasion of Ukraine pushed issues related to energy security and exploding energy prices to the fore.

That said, a core question for this chapter is the degree to which the EU uses cooperative enforcement strategies to achieve its different energy policy goals. To answer this question,

we present case studies that show the diversity of the EU's enforcement strategy in the energy sector. The first group of case studies illustrates the use of deterrent and compliance-based enforcement approaches. They include the liberalization of the sector, unbundling and the technical operation of energy grids, with varying degrees of success. In the second case study, we turn to the European network codes to exemplify how cooperation contributes to enforcement. Our analysis shows that despite considerable success so far, political disagreement still hampers the successful enforcement of EU energy law. This observation carries even more relevance against the background of the severe energy crisis that began in 2021.

2. THE LEGAL FRAMEWORK FOR EU ENERGY

2.1 The Treaty Framework: Enforcement Competences and Balancing Policy Aims

Energy concerns are at the root of European integration: energy was a core subject of the earliest treaties on European economic integration (cf the Treaty of Paris establishing the European Coal and Steel Community, or the Euratom Treaty). In the following, the terms 'EU' and 'EU law' are also used for measures adopted by the European Communities to facilitate reading. However, it was not before the 1990s that the EU successfully commenced liberalizing the national energy markets (Talus 2013). Until then, vertically integrated utilities that operated under the protection of statutory monopolies dominated the electricity and gas sectors. Cracking these monopolies and separating the competition activities of producing and trading energy from the operation of energy networks – still considered a natural monopoly – is a major achievement of EU energy policy.

Yet, several more decades would pass before the Lisbon Treaty introduced a dedicated legal basis for the shared competence in the field of energy. The Lisbon Treaty defined the following aims of EU energy policy (Articles 4(2)(i) and 194(1) of the TFEU):

- effective competition;
- security of supply;
- sustainable energy supply; and
- further interconnection of the European energy networks.

These aims are realized in the context of the IEM. Energy market integration constitutes another vital objective of EU energy policy – albeit not the only one, as mentioned before. Moreover, despite significant advances, the IEM is still a work in progress, hampered mostly by insufficient cross-border connections (so-called interconnectors). The EU's competence to act in the field of energy also entails the use of enforcement mechanisms.

The EU energy policy goals are structured around the three pillars of security of supply, sustainability and affordability – the so-called energy trilemma. The three pillars of the EU energy trilemma are (1) interrelated, (2) subject to interpretation and (3) involve inevitable trade-offs. The weight given to each of the pillars within this trilemma may shift over time, according to short-term priorities. Balancing them against each other in a consistent way requires EU enforcement – no easy task, since the EU and its Member States have yet to attain unity on a number of important energy issues (Szulecki et al. 2016). Article 194 of the TFEU provides two general pointers. On the one hand, the EU and the Member States are obliged to ensure

Table 23.1 Increase in complexity – Electricity Directives

Energy Package	Electricity Directive Number	Pages	Provisions	Definitions
First	Directive 96/92/EC	10	29	24
Second	Directive 2003/54/EC	18 (+ 80%)	34 (+ 17%)	31 (+ 29%)
Third	Directive 2009/72/EC	37 (+ 105%)	53 (+ 56%)	36 (+ 16%)
Clean Energy	Directive (EU) 2019/944	72 (+ 95%)	83 (+ 57%)	57 (+ 58%)

Table 23.2 Increase in complexity – Electricity Regulations

Energy Package	Electricity Regulation Number	Pages	Provisions	Definitions
First	—	—	—	—
Second	Regulation (EC) 1228/2003	10	20	8
Third	Regulation (EC) 714/2009	20 (+ 100%)	32 (+ 110%)	9 (+ 13%)
Clean Energy	Regulation (EU) 2019/943	67 (+ 235%)	87 (+ 172%)	41 (+ 356%)

Notes on Tables 23.1 and 23.2: Pages are counted including annexes, except correlation tables. The Clean Energy Package has replaced the two-column page layout of previous Packages with a single-column layout, which might account for some of the increase in pages. Provisions are counted including articles and points in annexes, but not correlation tables. Paragraphs and subparagraphs are not counted separately. Unmodified reiterations of definitions in different legal acts are counted only once.

mutual energy solidarity, which the Court of Justice (ECJ) recently recognized as a legally enforceable obligation in *Germany v Poland* (Case C-848/19 P [2021]; for a discussion, see Münchmeyer 2022). Furthermore, each Member State is entitled 'to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply'; however, the scope of this caveat remains quite unclear (Huhta 2021b; Haraldsdóttir 2014).

2.2 The Secondary Legislation Framework

The treaties provide the legal basis for the EU to adopt sector-specific secondary legislation (Article 194(2) of the TFEU). For the electricity and gas sectors, EU energy law has increasingly been adopted in the form of 'packages'. The most recent and fourth iteration, the 2019 'Clean Energy for All Europeans Package', covers only the electricity sector (European Commission nd(a)). However, EU gas legislation is currently being updated as part of the 'Hydrogen and Decarbonised Gas Markets Package' (European Commission nd(b)).

Over time, EU energy legislation has grown exceedingly detailed and complex (see Table 23.1 and Table 23.2 above for examples from EU electricity legislation). Whereas the content of the First Energy Package – adopted between 1996 and 1998 – was revolutionary, its volume was modest. It initiated the liberalization process with wide, general rules. With each new package, the sectoral framework became more sophisticated. In 2009, the Third Package added the so-called network codes, a novel type of delegated legislation that establishes harmonized and legally binding, technically detailed rules for the operation of the European electricity and gas networks and markets (Hancher et al. 2021). They are drafted by private actors and approved by appointed regulators at EU and national level (Eckert and Eberlein 2020; Jevnaker 2015). We discuss the network codes as one of our case studies.

2.3 Nature of the Legal Obligations in EU Energy Legislation

The Third Energy Package and the Clean Energy Package each entailed an acceleration and increase of legislative initiatives in the energy sector. We divide the legal requirements under EU energy law into substantive and technical requirements. Substantive requirements establish general principles and obligations for the Member States, but also for electricity undertakings; these requirements leave considerable room for interpretation and flexibility. We refer to the provisions on unbundling and the general rules on interconnector capacity management as examples later on. Technical requirements complement the substantive requirements without altering them, thus reducing room for discretion and providing a higher degree of harmonization. Examples include the 15 per cent electricity interconnection target by 2030 established in Regulation (EU) 2018/1999 (the Governance Regulation) or the technical requirements contained in the network codes. One question for investigation in this chapter is whether these multiple requirements have been accompanied by a specific enforcement strategy and related mechanisms to ensure successful implementation – and if so, what is the relationship between the type of legal requirements and the enforcement mechanisms? The chapter also questions to which extent the separate legal requirements under the different pieces of EU energy legislation are consistently enforced.

2.4 Model of Enforcement

We conceptualize enforcement as the bringing into actual effect or operation of a final measure of EU law, according to the underlying aims. We thus focus on compliance, by Member States as well as private actors (for a discussion on compliance, see Ştefan 2017; critical: Batory 2016). Moreover, we discuss elements of 'soft enforcement' – such as negotiation and monitoring – as well as 'hard enforcement' practices, such as investigating and sanctioning (on the distinction, see Scholten 2022). This allows us to capture important features and dynamics of the EU energy legislation.

2.4.1 The main actors

The EU's traditional choice of indirect administrative enforcement also applies in the energy sector (Chapters 3 and 17 in this Handbook). Under the principle of subsidiarity, EU energy law is generally implemented and enforced by the Member States (Scholten 2022; Chiti 2012). In this context, EU law obliges the Member States to create specialized national regulatory authorities (NRAs), which must be independent from political and commercial influence (cf Case C-718/18 2021; Huhta 2021a). Nevertheless, several EU entities participate in energy law enforcement. The Commission's direct enforcement competences have been a cornerstone of EU energy enforcement, as our case studies in the following section illustrate (for a more complete overview, consult Bergqvist and Herrera Anchustegui 2020; Penttinen 2017). Whereas the NRAs and the Commission carry the responsibility for hard enforcement, the EU Agency for the Cooperation of Energy Regulators (ACER) is an important actor in the context of soft enforcement. According to Article 2(d) of Regulation 2019/942 – the ACER Regulation – ACER serves as a forum where the NRAs can coordinate on cross-border issues and exchange information and best practices.

2.4.2 Enforcement approaches and styles

At first sight, EU energy enforcement follows a deterrence-based approach. Simply put, a deterrence-based enforcement strategy aims to make non-compliance more costly than compliance (be it in terms of money, reputation or other values), based on the expected likelihood of sanctioning (Chapter 5 in this Handbook; Gunningham 2010; Lodge 2015). EU law equips both the Commission and the NRAs with tools for deterrence-based enforcement, such as imposing fines or other sanctions (Articles 104, 105 and 258 of the TFEU; Article 41 of the Gas Directive; Article 59 of the Electricity Directive). However, EU law leaves room for compliance-based enforcement, that is, enforcement that builds on education, negotiation and cooperation rather than sanctioning (Lodge 2015). The Commission has used compliance-based strategies extensively in the field of energy; this includes both strategic leniency and voluntary commitments under Regulation 1/2003 (Bergqvist and Herrera Anchustegui 2020). Whereas we do not discuss national enforcement in the Member States here, the NRAs devise their own enforcement strategy, which may include compliance-based or 'smart' enforcement approaches (Dutch Authority for Consumers and Markets 2016).

2.4.3 Networks, agencies and rule-making

Rule-making is another aspect we highlight in this chapter. Hoping that harmonized, objective technical requirements would accelerate the creation of the IEM and reduce the weight of political considerations, the EU adopted a sophisticated procedure for the development of sectoral technical requirements under the European network codes and guidelines, based on mandatory cooperation and negotiation among key actors in the sector. This cooperation, introduced with the Third Energy Package, builds on previous self-regulation structures in the energy sector. In the past, the European transmission system operators (TSOs), as well as the NRAs, each formed informal networks for cross-border coordination and exchanging best practices (Chapter 9 in this Handbook; Lavrijssen and Hancher 2009). However, the EU did not trust that voluntary cooperation would guarantee the achievement of its energy policy aims (Klopčič et al. 2020; Schneider 2018). Thus, the Third Energy Package transformed the TSO networks into ENTSO-E and ENTSOG – the 'European Network of Transmission System Operators' for Electricity and Gas, respectively. The ENTSOs provide a platform for the exchange of opinions and practices and play an important role in the creation and implementation of the network codes and guidelines (Vlachou 2018).

Similarly, and as in other sectors, an EU agency – ACER – has been created to institutionalize cooperation among NRAs (Chapters 10 and 11 in this Handbook; Chamon 2016). In addition to its 'soft' enforcement powers, the agency is competent to adopt legally binding technical requirements. In this context, it is important to recall that Article 18(5) of the ACER Regulation prescribes the adoption of decisions with a two-thirds majority in ACER's Board of Regulators, which is composed of representatives from the European NRAs. Hence, the agency's decisions always spring from negotiation, but not necessarily from consensus or even unanimity, as up to one third of the NRAs may not support a decision by ACER and could be less eager to enforce it.

3. FACTORS INFLUENCING THE ENFORCEMENT SUCCESS

We define successful enforcement as the actual fulfilment of enforcement objectives via specific tools, preferably via preventing violation, rather than via sanctioning (Scholten 2021). The yardstick in the case of EU energy law is the achievement of EU energy policy aims. After describing some specific challenges related to measuring success with EU energy enforcement, we use case studies to illustrate why EU energy enforcement has been partially successful thus far, and which factors limit success. In particular, our examples are chosen to illustrate when the EU relies on the deterrent effect of prosecution and sanctions, and when the EU prefers to proceed in a compliance-based manner.

3.1 Challenge: Energy Policy Goals Caught in a 'Trilemma'

The 'trilemma' affecting the EU energy objectives makes gauging the success of EU energy law enforcement challenging. To implement the Energy Union strategy, the Governance Regulation establishes a system of integrated planning and reporting on objectives and targets related to, for example, the share of renewables, the level of energy efficiency and energy savings and the rate of interconnection (Banet 2022). Yet other aims remain more subjective, such as the level of energy security, which will fluctuate in priority according to circumstances, as exemplified by the Russian invasion of Ukraine and the following disruptions on the energy markets. Moreover, while target models have been established for the electricity and gas markets, the criteria for the completion of the IEM itself appear to be constantly evolving.

To better measure progress towards the IEM, ACER has developed objective indicators as part of its monitoring duties. Examples include the difference between energy prices on neighbouring markets, or the volumes of cross-border energy trade (ACER and CEER 2021b). The Commission undertakes similar endeavours in its reports on the 'State of the Energy Union' (European Commission 2021). However, these indicators have no legal force. Moreover, it is striking how much the views of ACER and the Commission diverge. ACER consistently highlights that much work remains to be done to complete the IEM and emphasizes that energy prices for end consumers have risen continuously (ACER and CEER 2021b, 12–18; 2021a, section 4.1). In contrast, the Commission proclaimed the completion of the Energy Union years ago (European Commission 2019, 1). A recent study by Klopčič et al. based on a EU-wide survey among NRAs and energy traders backed the Commission's optimism and concluded that the respondents 'mostly agree on the fact that the EU has a nearly functional [IEM]'. However, the authors point out that other respondents might have answered differently (Klopčič et al. 2020).

These examples show that the EU's energy policy objectives are subject to subjective judgments and upheavals. This can give considerable weight to political considerations. There is consensus between the EU and its Member States on the general orientation of EU energy policy, with more divergence as to the weight of the specific aims. Disparities may arise in particular in terms of security of supply, interconnection and energy mixes. Balancing the different policy objectives and interests at play necessitates a diversified enforcement strategy. We hypothesize that the EU adapts its enforcement strategy according to the level of political consensus on energy policy aims, with a preference for compliance-based enforcement where consensus is weak. Moreover, the EU tends to adopt detailed technical requirements in areas

necessary for the advancement of the IEM. The adoption of an interconnectivity target of 15 per cent and of a 70 per cent minimum cross-border capacity threshold exemplify this.

3.2 Deterrence and Compliance: The Search for the Right Mix

The right mix between deterrent and compliance-based enforcement should deliver the best enforcement results (Chapter 5 in this Handbook; Gunningham 2010; Ayres and Braithwaite 1992). However, the 'big stick' is not always available in the field of energy, where the Member States endeavour to retain control over their energy supply. The following sections provide examples to illustrate how the EU – and in particular the Commission – has adapted the use of its limited competences to the political climate to increase enforcement success in each case.

3.2.1 Early success with liberalization: a top-down approach based on substantive requirements

Implementing its liberalization targets in the energy sector has been a major priority for the EU. The EU managed to abolish the monopoly position of the energy incumbents and to overcome the resistance of several Member States to initiate liberalization reforms – at a time where it did not yet possess explicit competence in the field of energy. What was the key to this success against all odds? Surprisingly, deterrence. The EU deftly used its limited legislative and enforcement competences to facilitate the adoption of harmonized EU legislation on the energy markets. In the long run, this early success contributed to the progressive establishment of energy as an EU policy area.

The *Energy Monopoly* judgments by the ECJ were a catalyst for this development (Case C-157/94; Case C-158/94; Case C-159/94; Case C-160/94). After several decades of cautious restraint in energy matters, the Commission used the free movement provisions and its competence to initiate infringement proceedings under the current Article 258 of the TFEU to proceed against electricity and/or gas monopolies in several Member States. It did not matter that the Commission was unsuccessful in most proceedings. The fact that the ECJ even discussed whether these energy monopolies breached EU law swept away the notion that energy was 'off limits' for EU regulation. In turn, this motivated the Member States to come to the EU negotiation table and helped clear the way for the adoption of the First Energy Package.

In other instances, compliance-based enforcement proved successful, especially within competition policy. The Commission's sector inquiries keep the Member States and sectoral undertakings on their toes, while also identifying blind spots in the existing regulatory framework. One example is the 2007 inquiry in the electricity and gas sectors (European Commission 2007). The inquiry revealed several factors that impeded further progress with liberalization, mostly related to the fact that many energy incumbents remained vertically integrated. Whereas the Commission initiated several competition law proceedings, most suspected offenders got off lightly by offering voluntary commitments, or even informal promises to refrain from the practices at issue in the future (see, for example, European Commission 2008). Apparently, the threat of sanctioning vertical integration was alone sufficient to achieve compliance. At the same time, the adoption of structural remedies by several large incumbents may have helped achieve a regulatory goal: the adoption of a stricter unbundling regime in the Third Energy Package (Jones 2019). Similarly, following the 2016 sector inquiry, the Clean Energy Package established harmonized rules on so-called capacity mechanisms, which pre-

viously constituted the epitome of national energy sovereignty (European Commission 2016; see also Articles 21 and 22 of Regulation 2019/943 – the Electricity Regulation; Leiren et al. 2019).

In line with theoretical expectations, the threat of pursuing implementation gaps, backed up with 'surgical strikes', strengthens compliance by the industry and even helps to build political consensus on refining the regulatory framework for the sector. Nonetheless, having too many instances of centralized EU enforcement would cause resistance at Member State level. Moreover, the Commission lacks the capacity to pursue all breaches of EU energy law. Thus, the NRAs were created to facilitate enforcement at Member State level. This distributes enforcement across a greater number of shoulders, but gives national policy considerations greater room (Maggetti 2019).

3.2.2 Politics as a limit to enforcement: the issue of insufficient cross-border capacity

Given our focus on the policy objective of market integration, the low utilization rate of many electricity interconnectors provides another interesting case study. Insufficient cross-border capacity is a long-standing obstacle to completing the IEM (Recital (27) of Electricity Regulation). To increase interconnector utilization, the Electricity Regulation (Article 16(4)) and Regulation 715/2009 (Article 16(1) of the Gas Regulation) establish substantive requirements that oblige the TSOs to maximize trade capacity while maintaining system reliability. In turn, limiting cross-border capacity to allow for internal electricity flows — so-called congestion displacement – is illegal (Rumpf 2020). Nevertheless, numerous electricity TSOs curtail cross-border capacity. Whereas the TSOs claim the curtailments are necessary to safeguard the security of the congested national grids, another reason may well be that increasing trade capacity would also increase network operation costs, which are borne by the final consumers.

The Commission investigated instances of congestion displacement in the *Swedish Interconnectors* case (European Commission 2010) and the *DE/DK Interconnector* case (European Commission 2018). In these cases, the Commission established that congestion displacement leads to market foreclosure and entails a discrimination against foreign producers and consumers – a clear breach of fundamental principles of EU law. Both cases were resolved through voluntary commitments of the concerned TSOs. However, more than ten years after the Swedish Interconnectors case, the Swedish TSO Svenska kraftnät is still curtailing trade capacity at the Swedish borders, without the Swedish NRA taking action (ACER 2022b). In contrast, the measures undertaken by the German TSO TenneT as a reaction to the DE/DK Interconnector case have improved the utilization of the concerned interconnector.

This notwithstanding, at the same time and just a few kilometres to the east, TenneT regularly curtailed another interconnector: the Baltic Cable on the German–Swedish border. Yet the Commission did not investigate this instance of congestion displacement. While the Baltic Cable belongs to an independent third-party owner rather than an incumbent TSO, the ECJ clarified in *Baltic Cable* (Case C-454/18) that this difference must not lead to any discrimination vis-à-vis regular TSOs (Rumpf and Hancher 2021). The owner brought an action against TenneT before the German NRA and, subsequently, the German courts. However, despite largely identical facts, the decisions by the German institutions diverge completely from the Commission's assessment in the aforementioned cases. Whereas the German institutions did address the applicable EU legislation, their interpretation clearly favoured national interests over the aims of EU energy policy: their failure to enforce the pertinent EU rules on the Baltic Cable avoided higher network operation costs in Northern Germany (Rumpf 2019).

This outcome suggests that national actors may not enforce substantive requirements of EU energy law as sternly as EU institutions when policy preferences diverge (cf Chapter 6 in this Handbook). Whereas the Commission readily threatened sanctions in *Swedish Interconnectors* and *DE/DK Interconnector*, the competent NRAs remained passive in the face of systematic congestion displacement. Interestingly, this did not change after the Commission's intervention. In fact, the Commission's complete discretion in choosing whether to pursue a violation of EU rules may even limit the deterrent effect of its interventions (Batory 2016). Following the Commission's interventions, the Swedish and German NRAs might have felt that lightning would not strike in the same place twice, that is, that the Commission would not initiate new proceedings against the same undertaking in the same Member State. While more research is required to verify this assumption, this would limit the deterrent effect of intervention by the Commission.

3.2.3 The 70 per cent rule: successful enforcement by numbers?

To reduce the scope for unjustified interconnector curtailments in the national interest, the EU adopted a specific measure to combat congestion displacement in the Clean Energy Package – the 70 per cent rule (Article 16(8) of the Electricity Regulation). This rule obliges the electricity TSOs to provide a minimum level of cross-border capacity for electricity trade. The 70 per cent rule is an example of a technical requirement that complements the substantive requirements on capacity management. It is even reinforced by a specific enforcement duty of the NRAs (Article 59(1)(h) of the Electricity Directive). However, the apparent simplicity of 'enforcement by numbers' falls short of the complexity of capacity management in practice.

Most importantly, the NRAs do not seem to share a uniform understanding of the details underlying the 70 per cent rule, such as how to determine the reference capacity on which the numerical threshold is based. This creates a risk that the Member States will apply the rule inconsistently – and according to their own policy preferences. In turn, this undermines enforcement of the 70 per cent rule, under both a deterrent and a compliance-based approach. To counteract, ACER issued a recommendation on the application of the 70 per cent rule shortly after its adoption (ACER 2019a). Yet, subsequent monitoring reports by the agency show that not all NRAs implement this non-binding recommendation (ACER 2020). In another recent attempt to harmonize the monitoring of the available trade capacity, ACER published a non-binding 'practical note' (ACER 2022c). However, several NRAs have declared reservations against important aspects of ACER's proposed approach.

Hence, the impact of the 70 per cent rule may well remain limited until the Member States – represented by their NRAs – have obtained a common understanding on the issue of congestion displacement and a consequent willingness to investigate and sanction breaches. This illustrates the importance of strategies for building such consensus, which we will address in the coming section.

3.3 Cooperation for Increased Compliance and Easier Enforcement: The Case of the Network Codes

The preceding sections illustrate that success with EU energy enforcement depends on political consensus both upfront and at implementation stage. The EU is currently developing harmonized technical requirements in pursuit of continued enforcement success. This section uses the European network codes for electricity and gas, introduced under the Third Energy

Package, as an example. These codes cover areas such as the technical operation of the European gas and electricity grids, but also establish rules concerning cross-border energy trade. The network codes are adopted as delegated EU regulations and hence are directly enforceable according to Article 288(2) of the TFEU. They constitute the last link between EU energy policy and its effect on the ground. While not a classical enforcement measure, the network codes are highly relevant for enforcement success because they establish detailed harmonized technical requirements that eliminate blind spots in the sectoral regulatory framework. However, success has been mixed so far.

The network codes assign the creation of sectoral 'hard law' to private energy undertakings – not only through consultations, but also by enlisting them in the drafting of energy legislation. The complexity of the process leading to the adoption of the network codes, established in the Electricity Regulation (Article 59) and the Gas Regulation (Article 6), only allows for an abridged overview here (for details, refer to Hancher et al. 2021; Vlachou 2018; Jevnaker 2015). At the outset, EU energy law enumerates the areas for which network codes may be developed. The Commission determines in a 'priority list' for which of these areas network codes are to be developed. Next, ACER creates non-binding 'framework guidelines' that serve as a blueprint for each future network code. Until this stage, stakeholders are only involved through mandatory consultations. This changes when ENTSO-E or ENTSOG are tasked with developing a draft for each network code – however, within the limits of the pertinent framework guideline. Finally, the draft is scrutinized by ACER before the Commission decides on its adoption.

This process builds on previous self-regulation structures. It mirrors the merits and perils commonly associated with self-regulation in the literature (Chapter 5 in this Handbook; Baldwin et al. 2011; Black 2001). Among these, knowledge transfer from the industry to the regulators and a greater potential for acceptance of – and compliance with – the resulting expert-made rules constitute important advantages in such a technically complex area as the energy sector. At the same time, the process clearly seeks to keep a check on the industry's considerable epistemic authority (Eckert and Eberlein 2020). In its zeal to impede industry abuse of this authority to prioritize its own interests over EU policy goals, the EU may have eroded industry autonomy to a point where the network codes no longer yield all of the benefits of self-regulation.

We note that the Commission and ACER retain full control during all stages of this process. Moreover, enforcement of the network codes is not delegated to the industry, but remains with the NRAs and the Commission. Given the EU's tight grip on the network codes, they constitute 'co-regulation' rather than self-regulation (Chapter 5 in this Handbook; Schneider 2018; Black 2001, 118–19). Consequently, the network codes have not yielded the full benefits associated with self-regulation.

First, the knowledge transfer has remained incomplete. Especially in the electricity sector, dissent impeded the adoption of network codes for cross-border trade. Instead of adopting these network codes unilaterally (Article 59(13) of the Electricity Regulation), the Commission created so-called guidelines. In contrast to network codes, the guidelines contain few technical requirements and require further implementation through so-called methodologies. The methodologies are once again drafted by the industry, indicating an incomplete transfer of knowledge.

Second, the resulting harmonized rules do not enjoy unrestricted acceptance. Instead of a cooperative atmosphere of peer review, we observe a certain entrenchment that often sparks

legal litigations. Such litigations frequently concern methodologies in the electricity sector, where they bind considerable resources and cause significant delays (ACER 2019b; 2022a). However, the General Court's 2022 judgment in *MEKH v ACER* shows that they also concern gas network codes (Case T-684/19). What is more, it is not only private drafters that raise such challenges, but also dissident NRAs that were overruled during qualified majority voting in ACER's Board of Regulators (see, for example, Case T-631/19 *BNetzA v ACER*; Case T-332/17 *E-Control v ACER*), and even some Member States (see Case T-283/19 *Germany v ACER*). The underlying disputes frequently mirror the political preferences of the involved parties (ACER 2019b). Thus, instead of producing consensus, the network codes highlight areas of contention – which may or may not be resolved in the process.

3.4 Implications for Future Research and Practice

Our overview suggests that success of EU energy enforcement depends on political consensus, both under deterrent and compliance-based strategies. The effectiveness of detailed technical requirements to ensure successful enforcement is limited where political consensus is absent, as the case of the 70 per cent rule indicates. Therefore, the success of EU energy enforcement may be curbed by the fact that the effects of EU energy policy regulation are often politically awkward (Chapter 6 in this Handbook). The deployment of wind farms or energy networks frequently triggers local resistance, the deregulation of energy prices raises concerns of energy poverty, and energy efficiency measures are rarely popular with homeowners that carry the investment costs. In some instances – as with congestion displacement – ignoring EU energy law may reduce energy prices in the short term, limiting the deterrent effect of potential EU sanctions considerably. The question whether national actors gain political capital by 'defying Brussels' would merit further research.

Thus, the EU cannot pursue a policy of the heavy hand in the energy sector. Giving ACER 'hard' enforcement powers may be possible under the ECJ's *Meroni/ESMA* doctrine (Case C-270/12; Case 9/56; Chapter 10 in this Handbook). However, this step would certainly meet resistance from the industry (Maggetti 2019). Therefore, the EU should instead explore means to build consensus on policy aims. With the creation of ACER, the EU has facilitated cooperation among the NRAs and the exchange of best practices. This exchange may help pragmatic as well as economically and technically sound solutions to emerge. Moreover, a dedicated forum for enforcers may further shield the NRAs from political preferences of their home governments (Bach et al. 2015).

The EU's approach to cooperation and co-regulation in the energy sector provides another opportunity for research. Whereas the network codes' contribution to successful enforcement seems more modest than intended, they have yielded significant progress in some areas, for instance with a tighter 'coupling' of the European energy markets (ACER and CEER 2021b). In an attempt to increase the efficiency of the underlying process, the EU has bolstered ACER's powers and given the agency the power to revise proposals for electricity network codes (Article 59(11) of the Electricity Regulation) and methodologies (Article 5(6) of the ACER Regulation). The recent proposal for a revised Gas Regulation follows the same principles. This further restraint of self-regulation in the energy sector may prove problematic, since the EU depends more than ever on knowledge and innovation from the industry for meeting the challenges of the energy transition.

Energy is a complex policy area, and in this chapter we could only deal with aspects of market integration. We believe that our findings apply also to other facets of energy policy, such as energy efficiency. However, we are well aware that these findings require further corroboration. In particular, future research could shed light on whether 'new' enforcement strategies (such as smart enforcement or responsive regulation) could further increase enforcement success. Similarly, a more exact scrutiny of ACER's role would be worthwhile. Is the agency gradually becoming an EU enforcement agency, or is its role one of mediation? And, perhaps even more importantly: which of the two options would bring most to the table? Another element on which we have not been able to shed light is private enforcement (see Chapter 2 in this Handbook). In view of the increasingly complex regulatory framework for the energy sector, the EU has not yet found the ideal trade-off between specificity, on the one hand, and accessibility and flexibility, on the other. The regulatory framework for energy may have grown too complex for most private parties to identify breaches and proceed against them, although EU law provides some safeguards, such as for network tariffs (Banet 2020). This issue would merit dedicated research, in particular since (excessive) complexity is an established issue also in other sectors (Baldwin 1990).

4. OUTLOOK

Is the enforcement of EU energy law successful? There does not seem to be a definitive answer to this question. Several of the EU's energy policy goals carry a strong subjective element, and they are constantly evolving. Often, it is a question of whether one considers the glass half empty or half full: the Commission has a tendency to proclaim the achievement of energy policy goals, whereas ACER generally points to progress as well as setbacks. In our view, the EU is overall successful regarding enforcement in the energy sector. However, our examples illustrate that advancement in several critical areas is delayed and erratic. The simple fact that the Commission's and ACER's resources are limited speaks against a hard enforcement strategy to address remaining enforcement gaps at EU level. Such an approach could also entail a hardening of opposing positions. Instead, the EU should build on the consensus represented in the adopted harmonized legislation to overcome remaining points of contention. This would likely contribute more to continued success with energy law enforcement than any particular enforcement tool (McCown 2016, 55).

We see reason to be optimistic, despite the energy price crisis shaking the European energy markets in 2022. The Commission was quick to promote a common approach for emergency measures to address high energy prices, through both a non-binding temporary crisis framework and a Council regulation (European Commission 2022a, Regulation 2022/1854). The endorsement of a price cap on gas used for electricity production in Spain and Portugal illustrates that the Commission followed a pragmatic enforcement approach during the crisis (European Commission 2022b). At the same time, the EU and its Member States started a dialogue on structural reform of the energy market rules (Pollitt et al. 2022). The adoption of short-term market intervention measures by the Council preserved (so far) the balance between continuous reliance on EU energy market rules and short-term national priorities. Renegotiating EU market rules on a larger scale will need to build on the best practices and efforts by all parties to ensure implementation and enforcement in periods of transition for both the IEM and the energy system.

Just recently, the Commission has proposed a revision of EU electricity market legislation to counteract energy price shocks in the future, protect customers and promote renewables (European Commission 2023, on the discussion leading to the proposal, see Pollitt et al. 2022).

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Case T-283/19 Germany v ACER; not yet decided.
European Commission, Commission Decision of 26 November 2008 relating to a proceeding under Article 82 of the EC Treaty and Article 54 of the EEA Agreement (Cases COMP/39.388—German Electricity Wholesale Market and COMP/39.389—German Electricity Balancing Market)
European Commission, Commission Decision of 14.04.2010 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case 39351—Swedish Interconnectors)
European Commission, Commission Decision of 7.12.2018 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case AT.40461—DE/DK Interconnector)
European Commission, Decision on the aid measures SA. 102454 (2022/N) and SA.102569 (2022/N). C(2022) 3942 final (2022b)

Paper 5

Quaternary Law in EU Electricity Governance: Stretching *Meroni* too Far?

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QUATERNARY LAW IN EU ELECTRICITY REGULATION

Quaternary Law in EU Electricity Regulation: Stretching *Meroni* too Far?

Deep Delegation under the 'Terms, Conditions and Methodologies'

*Julius Rumpf**

In the European electricity sector, the delegation of rule-making has literally reached the next level. So-called 'methodologies', legally binding rules developed between private electricity companies and specialized regulatory agencies, constitute a vast and growing body of 'quaternary law'. The methodologies and their unique features raise numerous interesting questions for scholars of EU law, but they remain severely under-researched. This is regrettable, since the methodologies illustrate another pressing issue related to the delegation of rule-making: the fuzzy legal boundaries to delegation. These follow from the European Court of Justice's (ECJ's) non-delegation, or* Meroni *doctrine, which however seems to be subject to a creeping maceration. As the methodologies show, the resulting legal uncertainty encourages ever-bolder models of delegation, raising grave constitutional concerns. At the same time, the methodologies illustrate a need for delegated rule-making in technical sectors, such as electricity. The argument of this article is that the ECJ should therefore revise the* Meroni *doctrine to restore legal certainty with respect to delegation, while also respecting the requirements of regulatory reality. This article discusses possible approaches and proposes a starting point for a 'Meroni** ***doctrine 2.0'.

Keywords: Meroni doctrine, non-delegation doctrine, tertiary law, quaternary law, electricity market integration, ACER, Clean Energy Package, European network codes and guidelines, terms, conditions and methodologies

1. Introduction

This article addresses the growing gap between the legal boundaries to delegated rule-making under EU law and the extent of delegation in practice.[1] It illustrates this issue with a novel category of delegated, legally binding acts of supranational scope that the EU has introduced into the electricity sector over the past decade: the so-called terms, conditions and methodologies (in the following simply 'methodologies' for brevity). These methodologies implement delegated regulations (the electricity guidelines)[2] and address some of the most contentious and pressing issues in electricity regulation, in particular the inadequate utilization of cross-border interconnector cables.[3] Functionally, they are indiscernible from classical delegated – or 'tertiary' – EU legislation adopted by the Commission.[4] However, the methodologies are developed between private electricity companies and specialized regulatory agencies at the behest of the Commission and without intervention from the EU institutions. Since the methodologies are situated in the uncharted territory below tertiary law, this article regards them as a new category of quaternary law.[5] The methodologies represent a 'deeper' delegation of decisions than what was previously the case, which is intuitively problematic from a constitutional perspective.

The recent emergence of quaternary law in the electricity sector illustrates both a growing extent of delegation in technical sectors, and a need for clear legal boundaries to the delegation of decisions to administrative bodies. Since the Treaties do not provide such boundaries, the European Court of Justice (ECJ) has iteratively developed a so-called non-delegation doctrine, or *Meroni* doctrine – named after the Court's seminal 1958 *Meroni* judgment.[6] The core of this doctrine is that the EU institutions may not delegate decisions involving political discretion, while a delegation of executive discretion is acceptable. However, sixty-five years after *Meroni*, the

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[1] In the interest of conciseness, the term 'EU' also refers to legal predecessors to the EU where relevant.

[2] Article 288 of the Treaty on the Functioning of the European Union [2012] OJ C326/47 (TFEU), Art. 61 of Regulation (EU) 2019/943 on the internal market for electricity [2019] OJ L158/54 (ElReg-2019). Note that the existing guidelines were adopted according to pre-Lisbon comitology, so that the term 'delegated' is not meant as a reference to Art. 290 TFEU.

[3] Pursuant to Art. 2(1) ElReg-2019, an interconnector is '*a transmission line which crosses or spans a border between Member States and which connects the national transmission systems of the Member States*'. This article does not cover the parallel endeavor concerning the European gas markets.

[4] Since the Lisbon Treaty, the conditions for the adoption of tertiary legislation follow from Art. 290, 291 TFEU. For further reading, *see The Legislative Choice Between Delegated and Implementing Acts in EU Law* (Eljalill Tauschinsky & Wolfgang Weiß eds, Edward Elgar Publishing 2018); Herwig Hofmann, *Legislation, Delegation and Implementation Under the Treaty of Lisbon: Typology Meets Reality,* 15 Eur. L. J. 482 (2009), doi: 10.1111/j.1468-0386.2009.00474.x.

[5] Similarly: Thomas Burmeister & Petra Kistner, *Zur weiteren Europäisierung der Netzwirtschaft durch das Clean Energy Package* 179, 182 (Recht der Energiewirtschaft 2021).

[6] Case 9/56 *Meroni & Co, Industrie Metallurgiche, SpA v. High Authority of the European Coal and Steel Community* [1958] ECR 11.

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concrete criteria for the differentiation between these kinds of discretion still remain unclear. What is more, a study of recent case law shows that the Court avoids a meaningful scrutiny of the kind of discretion subject to delegation. Whereas the actual boundaries for delegation thus remain vague, the ECJ's case-law suggests that they are more generous than the Court's statements imply.

This situation creates unacceptable legal uncertainty and yields considerable risks. On the one hand, the *Meroni* doctrine in its current form fails to provide a satisfying answer to the fundamental question that the emergence of quaternary law in EU electricity regulation raises, i.e., whether such a deep delegation of considerable discretion is legally permissible. On the other hand, the longer the current legal uncertainty is accepted, the more difficult it will be for the ECJ to remedy the situation. Given the extensive use of delegation in EU governance, a lock-in effect may arise where the extent of delegation in practice defines the legal boundaries for delegation under EU law – and not the other way around, as should be the case. In particular, despite the described legal uncertainty, recent EU legislation under the 'Clean Energy Package' has expanded the use of methodologies in the electricity sector.[7] Moreover, the use of quaternary legislation may spread to other sectors at any given time.

The emergence of quaternary law in the electricity sector thus provides a novel and particularly bold degree of delegated decision-making that urges to reignite the discussion on the precise content of the *Meroni* doctrine. This discussion has long engaged scholars and practitioners of EU law. This article aims to contribute to the rich body of knowledge by engaging with two new phenomena: first, recent case-law from the ECJ that illustrates the maceration of the *Meroni* doctrine. Second, the emergence of quaternary law in the electricity sector, which is an indicator that the resulting legal uncertainty tends to increase the gap between law and practice with regard to delegation. The main argument of this article is that the interaction of these phenomena underlines the urgency of revising the *Meroni* doctrine to restore legal certainty. Furthermore, this revision should recognize the apparent need for co-regulation and delegation in technical sectors. The article therefore proposes a starting point for revising the *Meroni* doctrine along these lines.

In this vein, the discussion proceeds as follows. Section 2 provides an account of the emergence of quaternary law in EU electricity regulation, explaining the methodologies and the Commission's rationale in resorting to deep delegation for their adoption. Section 3 reviews the content and development of the *Meroni* doctrine, highlighting the ambiguity of the doctrine using recent case-law. Section 4 shows why the methodologies illustrate a growing gap between regulatory practice and the legal boundaries for delegation. Section 5 provides the main contribution of the article by proposing and discussing different approaches to resolving the current legal uncertainty with regard to delegated rule-making. Section 6 concludes the discussion.

2. Quaternary Law in Electricity Regulation

Before discussing where the methodologies stand in relation to the ECJ's *Meroni* doctrine, it is useful to explain the characteristics of this novel and unique type of delegated EU legislation, the first example of quaternary law. Surprisingly, legal scholarship has so far neglected the methodologies. Whereas delegated rule-making is a salient discussion topic in the energy sector,[8] as well as other sectors,[9] specific studies on the methodologies remain scarce.[10] Therefore, the purpose of this section is to introduce the methodologies, concentrating on those features that set methodologies apart from other instances of delegated rule-making in EU law. These features are:

[7] *See* https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en (accessed 13 Oct. 2023).

[8] *See* e.g., Sandra Eckert & Burkard Eberlein, *Private Authority in Tackling Cross-Border Issues. The Hidden Path of Integrating European Energy Markets*, 42 J. Eur. Integration 59 (2020), doi: 10.1080/07036337.2019.1708340; Thomas Kohlbacher & Saskia Lavrijssen, *Good Governance in the Development of Network Codes for the EU Internal Electricity Market* 11 Rev. Eur. Admin. L. 27 (2018), doi: 10.7590/187479818X15481611819877; Charikleia Vlachou, *New Governance and Regulation in the Energy Sector: What Does the Future Hold for EU Network Codes?*, 9 Eur. J. Risk Reg. 15 (2018), doi: 10.1017/err.2018.18; Torbjørg Jevnaker, *Pushing Administrative EU Integration: The Path towards European Network Codes for Electricity*, 22 J. Eur. Pub. Pol'y 927 (2015), doi: 10.1080/13501763.2014.1000363; Andreas Pointvogl, *A New Dimension in the Legitimacy Debate – Network Codes in the Energy Community*, 12 Oil, Gas & Energy L. Intelligence (2014).

[9] For examples, *see* Merijn Chamon, *Beyond Delegated and Implementing Acts: Where Do EU Agencies Fit in the Articles 290 and 291 TFEU Scheme?*, in *The Legislative Choice Between Delegated and Implementing Acts in EU Law* 195–197 (Eljalill Tauschinsky & Wolfgang Weiß eds, Edward Elgar Publishing 2018); Pieter Van Cleynenbreugel, *Meroni Circumvented? Article 114 TFEU and EU Regulatory Agencies*, 21 Maastricht J. Eur. & Comp. L. 64, 72 (2014), doi: 10.1177/1023263X1402100104; Niamh Moloney, *The European Securities and Markets Authority and Institutional Design for the EU Financial Market – A Tale of Two Competences: Part (1) Rule-Making*, 12 Eur. Bus. Org. L. Rev. 41, 74–75 (2011), doi: 10.1017/S1566752911100026; Pierre Schammo, *The European Securities and Markets Authority: Lifting the Veil on the Allocation of Powers*, 48 Common Mkt. L. Rev. (2011), doi: 10.54648/COLA2011073; Stefan Griller & Andreas Orator, *Everything Under Control? The 'Way Forward' for European Agencies in the Footsteps of the Meroni Doctrine,* 35 Eur. L. Rev. 3 (2010).

[10] For an exception, *see* Heinrich Kühnert, Philipp Böhler & Stephan Polster, *A Tale of Delegation and Power: ACER and the Dichotomy of the Non-Delegation Doctrine and the Creation of a Genuine Internal Market in Electricity*, 1 Eur. Competition & Reg. L. Rev. 47 (2017), doi: 10.21552/core/2017/1/8.

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1. The methodologies are not adopted by the Commission, but by an EU agency or national authorities.[11]
2. The drafting is delegated to private parties instead of an agency, as is the norm
3. The methodologies do not constitute 'soft law', but are legally binding.[12]
4. The methodologies further stand out for their differentiated approach to integration, with Pan-European, regional, and national methodologies. Whereas European methodologies are adopted by an EU Agency, regional rulemaking is in the hands of the national electricity regulators. National methodologies are not relevant for this article

The fact that at present, no other instrument of sectoral regulation reunites all of these features raises the question how the use of quaternary law in the electricity sector has come about. Section 2.1 answers this question by explaining the features and rationale behind the use of methodologies. Section 2.2 focuses on the deep delegation inherent in the adoption of methodologies.

2.1 Electricity methodologies: Features and rationale

The methodologies serve the EU's prime energy policy aim: the attainment of a functioning internal market for electricity (IEM).[13] They are part of a larger effort to adopt delegated sectoral legislation in order to overcome the inefficient utilization of cross-border interconnector cables due to congested electricity networks, which restricts the cross-border trade of electricity and impedes the realization of the IEM.[14] This effort began with the Third Energy Package, adopted in 2009, which tasked the Commission with adopting so-called European network codes, in order to create a harmonized, detailed and legally binding regulatory framework that ensured unrestricted cross-border trade of electricity.[15] Since the Commission lacked the knowledge to adopt these network codes on its own, EU legislation obliged private sectoral experts to provide the Commission with corresponding drafts.[16]

However, creating exhaustive network codes turned out to be unfeasible with regard to the calculation and allocation of the scarce capacity on electricity interconnectors, and the operation of electricity transmission systems. This was partially due to the technical complexity of the issues and partially due to diverging interests. In these areas, the Commission resorted to adopting so-called electricity guidelines instead.[17] In doing so, the Commission further delegated the creation of technical, but legally binding rules – the methodologies – to private electricity companies and technocratic agencies. The guidelines and methodologies work in tandem, where the guidelines set out high-level criteria for the adoption of more detailed rules in the form of methodologies. All methodologies contribute in one way or another to optimizing the allocation of capacity on interconnectors. The typical content of a methodology consists in specific obligations related to the calculation and allocation of cross-border capacity, the setting of grid reliability margins, or the sharing of costs arising from maximizing interconnector capacity. In this sense, the 'capacity calculation methodologies' (CCMs) constitute the heart piece of the methodologies.[18]

Despite this singular main purpose, the scope of implementing the guidelines is overwhelming. In total, this endeavour entails the adoption of approximately 200 methodologies on the operation of the European electricity grids and markets. Moreover, this implementation follows a differentiated approach. Methodologies can have different geographical ambits, because the peculiarities of the national energy systems often dictate regionalization rather than full harmonization.[19] This article discusses both Pan-European and regional methodologies. Pan-European methodologies are applicable throughout the EU and constitute important building blocks in the emerging harmonized regulatory framework. Yet regional methodologies are just as important notwithstanding their limited geographical ambit. Regional methodologies are developed separately for each respective geographic region. For example, there are currently eight Capacity Calculation Regions (CCRs), each of which has its own CCM.[20] All told, implementing the guidelines thus entails creating hundreds of methodologies.

[11] Admittedly, the adoption of delegated legislation by the Commission may, in some cases, amount to little more than a formality, cf. Merijn Chamon, *The Empowerment of Agencies under the Meroni Doctrine and Article 114 TFEU: Comment on United Kingdom v. Parliament and Council (Short-Selling) and the Proposed Single Resolution Mechanism*, 39 Eur. L. Rev. 380, 395 (2014).

[12] Merijn Chamon & Nathan de Arriba-Sellier, *FBF: On the Justiciability of Soft Law and Broadening the Discretion of EU Agencies: ECJ (Grand Chamber) 15 July 2021, Case C-911/19, Fédération Bancaire Française (FBF) v. Autorité de Contrôle Prudentiel et de Résolution, ECLI:EU:C:2021:599*, 18 Eur. Const. L. Rev. 286, 303 (2022), doi: 10.1017/S157401962200013X.

[13] Compare Art. 194(1)(a) TFEU, recital (4) ElReg-2019.

[14] Recital (27) ElReg-2019. For an in-depth discussion, *see* Julius Rumpf, *Congestion Displacement in European Electricity Transmission Systems – Finally Getting a Grip on It? Revised Safeguards in the Clean Energy Package and the European Network Codes*, 38 J. Energy & Nat. Resources L. 409 (2020), doi: 10.1080/02646811.2019.1707441.

[15] *See* David Levi-Faur, *Regulatory Networks and Regulatory Agencification: Towards a Single European Regulatory Space* 18 J. Eur. Pub. Pol'y 810 (2011), doi: 10.1080/13501763.2011.593309; Saskia Lavrijssen & Leigh Hancher, *Networks on Track: From European Regulatory Networks to European Regulatory 'Network Agencies'* 36 Legal Issues Econ. Integration 23 (2009), doi: 10.54648/LEIE2009003.

[16] Martino Maggetti, *Interest Groups and the (Non-)Enforcement Powers of EU Agencies: The Case of Energy Regulation,* 10 Eur. J. Risk Reg. 458, 460 (2019), doi: 10.1017/err.2019.38.

[17] Article 61 ElReg-2019.

[18] Articles 20(2), 21 of Commission Regulation (EU) 2015/1222 of 24 Jul. 2015 establishing a guideline on capacity allocation and congestion management [2015] OJ L197/24 (CACM-GL).

[19] Article 58(2)(b), recital (52) ElReg-2019.

[20] The CCRs were recently modified in ACER's Decision No 08/2023 of the European Union Agency for the Cooperation of

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The methodologies establish legally binding rules on some of the most difficult and pressing issues in current electricity regulation. Their strong normative impact makes the methodologies indistinguishable from classical tertiary law for all practical purposes, however without enjoying formal recognition in the Treaties, which make no mention of the Commission being empowered to delegate rule-making further.[21] This places them in a grey area, legally speaking. Nevertheless, the methodologies are firmly established in European electricity regulation. In 2019, the Clean Energy Package replaced the Third Energy Package and opened up for the adoption of additional guidelines and methodologies.[22] Moreover, the newest Electricity Regulation uses methodologies to implement some of its provisions.[23] Therefore, the methodologies are anything but a flash in the pan. In addition, the use of quaternary law could spread to other sectors at any time.

2.2 Developing electricity methodologies: The deepest delegation yet

As mentioned before, the methodologies represent an unprecedentedly deep delegation of rule-making to different public and private actors in a co-regulation setting.[24] The key to understanding the underlying procedure – depicted in Table 1 below – lies in knowing each actor's role and position within the electricity sector. It is further helpful to divide these actors into two groups according to their respective roles: the drafters and the regulators. The group of drafters encompasses two kinds of private actors. First, the so-called transmission system operators (TSOs) operate the all-important high-voltage electricity networks and interconnectors.[25] These private companies[26] have valuable technical expertise because they carry the responsibility for ensuring the reliability of electricity supply.[27] EU energy law obliges the electricity TSOs to cooperate on cross-border issues in the European Network of Transmission System Operators for Electricity (ENTSO-E).[28] Second, the 'nominated electricity market operators' (NEMOs) – also private companies – operate a sophisticated market coupling mechanism that improves cross-border electricity trade.[29] The TSOs draft the bulk of the methodologies. Only some methodologies are jointly drafted by TSOs and NEMOs, and fewer still by NEMOs only. The geographical ambit of each methodology determines the circle of drafters: Pan-European methodologies involve all TSOs and/or NEMOs of the EU, whereas each regional methodology involves the drafters from the respective region.[30]

In turn, formally adopting the methodologies pertains to specialized national regulatory authorities (NRAs) and a dedicated EU agency, the Agency for the Cooperation of Energy Regulators (ACER). Together, the NRAs and ACER form the group of regulators. The Electricity Directive obliges the Member States to designate NRAs as the 'first point of contact' for issues related to the regulation of the energy sector.[31] ACER's mandate is to facilitate the cooperation of the NRAs on cross-border issues and to assist them at EU level.[32] However, the Agency may adopt individual decisions in certain specified cases, including methodologies.[33] ACER and the NRAs share the competence to decide on methodologies as follows. Since 2019, ACER decides on all Pan-European methodologies, while regional methodologies are first submitted to the NRAs of the concerned region.[34] The competence to decide on regional methodologies passes to ACER if the NRAs of the concerned region fail to reach unanimity within the legal deadline, or upon their joint request.[35] The Agency decides in its Board of Regulators, which is composed of representatives of the NRAs, as well as a Commission representative, and decides with two-third majority.[36]

Energy Regulators of 31 Mar. 2023 on the Amendment to the Determination of Capacity Calculation Regions 2023.

[21] Articles 290, 291 TFEU.

[22] Articles 58, 59 and 61 ElReg-2019.

[23] Articles 14(5), 19(4), 23(6), 26(11), 35(5) ElReg-2019.

[24] Julius Rumpf & Catherine Banet, *Energy Law*, in *Research Handbook on the Enforcement of EU Law* 372–374 (Miroslava Scholten ed., Edward Elgar Publishing 2023).

[25] According to Art. 2(35) of Directive (EU) 2019/944 on Common Rules for the Internal Market for Electricity [2019] OJ L158/125 (ElDir-2019), TSOs are '*responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity*'.

[26] Note that TSOs are often state-owned.

[27] Eckert & Eberlein, *supra* n. 8, at 61.

[28] Article 28 ElReg-2019. For more information on ENTSO-E, refer to Cécile Musialski, *The ENTSOs Under the Third Energy Package* in *EU Energy Law and Policy Issues* (Bram Delvaux, Michaël Hunt & Kim Talus eds, Intersentia 2012).

[29] *See* ACER, *Final Assessment of the EU Wholesale Electricity Market Design* 20–22 (2022). NEMOS are defined in Art. 2(23) CACM-GL.

[30] On the division of tasks, *see* Art. 9(1)-(4) CACM-GL.

[31] Articles 57–59 ElDir-2019.

[32] Article 1(2) of Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 Jun. 2019 establishing a European Union Agency for the Cooperation of Energy Regulators [2019] OJ L158/22 (ACERReg-2019).

[33] Articles 2(d) ACERReg-2019; Art. 9(6) CACM-GL.

[34] Articles 5(2) ACERReg-2019. On the development of this division of tasks, *see* Leigh Hancher & Julius Rumpf, *From Network to Agency Governance in EU Energy Regulation*, Eur. J. Risk Reg. (forthcoming) [2024].

[35] Article 6(10) ACERReg-2019. In addition, Art. 5(3) ACERReg-2019 empowers the Agency to require the referral of the decision in cases '*in which the regionally agreed proposal would have a tangible impact on the internal energy market or on security of supply beyond the region.*' This option potentially grants ACER ample room for intervention, since in the interconnected European grid, most regional methodologies tangibly affect adjacent regions. However, it has not been used yet, and it remains to be seen whether the Agency will make use of this prerogative in the future, since it may strain the relation with the 'disempowered' NRAs.

[36] Articles 21, 22 ACERReg-2019.

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Table 1 juxtaposes the procedure for the creation of network codes with the procedure for creating guidelines and methodologies. The Electricity Regulation defines a simpler procedure for the adoption of guidelines than for the adoption of network codes (steps 1–6 in the left column, as compared to steps 1–3 on the right).[37] However, the Commission has adopted all existing guidelines according to the procedure for network codes. At any rate, the implementation of the guidelines through methodologies leads to a far more complex procedure overall. Steps 4 through 7 in the right column show the deep delegation imminent in the adoption of methodologies.

Table 1 Comparison of the Processes for the Creation of Network Codes, Guidelines and Methodologies[38]

Step	*Actors and actions (network codes)*	*Actors and actions (guidelines and methodologies)*
1	The Commission requests ACER to formulate a (non-binding) framework guideline on an area defined in a priority list.	The Commission adopts guidelines after consulting key stakeholders, inter alia ACER and ENTSO-E.
2	ENTSO-E convenes a drafting committee composed of key stakeholders and drafts a network code based on the framework guideline within 12 months.	Commission adopts guideline as an implementing or delegated act (*see* step 5 in left column).
3	ACER scrutinizes and revises the proposal drafted by ENTSO-E within 6 months, consulting the relevant stakeholders.	Guideline becomes binding EU legislation with direct application. Each guideline specifies the methodologies to be developed and their ambit of application (EU/regional/national).
4	The Commission evaluates the draft network code it has received from ACER.	The TSO(s) and/or NEMOs within the geographical ambit of each methodology develop a proposal within the deadline specified in the guideline, consulting stakeholders on the draft where required by the guideline.
5	The adoption procedure depends on whether the network code is adopted as an implementing act (network code is submitted to a committee of national representatives with limited veto rights) or as a delegated act (network code is submitted to experts designated by each Member State, as well as Council and EP; Council and EP may veto).	ACER or the NRA(s) within the relevant ambit revise the proposal drafted by the TSOs within 6 months; they may also request amendments to the draft.
6	Network code becomes binding EU legislation with direct application.	If requested, the TSO(s) or NEMO(s) submit an amended proposal within 2 months; ACER or the NRA(s) may revise the amended proposal within 2 additional months.
7	–	ACER or the involved NRA(s) adopt the methodology as a decision under EU or national law. The methodology becomes binding in the relevant ambit (EU/regional/national).

3. The ECJ's Criteria for Delegated Rule-Making: Meroni and Beyond

The previous section has portrayed the particularly deep delegation of rule-making inherent in the adoption of methodologies, from the Commission to specialized regulatory agencies and private undertakings. Due to their unique features, methodologies go beyond other, established models of delegation under EU law. This section discusses the tension of this development with the ECJ's non-delegation, or *Meroni* doctrine, which has been developed in a series of judgments starting with the seminal *Meroni* judgment in 1958. The aim of this section is to explain why this doctrine is inadequate for dealing

[37] Article 61 ElReg-2019.
[38] Based on Jevnaker (n. 8) 936. Updated to include the guidelines and methodologies and to reflect subsequent changes in the legal framework.

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with new and extensive models of delegation, such as the methodologies. To this end, section 3.1 recounts the gist of this doctrine, which builds on a prohibition to delegate political decisions, measured against an ex ante criterion (the delegated powers must be precisely delineated) and an ex post criterion (the delegated decisions must be subject to judicial control). However, the ECJ applies these criteria in a perfunctory fashion, as section 3.2 shows using recent case law.

3.1 The non-delegation doctrine in a nutshell

Whereas the Treaties impose explicit boundaries on the adoption of tertiary law by the Commission, the limits for the delegation of rule-making to other bodies remain fuzzy – even though the limits of 'agencification' were among the earliest subjects of litigation before the ECJ. The genesis of the non-delegation doctrine is a salient topic in EU law scholarship, and the development of this doctrine will only be retraced in utmost brevity here.[39] In 1958, the ECJ declared in the *Meroni* case that delegating '*discretionary power, implying a wide margin of discretion which may […] make possible the execution of actual economic policy*' to a private body violated the constitutional limits of the Treaties. In turn, the delegation of '*clearly defined executive powers […] subject to strict review in the light of objective criteria determined by the delegating authority*' raised no concerns.[40] The fundamental distinction between political and executive discretion is the core of the ECJ's non-delegation doctrine. At any rate, the boundaries for delegation at EU level were tested again in the *Romano* case in 1981, where the ECJ decided that empowering an EU agency to adopt acts '*having the force of law*' was incompatible with the Treaties. For one, because there was no legal basis for such an empowerment in the Treaties; moreover, because there was no system of legal control for such acts.[41] Nevertheless, the number of EU agencies increases steadily, with several Agencies possessing discretionary powers.[42]

The financial crisis of the late 2000s and the subsequent creation of the European Securities and Markets Authority (ESMA) provided another opportunity to define the boundaries for delegated rule-making in the EU. In the view of the UK, ESMA's competence to adopt temporary emergency measures for protecting the European financial markets breached the criteria established in *Meroni* and *Romano*. The UK therefore sought the annulment of the corresponding provisions in the ESMA Regulation.[43] However, the Court rejected the UK's reasoning, arguing that ESMA did not wield excessive discretion, since the Authority's powers were '*precisely delineated and amenable to judicial review in the light of the objectives established by the delegating authority*'.[44] The Court further emphasized that the measures at issue were only temporary.[45] It essentially declared *Romano* as obsolete, stating that the TFEU '*expressly permits Union bodies, offices and agencies to adopt acts of general application*'.[46]

3.2 Further developments after *ESMA*: A creeping erosion of the *Meroni* doctrine

The ECJ's *ESMA* decision caused considerable commotion in the literature. Many commentators criticized that the Court's criteria extended the scope for agency rule-making without providing clear boundaries for the delegation of quasi-legislative competences.[47] This view informs the main argument of this article, i.e., that the *Meroni* doctrine needs to be revised. To substantiate this argument, the discussion now turns to two recent, contrasting decisions from the energy sector that, while not concerning the phenomenon of quaternary law, exemplify a creeping erosion of the non-delegation doctrine in the case law of the ECJ. In the case *Commission v. Germany*, the Court granted the NRAs far-reaching discretion in adopting the methodologies used for calculating domestic grid tariffs.[48] The ECJ's decision contrasts starkly with another recent decision from the General Court's (GCs) in the case *MEKH v. ACER*, which highlights the narrow scope for delegating rule-making powers to the Commission.[49] Taken together, these cases show that it has become easier to delegate discretionary powers to agencies than to the Commission.[50]

[39] For a discussion, *see* e.g., Chamon, *supra* n. 11; Van Cleynenbreugel, *supra* n. 9; Mira Scholten & Marloes van Rijsbergen, *The ESMA-Short Selling Case: Erecting a New Delegation Doctrine in the EU upon the Meroni-Romano Remnants*, 41 Legal Issues Econ. Integration 389 (2014), doi: 10.54648/LEIE2014022; Griller & Orator, *supra* n. 9.

[40] *Meroni, supra* n. 6, at 152.

[41] Case C-98/80 *Romano* [1981] ECR 1241 [20].

[42] Van Cleynenbreugel, *supra* n. 9, at 70.

[43] Regulation 1095/2010 establishing a European Supervisory Authority (European Securities and Markets Authority) [2010] OJ L331 84.

[44] Case C-270/12 *United Kingdom v. Parliament and Council* (2014) ECLI:EU:C:2014:18 (*ESMA*), paras 53–54.

[45] *Ibid.,* at 50.

[46] *Ibid.,* at 65, referencing Arts 263, 277 TFEU.

[47] To name just a few, Gianni Lo Schiavo, *A Judicial Re-Thinking on the Delegation of Powers to European Agencies under EU Law? Comment on Case C-270/12 UK v. Council and Parliament*, 16 Ger. L. J. 315 (2015), doi: 10.1017/S2071832200020861; Scholten & van Rijsbergen, *supra* n. 39; Chamon, *supra* n. 11; Christoph Ohler, *EuGH, 22.1.2014 – C-270/12 Vereinigtes Königreich./. Parlament und Rat. Rechtsetzungsbefugnisse der Europäischen Wertpapier- und Marktaufsichtsbehörde (ESMA)*, 69 JuristenZeitung 244 (2014); Van Cleynenbreugel, *supra* n. 9, at 78.

[48] Case C-718/18 *Commission v. Germany* [2021] ECLI:EU:C:2021:662. Note that the methodologies at issue in *Commission v. Germany* are not based in a guideline and thus not adopted according to the procedure depicted in Table 1. However, they raise similar issues, as explained in the following.

[49] Case T-684/19 *MEKH v. ACER* [2022] ECLI:EU:T:2022:138 [137–138].

[50] This issue was already raised in the context of the *ESMA* judgment by Ohler, *supra* n. 47, at 251; similarly, Merijn Chamon, *Granting Powers to EU Decentralised Agencies, Three Years Following Short-Selling*, 18 ERA Forum 597, 605–607 (2018), doi: 10.1007/s12027-017-0486-z.

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The erosion of the legal limits for delegation to agencies is particularly apparent from the Court's handling of the ex ante criterion, concerning the question whether the delegatee's discretion is precisely delineated in EU law. In the Court's practice, this criterion amounts to little more than an empty formula. In the *ESMA* judgment, the Court distinguished two different aspects of discretion: first, the *kind* of discretion (political or executive) and second, the *extent* of discretion (excessive or not). As Chamon points out, in *ESMA* the ECJ discussed the kind of discretion permissible to agencies, refusing the delegation of '*political, economic or social choices*'.[51] By contrast, it appears that executive discretion may be delegated as long as it is not excessive. This reflects the notion that delegation to agencies is justified where these bodies possess the technical expertise required for effectively implementing policy choices made at a higher level. However, the ECJ does not practice what it preaches and avoids the difficult task of examining the kind of discretion entirely. Instead, the Court merely proclaims – rather than argues – that a certain discretion is of a technical, rather than political, nature. What is more, the ECJ then infers in a knee-jerk reaction that this excludes the delegated discretion from being excessive. In other words: neither the kind nor the extent of discretion are scrutinized in detail.

This is evident from the ECJ's recent decision in *Commission v. Germany*, where Germany argued that the *Meroni* doctrine was also applicable where national authorities derive powers directly from EU law. The case concerned the NRAs' competence to fix energy network tariffs. In contrast to *ESMA*, which concerned temporary ad hoc interventions in emergency situations, the Electricity Directive empowers the NRAs to adopt lasting decisions on tariffs.[52] Germany submitted that the applicable EU rules lacked precise requirements delimiting the NRAs' discretion, so that the national legislator had to provide such boundaries in order to satisfy the *Meroni* doctrine.[53] The Court refrained from discussing whether *Meroni* also applied in a constellation where national entities - and not an EU agency - derive powers from EU law.[54] Instead, the ECJ decided to forego Germany's argumentation and left open whether the *Meroni* doctrine applies to NRAs, arguing instead that the competences at issue were at any rate

> *executive powers that are based on the technical and specialist assessment of factual realities. Moreover, […] in the exercise of those powers, NRAs are subject to principles and rules established by an equally detailed legislative framework at EU level, which limit their discretion and prevent them from making political choices.*[55]

This legislative framework, which the Court designates as detailed, is indeed quite vague. Most of the principles and rules the ECJ refers to merely repeat general principles of EU law.[56] It is therefore debatable whether they contribute anything to defining the NRAs' discretion. Nevertheless, the ECJ proceeded to state that this ostensibly precise framework also rules out that the NRAs make political choices when fixing network tariffs.[57] This reasoning fails to convince, for there is no causal connection between the extent and the kind of discretion involved in decision-making. By conflating both aspects in *Commission v. Germany*, the ECJ failed to address the question whether the powers delegated to the NRAs involve political choices, which would constitute a breach of the legal limit to delegation. This is frustrating, since the setting of transmission tariffs may well involve political discretion. For example, the decision whether or not to introduce 'injection' charges for electricity producers is related to the political decision to incentivize investment in electricity generation.[58] In the case *Prezident Slovenskej republiky*, the Court stated that NRAs generally act '*to ensure compliance with the objectives pursued by [EU energy law]*',[59] which does resemble a (forbidden) '*execution of actual economic policy*'.[60] Engaging with the kind of discretion at issue in *Commission v. Germany* would thus have provided a valuable opportunity for the ECJ to define the threshold between executive and political discretion more clearly, which the Court however did not use.

The ECJ's rubber-stamping attitude in *Commission v. Germany* is even more puzzling when contrasted with the GC's reasoning in *MEKH v. ACER*.[61] The case concerned

[51] Note that Chamon also criticizes the ECJ's laxness in scrutinizing the *extent* of ESMA's discretion, *see* Chamon, *supra* n. 50, at 603–605; more critical: Joana Mendes, *Discretion, Care and Public Interests in the EU Administration: Probing the Limits of Law*, 53 Common Mkt. L. Rev. 419, 438–439 (2016), doi: 10.54648/COLA2016036.

[52] Article 59(1)(a) ElDir-2019.

[53] *Commission v. Germany, supra* n. 48, paras 94–96.

[54] This question, while highly interesting, must remain outside the scope of this paper.

[55] *Commission v. Germany, supra* n. 48, para. 132.

[56] *See* Kaisa Huhta, *C-718/18 Commission v. Germany: Critical Reflections on the Independence of National Regulatory Authorities in EU Energy Law*, 30 Eur. Energy & Envtl. L. Rev. 255 (2021), doi: 10.54648/EELR2021025. Chamon & Arriba-Sellier, *supra* n. 12, submit a similar observation in the context of Case C-911/19 *Fédération Bancaire Française* [2021] ECLI:EU:C:2021:599 (*FBF*). The criteria at issue in *ESMA* (*supra* n. 44) were no less vague, *see* Chamon, *supra* n. 50, at 601.

[57] Hermann Lüken genannt Klaßen & Luisa Maschlanka, *Bundesnetzagentur und Energiepolitik. Bedeutung und Perspektiven des EuGH-Urteils zur Unabhängigkeit der Behörde*, 71 GWP – Gesellschaft. Wirtschaft. Politik 168, 176–177 (2022), doi: 10.3224/gwp.v71i2.06; Huhta, *supra* n. 56, at 262.

[58] ACER, *Report on Electricity Transmission and Distribution Tariff Methodologies in Europe* (2023), paras 130, 263.

[59] Case C-378/19 *Prezident Slovenskej republiky* [2020] ECLI:EU:C:2020:462, para. 54.

[60] *Meroni, supra* n. 6, at 152.

[61] *MEKH v. ACER, supra* n. 49; for a discussion, *see* Aleksander Glapiak & Ignacio Herrera Anchustegui, *The General Court*

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a gas network code adopted by the Commission. The network code established a procedure to determine whether a TSO had to invest in new cross-border capacity ('incremental capacity increases'). The GC carefully examined the underlying Gas Regulation[62] to determine that by adopting this procedure, the Commission had altered essential elements of the Gas Regulation and thus overstepped the terms of delegation. Referring to the ECJ's case-law, the GC emphasized that essential elements of secondary legislation are those that require political choices. Whether this is the case must be determined '*based on objective factors amenable to judicial review*'.[63] Since '*the legislature made a political choice*' to leave the issue of capacity increases to the Member States, the provisions at issue were adopted *ultra vires* and thus inapplicable.[64]

Apparently, the EU judicature applies double standards regarding the delegation of political discretion. Surprisingly, the scrutiny is less restrictive where delegation to agencies is concerned. This observation applies also outside the energy sector, as the ECJ's argumentation in the case *Fédération Bancaire Française* (*FBF*) from the financial sector shows. In this case, the Court dealt with the competence of the European Banking Authority (EBA) to adopt non-binding soft law.[65] Like in *Commission v. Germany*, the Court treated the vague terms of empowerment as if they precisely delineated the EBA's powers.[66] In their discussion of the *FBF* judgment, Chamon and Arriba-Sellier thus conclude that the ECJ is '*converting the non-delegation doctrine into a discretion doctrine*'.[67] The methodologies are therefore the result of a logical conundrum: although the Commission is not empowered to take political decisions when adopting tertiary law, the Commission may have delegated the adoption of such decisions in the form of quaternary law. The next section will thus focus on this conundrum and show how the fuzziness of the *Meroni* doctrine contributes to more extensive delegation.

4. The Methodologies as an Indicator for an Increasing Regulatory Gap

The main argument of this article is that the *Meroni* doctrine requires revision in order to avoid potentially excessive delegation, as exemplified through the emergence of quaternary law. This section substantiates this argument in three steps. First, section 4.1 shows that the adoption of methodologies may involve political choices, which is generally forbidden under the non-delegation doctrine. Nevertheless, based on the case law presented in the previous section, the Court would most probably endorse the deep delegation of political decisions inherent in the adoption of quaternary law if asked today. Second, section 4.2 explains how the fuzziness of the doctrine and the resulting legal uncertainty have contributed to this possibly excessive degree of delegation in EU electricity regulation. Third, section 4.3 turns to one aspect that has not been discussed in depth yet, i.e., the effect of the ex post criterion, arguing that legal control cannot compensate for the possibly excessive *and* political discretion in the case of the methodologies.

4.1 The political dimension of methodologies

The core assumption underlying the non-delegation doctrine is that delegating decision-making to agencies is justified as long as the delegation concerns technical issues, on which specialized agencies presumably possess greater expertise.[68] Consequently, the ECJ claims to distinguish between political and executive discretion. Aside from the fact that the ECJ does not always do so in practice, this distinction is not particularly helpful, since it is often impossible to separate political from executive discretion in the binary fashion that the Court suggests.[69] Even decisions on ostensibly purely technical issues may have political implications.[70] Taking the example of standard-setting – arguably the most purely technical kind of decision-making – Abbot and Snidal submit that '*[a]ll standards issues are governance issues*', i.e., that decisions on standards have political implications.[71] Kühnert et al. state succintly that '*the mere fact that a decision is technical does not mean that it is not political*'.[72]

Yet even if the ECJ's dichotomy is accepted, there are indicators that suggest a political dimension to the methodologies. It is commonplace among energy law scholars that regulating the electricity sector frequently requires taking political decisions.[73] This is particularly true for

on Network Codes: A Blow to the Commission and ACER in MEKH and FGSZ v. ACER?, 21 Oil, Gas & Energy L. Intelligence 13.

[62] Regulation (EC) No 715/2009 of the European Parliamentand of the Council of 13 Jul. 2009 on Conditions for Access to the Natural GasTransmission Networks (2009) OJ L211/36.

[63] *MEKH v. ACER, supra* n. 49, paras 137–138.

[64] *Ibid.,* at 140–142.

[65] *FBF*, *supra* n. 56 .

[66] Chamon & Arriba-Sellier, *supra* n. 12, at 311.

[67] *Ibid.,* at 314.

[68] Chamon, *supra* n. 9, at 197; Edoardo Chiti, *The Governance of Compliance*, in *Compliance and the Enforcement of EU Law* 34 (Marise Cremona ed., Oxford University Press 2012), with further references.

[69] Huhta, *supra* n. 56, at 261–262; Griller & Orator, *supra* n. 9, at 22.

[70] Mendes, *supra* n. 51, at 438–439, referring to *ESMA, supra* n. 44 as an example.

[71] Kenneth W. Abbott & Duncan Snidal, *International 'Standards' and International Governance*, 8 J.Eur. Pub. Pol'y 345, 363 (2001), doi: 10.1080/13501760110056013.

[72] Kühnert, Böhler & Polster, *supra* n. 10.

[73] Lüken genannt Klaßen & Maschlanka, *supra* n. 57, at 177; Maggetti, *supra* n. 16, at 462; Jens-Peter Schneider, *Energy and*

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the topic of optimizing cross-border electricity trade – the core subject of the guidelines and methodologies. The Commission explicitly named this topic as one of heavy political contention in its proposals for the Clean Energy Package.[74] Each methodology concerns one aspect of optimizing cross-border trade, so that political issues arise during their development. The most striking example may be the 'splitting' of national electricity markets into different price zones, also called 'bidding zones'.[75] Different price zones create different prices for industry and households within the same country, which elevates this issue to the political level.[76] For example, in Germany, opinions are divided among the federal states on whether and how to divide the domestic electricity market into bidding zones.[77] For similar reasons, the grouping of bidding zones into CCRs involves political choices.[78]

Also the development of the regional CCM requires political decisions. The CCMs define parameters for the calculation and allocation of the capacity that is available for cross-border trade, with a clear view to maximizing it. Since the level of cross-border trade affects domestic energy prices, the CCMs may have a tangible impact on politically sensitive topics: the consumers' electricity bill, but also on the conditions for competition and investment in the industry. To explain in simplified terms, in low-price markets consumers lose (new export opportunities drive up domestic electricity prices) and producers gain (due to higher electricity prices). In high-price markets, the opposite applies.[79] The CCMs thus contribute to a redistribution of social welfare, which is a political issue.[80] The political dimension of the CCMs is further illustrated by the fact that the CCM for the Core region, covering central Europe, was not only appealed by the German NRA,[81] but also by Germany as a Member State.[82] The appeal concerns the seemingly purely technical detail of defining 'critical network elements', so why should Germany as a Member State decide to intervene, if not to protect its political interests?

These are just some examples for the political dimension of certain methodologies. It is possible that some methodologies involve only technical (as opposed to political) discretion. However, all methodologies are interlinked through a common goal with political implications: to optimize capacity management in the EU. Akin to the question which straw would break the camel's back, as far as the general constitutionality of deep delegation is concerned, it does not matter if some of the methodologies are more technical than others, as the entire system of quaternary law may be flawed. This notwithstanding, one conceivable counterargument against the view held here is that the methodologies only implement the technical details of an existing political decision, i.e., to maximize cross-border capacity. It is true that this aim is enshrined in the Electricity Regulation, which is the 'root' of the guidelines and methodologies.[83] However, this would be an overly coarse view on the matter.

On the one hand, to borrow Schammo's words, '*even if Member States agree on the importance of a specific objective, they might still disagree on how to pursue it*'.[84] The numerous conflicts arising during the implementation of the methodologies show that agreement on a common goal leaves plenty of room for disagreement on the (possibly political) details.[85] On the other hand, maximizing interconnector capacity affects another important public interest: security of supply, recognized by the Court as a matter of public security.[86] Increasing cross-border capacity without overloading the network is a complex, and economically and politically sensitive task.[87] For instance,

Trans-European Networks, in *Specialized Administrative Law of the European Union* 398–399 (Herwig CH Hofmann, Gerard C. Rowe & Alexander H. Türk eds, Oxford University Press 2018).

[74] European Commission, Proposal for a Regulation of the European Parliament and of the Council establishing a European Union Agency for the Cooperation of Energy Regulators (recast) 2016 (COM(2016) 863 final) (Proposal for the ACER-Reg-2019), at 10.

[75] *See* Arts 32–34 CACM-GL and Art. 14 ElReg-2019.

[76] Carsten König, *Engpassmanagement in der deutschen und europäischen Elektrizitätsversorgung* 361, 613–631 (Nomos Verlagsgesellschaft 2013). *See also* ACER's Tweet of 21 Oct. 2020, stating that '*changes in the bidding zones' configuration are politically sensitive*' at, https://twitter.com/eu_acer/status/1318900951852437506?lang=en (accessed 13 Oct. 2023).

[77] https://www.energate-messenger.com/news/226807/north-german-proposal-for-bid-zone-separation-receives-mixed-reactions (accessed 13 Oct. 2023).

[78] Article 15 CACM-GL; *see also* Kühnert, Böhler & Polster, *supra* n. 10, at 52.

[79] This is a general welfare effect of interconnection, Stephan Spiecker, Philip Vogel & Christoph Weber, *Evaluating Interconnector Investments in the North European Electricity System Considering Fluctuating Wind Power Penetration*, 37 Energy Econ. 114 (2013), doi: 10.1016/j.eneco.2013.01.012.

[80] Compare Damien Geradin & Nicolas Petit, *Judicial Review in European Union Competition Law: A Quantitative and Qualitative Assessment* TILEC Discussion Paper 20 [2011].

[81] Case T-631/19 *BNetzA v. ACER* [2022] ECLI:EU:T:2022:509.

[82] Case T-283/19 *Germany v. ACER*, not yet decided.

[83] Article 16(3) ElReg-2019.

[84] Schammo, *supra* n. 9, at 1894.

[85] Sandra Eckert, *Supranational Authorities and Private Actors as Drivers of Single Market Integration? The State of the Union in Electricity and Banking,* 44 J. Eur. Integration 19, 34 (2022), doi: 10.1080/07036337.2021.2011265; Simon Fink & others, *Konflikte und Handlungsspielraum von Akteuren in der Implementation europäischer Energiemarktrichtlinien – Das Beispiel Sicherheit der Stromnetze / Actor conflict and customization in the implementation of European energy market directives – the Example of System Security of Power Grids*, 15 dms – der moderne staat – Zeitschrift für Public Policy, Recht und Management 311, 315 (2022), doi: 10.3224/dms.v15i2.10; ACER, *Implementation Monitoring Report of the System Operation Guideline* (2022); ACER, *Monitoring Report on the Implementation of the CACM Regulation and the FCA Regulation* (2019).

[86] Case C-648/18 *Hidroelectrica* [2020] ECLI:EU:C:2020:723 (ECJ) [36].

[87] Kaisa Huhta, *Case T-295/20 Aquind: Clarifying the Division of Powers in the EU Energy Sector*, 32 Eur. Energy & Envtl. L. Rev. 155, 155 (2023), doi: 10.54648/EELR2023009; Julius

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some methodologies concern the allocation of the costs arising from so-called remedial actions that the TSOs employ in order to maintain the system in balance despite capacity shortages.[88] The EU-wide remedial action costs reached 3.6 billion euros in 2020, which are ultimately passed on to the network users.[89] Therefore, implementing the aim to maximize cross-border capacity requires balancing the interests of customers, network operators and the concern of unhindered competition – hardly a matter of purely executive discretion.

4.2 An increasing gap between formal boundaries and regulatory reality

This article is informed by the view that the *Meroni* doctrine, as applied by the ECJ in practice, fails to define clear boundaries for the delegation of rule-making in EU law. While many EU law scholars share this view, others submit '*that an overly restrictive interpretation of the Meroni doctrine has limited the role of [ACER]*',[90] or advocate *'a braver approach [...] to confer direct rule-making powers on ESMA*'.[91] Interestingly, the EU institutions appear to share the latter view, so that the formal criteria for delegation are lagging behind the regulatory reality. In the case of EU electricity regulation, the emergence of quaternary law has further widened this gap. The remainder of this section will retrace this development to show how the fuzziness of the *Meroni* doctrine incentivizes the EU institutions to adopt more far-reaching models of delegation.

When devising the Third Energy Package, the Commission initially favoured a restrictive interpretation of the non-delegation doctrine. The Explanatory Memorandum to the Third Energy Package stated:

> *Even though* ***its powers cannot be extended to cover normative decisions (such as the formal adoption of obligatory guidelines)*** *the new Agency will overall play a crucial role in the development and implementation of European gas and electricity market rules.*[92]

However, the European Parliament pushed to equip the Agency with more extensive normative powers. In response to the Commission's proposal, the Parliament argued that '*[t]he principles established in the Meroni case must [...] be seen in context, rather than being applied in a simplistic, overly conservative manner. In the case of [ACER] they require a more careful re-evaluation*'.[93] The Parliament went on to propose granting the Agency the power to adopt legally binding network codes.[94] Whereas this proposal failed, it apparently encouraged the Commission to abandon its reservations and delegate ample normative decision-making powers through the back door when it adopted the guidelines and tasked the NRAs and ACER with adopting methodologies – as far as can be seen, without the '*careful re-evaluation*' of the *Meroni* doctrine the European Parliament recommended. Nonetheless, ACER's normative powers remained strictly accessory, as the Agency could only decide on methodologies if the NRAs failed to reach agreement, or at their explicit request.

In the following years, the Commission warmed to a higher degree of delegation, while it grew unsatisfied with the delayed implementation of the guidelines. In its proposal for the Clean Energy Package, the Commission recommended to transfer the power to adopt regional and Pan-European methodologies from the NRAs to ACER.[95] Even though this proposition would have granted ACER direct rule-making powers, the extensive Impact Assessment accompanying the proposal did not mention the *Meroni* doctrine at all.[96] This is particularly notable when compared to the Commission's careful adherence to the *Meroni* doctrine when creating ESMA and the other financial supervision authorities under the Single Supervisory Mechanism.[97] One possible explanation may lie in the differences between both sectors. The creation of the Single Supervisory Mechanism and the

Rumpf & Henrik Bjørnebye, *Just How Much Is Enough? EU Regulation of Capacity and Reliability Margins on Electricity Interconnectors*, 37 J. Energy & Nat. Resources L., 67 (2019), doi: 10.1080/02646811.2018.1471802.

[88] Article 74 CACM-GL.

[89] ACER and CEER, *Annual Report on the Results of Monitoring the Internal Electricity and Natural Gas Markets in 2020 – Electricity Wholesale Markets Volume* (2021) s. 4.3.

[90] Leigh Hancher & Francesco Maria Salerno, *Energy Policy after Lisbon*, in *EU Law after Lisbon* 380 (Andrea Biondi, Piet Eeckhout & Stefanie Ripley eds, Oxford University Press 2012).

[91] Moloney, *supra* n. 9, at 85.

[92] Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 1228/2003 on conditions for access to the network for cross-border exchanges in electricity 2007 12 (my emphasis). Cf. earlier statements from the Commission that '*agencies cannot be granted decision-making powers in areas in which they would have to arbitrate between conflicting public interests, exercise political discretion or carry out complex economic assessments*' in European Commission, 'European Governance – A White Paper' (2001) COM (2001) 428 final 20.

[93] European Parliament, *Report A6-0226/2008 on the Proposal for a Regulation of the European Parliament and of the Council Establishing an Agency for the Cooperation of Energy Regulators (COM(2007)0530 – C6-0318/2007 – 2007/0197(COD)* (2008). The quote is from the explanatory statement under the heading 'Legal Issues: Institutional Balance and Powers of the Agency'.

[94] European Parliament, *Report A6-0191/2008 on the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/54/EC Concerning Common Rules for the Internal Market in Electricity (COM(2007)0528 – C6-0316/2007 – 2007/0195(COD)) Committee on Industry, Research and Energy* 10 (2008).

[95] European Commission, Proposal for the ACERReg-2019, *supra* n. 74, at 38.

[96] European Commission, *Impact Assessment Accompanying the Legislative Proposals for the Clean Energy Package (Part 3/5)* (2016) SWD(2016) 410 final, s. 3.4.

[97] *See* Moloney, *supra* n. 9, at 73.

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supervisory agencies occurred in the wake of the financial crisis, in a high-profile setting and requiring urgent action. Possibly, the Commission did not want to risk delays caused by legal action against the constituting acts based on the *Meroni* doctrine. By contrast, the calmer context of adopting the Clean Energy Package held a greater incentive to push possible conflicts onto the implementation level, instead of addressing them heads-on during the legislative procedure. In the end, interinstitutional differences led to a compromise: the differentiated approach that divides the competence to decide on methodologies among the NRAs and ACER according to the geographical ambit of application.[98] However, as far as can be seen, this compromise is founded in political considerations rather than a sound legal scrutiny.

4.3 Why judicial review cannot put things to rights

The discussion so far suggests that adopting methodologies may involve political choices, while the unclear scope of the *Meroni* doctrine leaves room for extensive delegation to enter EU electricity regulation. However, where the *ex ante* safeguards of the doctrine appear to be inadequate, it is worth considering its second pillar, i.e., *ex post* legal review. Can access to legal control compensate for the fuzziness of the *ex ante* criteria? This assumption meets fundamental reservations: if political decisions must not be delegated from the legislator to executive agencies, the very same considerations speak against delegating them to the judicative.[99] It rather appears that the *ex ante* criteria of the non-delegation doctrine must be refined in order to provide the EU judicative with the necessary guidance to decide on the permissible degree of delegation in each case.

Even though access to legal review therefore cannot fully compensate the lack of clarity of the *Meroni* restrictions, it is worth pointing out some issues related to legal review of methodologies. According to the ECJ's established standard, such review has to be effective.[100] This is currently not the case with regard to all methodologies. In particular, the differentiated process for adopting methodologies severely restricts the effectiveness of legal control of regional methodologies. As stated before, under this differentiated approach, methodologies are adopted by either ACER or the NRAs of the concerned region. ACER adopts Pan-European methodologies, while regional methodologies fall into the competence of the NRAs unless they disagree or refer the decision to the Agency. Whereas recourse against methodologies adopted by ACER is stringent,[101] legal control of regional methodologies adopted by a conglomerate of NRAs poses significant problems.[102]

The NRAs adopt regional methodologies as separate decisions under domestic law in their respective jurisdictions. These separate decisions are aligned through mandatory cross-border coordination.[103] By contrast, legal control of these decisions takes place separately in each jurisdiction and without cross-border coordination. This encumbers legal control of regional methodologies and imposes a disproportionate risk on potential appellants. Attacking the methodology in one's own jurisdiction has no effect in the remainder of the region, while affected stakeholders will often have difficulties to obtain standing in other jurisdictions. Moreover, proceeding in several jurisdictions at once entails prohibitive costs, effort and risk, without any guarantee that the different courts will align their rulings. For lack of a cross-border conflict resolution mechanism, the same regional methodology could thus be fully effective, under appeal, and annulled at the same time in different Member States. Whereas a preliminary ruling from the ECJ would provide clarity, the requirement to exhaust all domestic remedies first imposes a considerable burden on potential appellants. Moreover, referring the case to the ECJ effectively remains at the discretion of the court adjudicating at last instance, which increases the legal risk for appellants further.[104]

On the other hand, legal control of ACER-adopted methodologies follows a narrow, but clearly defined path offering several levels of review, including a full review of technical and economic considerations before the Agency's Board of Appeal (the BoA). In contrast to the European courts, whose review of decisions involving complex economic or technical assessments is limited to a check for 'manifest errors',[105] the GC ruled in *Aquind v. ACER* that the BoA must review all aspects of the Agency's decision, including underlying specialized assessments.[106] The GC's core statement is that 'a system of "*limited review of a limited review" fails to offer the*

[98] European Parliament, *Report A8-0040/2018 on the Proposal for a Regulation of the European Parliament and of the Council Establishing a European Union Agency for the Cooperation of Energy Regulators (Recast) (COM(2016)0863 – C8-0494/2016 – 2016/0378(COD))* 52.

[99] Similarly, Schammo, *supra* n. 9, at 1895.

[100] Sacha Prechal & Rob Widdershoven, *Principle of Effective Judicial Protection*, in *Controlling EU Agencies* (Miroslava Scholten & Alex Brenninkmeijer eds, Edward Elgar Publishing 2020); Luis Arroyo Jiménez, *Effective Judicial Protection and Mutual Recognition in the European Administrative Space*, 22 German Law Journal 344 (2021), doi: 10.1017/glj.2021.12; Geradin & Petit, *supra* n. 80.

[101] *See* Hancher & Rumpf, *supra* n. 34.

[102] *See also* Marek Szydło, *Judicial Review of Decisions Made by National Regulatory Authorities: Towards a More Coherent Application of EU Sector-Specific Regulation*, 12 Int'l J. Const. L. 930 (2014), doi: 10.1093/icon/mou069.

[103] *See* Art. 9(10) CACM-GL, which obliges the NRAs to '*consult and closely cooperate and coordinate with each other in order to reach an agreement*' when deciding on regional methodologies.

[104] The requirements established by the ECJ (cf. Case C-224/01 *Gerhard Köbler v. Austria* [2003] ECR I-10239) are not always honoured in practice.

[105] Mendes, *supra* n. 51, at 427.

[106] Case T-735/18 *Aquind v. ACER* [2020] ECLI:EU:T:2020:542.

guarantees of effective judicial protection'.[107] The ECJ recently confirmed this argumentation in its decision on the appeal against the GC's judgment.[108] Once the appellant obtains a decision from the BoA, they may submit it to the GC for annulment.[109] The last step is an appeal of the GC's decision to the ECJ.

The relative ease of access to legal control of ACER-adopted methodologies has however raised an issue of its own: the number of appeals against methodologies adopted by the Agency is skyrocketing, even tough legal standing before the BoA is restricted – for the most part to the addressees of each methodology. Although the methodologies also affect other stakeholders, the BoA liberally rejects complaints as inadmissible.[110] Further recourse to the European Courts is subject to the same strict admissibility threshold.[111] Nevertheless, the high caseload may take its toll on the BoA, since it has so far only overruled the Agency in a small percentage of cases, while the European courts have annulled all of the BoA's decisions submitted to them for control.[112] This discrepancy is noteworthy, all the more so as the Commission's Impact Assessment for the Clean Energy Package emphasized the need for measures '*to ensure [the BoA's] full independence and efficiency*'.[113]

5. Realigning *Meroni* to Restore Legal Certainty

The deep delegation inherent in the adoption of methodologies poses fundamental questions, which the ECJ's *Meroni* doctrine, as applied in practice, fails to answer. This is unsatisfactory, creates excessive legal uncertainty and invites to expand the boundaries of delegation without an appropriate legal underpinning. Clearer and unambiguous boundaries for delegation in EU law are therefore needed more urgently than ever, however changing the Treaties to this effect has been discussed for decades and seems to remain out of reach for the time being. Therefore, this section assesses three possible 'quick fixes' that do not require a change of primary EU law.

5.1 A literal application of the doctrine

First, the ECJ could begin to practice what it preaches and apply the *Meroni* doctrine in a more literal way. Logically, this presupposes a scrutiny in two steps. First, the Court would have to determine the kind of discretion in each case. In analogy to the ECJ's handling of the Treaty rules on tertiary legislation, this would presuppose identifying 'objective factors' that characterize the resulting discretion as political or non-political. Only if the ECJ would qualify the resulting discretion as non-political, could it proceed to scrutinize the extent of discretion to ascertain that it is not excessive. However, as straightforward as it sounds, this approach suffers from one critical flaw. As argued before, it is often difficult or even impossible to distinguish between political and executive discretion. Whereas the Court presents the two as a dichotomy, most technical and specialist decisions encompass political choices. It is thus possible that the ECJ would find itself unable to live up to its own demands to determine the kind of discretion based upon objective criteria.

Moreover, turning to a literal application of the *ex ante* criterion would clash with the regulatory practice that has emerged in the shadow of a fuzzy non-delegation doctrine: in electricity regulation, just like in any other EU policy area, sometimes political decisions have to be made according to technical criteria and without politics getting in the way. The methodologies constitute but one example of delegated measures that may entail some degree of political discretion. A 'hard' scrutiny by the Court according to the *Meroni* doctrine would perhaps ensure a higher level of legitimacy, but it could also upset decades of development of EU administrative practice. In short, a literal application of the *Meroni* doctrine does not seem the most promising way to restore legal certainty with respect to delegation in EU law.

5.2 Flexible application according to the normative impact

A more promising approach would be to turn the issue on its head. If political discretion is difficult to discern from other kinds of discretion, yet delegated rule-making is ubiquitous, the question should not be whether, but how much political discretion may be delegated. As argued, legal review is not ideally suited to distinguishing political from technical choices. However, legal review excels at assessing the normative impact of a delegated decision. In this sense, defining the boundaries to delegated rule-making should be understood as a question of degrees, not of rigid categories. Just as a decision is not either technical or political, the degree of normativity of delegated decisions may vary. One advantage of this approach is that the existing case law from the Court provides a starting point to develop suitable indicators for the degree of normativity. First, the legal force of the measure at issue (non-binding or binding); second, its duration

[107] *Ibid.,* at 58.
[108] Case C-46/21 P *ACER v. Aquind* [2023] ECLI:EU:C:2023:182 [72].
[109] Note that actions for annulment against the Agency's original decision are inadmissible, *see BNetzA v. ACER, supra* n. 81, para. 27.
[110] Case T-332/17 *E-Control v. ACER* [2019] ECLI:EU:T:2019:761 [11].
[111] Article 263 TFEU; on the difficulties to obtain standing, *see* Camilla Buchanan & Luca Bolzonello, *Towards a Definition of 'Implementing Measures' under Article 263, Paragraph 4, TFEU*, 6 Eur. J. Risk Reg. 671 (2015).
[112] Torbjørg Jevnaker, Leigh Hancher & Karianne Krohn Taranger, *The Evolving Role of Acer – Emergence, Practice and Review of Terms, Conditions and Methodologies (TCMs)* 8–9 (Fridtjof Nansen Institute 2022).
[113] European Commission, *supra* n. 96, at 187.

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(temporary or lasting); third, its scope (of general application or targeted). These factors allow to assess the normative impact of a delegated decision as follows.

With regard to the first factor, the ECJ decided in *FBF* that soft law is subject to the same '*stringent judicial review*' as legally binding measures, since both may have appreciable normative impact.[114] It remains to be seen whether the ECJ applies the same standard of review to hard and soft law also in future cases. At any rate, Chamon and Arriba-Sellier show that the Court's review was hardly stringent because it once again accepted vague provisions as a precise delineation of powers.[115] The perfunctory scrutiny in *FBF* supports the general argument of this article that the Court's legal review must become stringent in more than name only. In the meantime, the remaining factors provide sufficient opportunity to differentiate and vary the stringency of review. Concerning the duration of each measure, in *ESMA*, the ECJ considered it a mitigating factor that the measures at issue were temporary. *E contrario*, the bar for lasting measures should be higher. Concerning the third factor, a measure of general application has a stronger normative impact than a targeted measure, as is apparent from *Romano.* In this sense, *Romano* is still good law: the Treaty provisions from which the ECJ deduces that EU agencies can be empowered to issue acts of general application serve to ensure that such acts are subject to legal control.[116] At the same time, common sense dictates a higher threshold for delegating measures of general application.

These three indicators are certainly not exhaustive. However, the ECJ could employ them as a starting point to lend much-needed transparency to the boundaries of delegated rulemaking at agency level. Introducing indicators such as those proposed here into the *Meroni* doctrine and applying them openly and consistently would allow a more comprehensible scrutiny of the discretion involved in delegated rule-making. In turn, this approach would allow the ECJ to determine the constitutional limitations under the Treaties with greater precision and without risking to frustrate the requirements of regulatory practice. Once again, the indicators proposed here should not be seen as rigid criteria. The severity of scrutiny should rather depend on the interaction of these indicators. Clearly, binding decisions of general application and indeterminate duration require the utmost restriction; it is questionable whether such decisions can (and should) be delegated to EU agencies at all if they entail political discretion.[117]

The methodologies almost fall into this latter category. They are legally binding and, at least usually, of indeterminate duration. The third indicator – their scope – requires a differentiated view. Whereas methodologies nominally only target certain addressees, they often affect other parties or even the electricity sector at large. Sometimes openly so, for example where the rules on data exchange between the TSOs and other market participants are concerned; sometimes more covertly, for example concerning the sharing of remedial action costs between TSOs, which impacts the network tariffs in the respective grids, to be borne by all consumers. Moreover, methodologies are interdependent.[118] Therefore, the circle of addressees may be much larger in reality than each respective methodology indicates and methodologies are often practically indiscernible from general rules on network operation.[119] When presented with an opportunity to examine the discretion inherent in the adoption of methodologies, the Court should therefore apply a strict standard of review and substantiate its reasoning meticulously in order to restore legal certainty.

5.3 Centralizing electricity governance

If the ECJ refuses to revise its *Meroni* doctrine, the regulatory approach for the EU electricity sector should be centralized to improve access to legal review. Given the unique characteristics of the methodologies, responsibility for their adoption should ideally rest with the Commission. If this fails, the unnecessarily complex and inefficient differentiated approach to developing methodologies should be abandoned.[120] This means that instead of having loose groups of NRAs decide on regional methodologies, ACER should adopt all methodologies that apply in more than one jurisdiction. If a deep delegation of rulemaking and the use of quaternary law in the electricity sector is accepted, its exercise should at least be submitted to the most stringent, transparent and effective judicial review possible.

As shown previously, judicial review of methodologies adopted by ACER follows a single, consistent path of legal control, whereas legal control of regional methodologies adopted by NRAs is highly problematic. Giving ACER competence to decide on all cross-border methodologies would thus satisfy the *ex post* criterion of the *Meroni* doctrine much better than the status quo. Such review appears to be effective in practice, as the European Courts have proven willing and able to cut back on attempts by the Agency to extend its own powers.[121] Nevertheless, the Commission's failed attempt to place regional methodologies in the hands of ACER – as it proposed in its first draft for the Clean Energy Package[122] – illustrates an obvious difficulty of this approach. Any initiative to endow ACER with more powers in the development of methodologies is almost certain to meet resistance from the Member States, the other EU institutions, and the industry.[123] Whereas the

[114] *FBF, supra* n. 56, paras 67–69.
[115] Chamon & Arriba-Sellier, *supra* n. 12, at 311.
[116] *ESMA, supra* n. 44, para. 65. Referencing Art. 277 TFEU.
[117] Compare Griller & Orator, *supra* n. 9, at 14.
[118] Rumpf, *supra* n. 14, at 418.
[119] Compare Eva Ruffing, Selma Schwensen Lindgren & Torbjørg Jevnaker, *Electricity in Perspective – Comparing the TCM Procedure with Other Sectors* 5 (Fridtjof Nansen Institute 2022).
[120] European Commission, *supra* n. 96, at 186.
[121] Hancher & Rumpf, *supra* n. 34.
[122] European Commission, Proposal for the ACERReg-2019, *supra* n. 74, at 38.
[123] Maggetti, *supra* n. 16.

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Commission has managed to gather the Member States for a joint response to the 2022 energy price crisis, it remains to be seen whether the Member States would also be open for a more centralized approach to the operation of their electricity systems on the whole.

6. Conclusion

This article has analysed a pressing issue of EU legislation in technical sectors: the growing gap between the legal boundaries for delegation in EU law and the scope of delegation in practice. The analysis adds a new perspective to the literature concerned with the limits of delegation in EU law by illustrating this 'delegation gap' with the methodologies, a novel category of delegated sectoral legislation in EU electricity regulation. The article also contributes to legal doctrine in the field of EU law by showing that the methodologies constitute a rapidly growing body of quaternary law, which is currently unique to the electricity sector. The deep delegation inherent in the development of methodologies raises grave constitutional concerns, especially concerning the ECJ's non-delegation, or *Meroni* doctrine. At the same time, the methodologies highlight the pressing need for co-regulation, as the EU institutions lack the expertise to adopt harmonized, detailed rules for technical sectors, such as the electricity sector. The vagueness of the *Meroni* doctrine therefore incentivizes the EU institutions, in particular the Commission, to take the delegation of rule-making to new levels, thus widening the delegation gap. This article exemplifies this issue through the emergence of quaternary law in EU electricity regulation.

The two concurring forces discussed in this article – an expanding use of delegation and a maceration of the legal boundaries for delegation – create an unacceptable degree of legal uncertainty. Whereas the deep delegation inherent in quaternary law stretches or even breaks the limits of the *Meroni* doctrine, the ECJ's handling of the doctrine suggests that the Court may give a green light to the methodologies without critical scrutiny of their problematic aspects. To restore legal certainty, I thus call upon the ECJ to revamp the *Meroni* doctrine, and to develop more transparent and explicit criteria that delimit the delegation rule-making sensibly and in line with the requirements of practice. In particular, the Court should give up the formalistic and unconvincing distinction between technical and political decisions at the heart of the *Meroni* doctrine. Instead, the ECJ should recognize that delegated decisions almost invariably involve different degrees of political discretion. This article proposes a gradual approach to delimiting delegation in EU law, based on the normative impact of the delegated decision. The normative impact of a delegated decision corresponds with the extent of discretion involved in delegation – the greater the impact, the stricter the Court's scrutiny should be. The guiding principles proposed in this article may serve as a starting point for developing a '*Meroni* doctrine 2.0′ that respects the reality and requirements of regulatory practice without giving way to excessive delegation.

A revision of the *Meroni* doctrine can only occur in the context of legal proceedings before the ECJ. Surprisingly, the doctrine has not yet been invoked in the numerous proceedings against electricity methodologies before the European courts. Therefore, I also call upon regulators and stakeholders to consider the arguments brought forth in this article and to raise concerns against deep delegation when proceeding against methodologies. The methodologies may provide the ideal opportunity for the ECJ to refine its criteria for delegation, increasing legal certainty in an area that is crucial for the continued security and prosperity of the EU Member States, as well as the EU's ambitious decarbonization targets: the electricity sector. The sooner this opportunity is seized, the better. The use of quaternary law could spill over from the electricity sector into other technical sectors at any time. If the delegation gap is allowed to increase further, the actual state of delegation may come to dictate the legal boundaries for delegation – and not the other way around, as it should be.

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