

Assembling the Fragments

Towards a Transnational Understanding of Energy Security in the Baltic Sea Region?

Introduction

The Baltic Sea region is increasingly the focus of global attention in recent years. This is particularly true with regard to European and transatlantic security policy, not least in view of the Russian invasion of Ukraine and the ensuing energy and geopolitical effects in the Baltic Sea region and beyond. However, the Baltic Sea has been the subject of scientific research and the scene of national and geopolitical energy debates even before the outbreak of war and the onset of the energy crisis. The extensive research into the NordStream Pipelines 1 and 2 is but one example. These pipelines, which run as maritime infrastructures through the Baltic Sea and thus past several countries and their maritime zones in the Baltic Sea region, were a showcase for diverging national energy and geopolitics in the region, particularly in relation to Russia. The diverging perceptions of and policies on the NordStream pipelines were exemplary for the fragmentation of the energy transformation in the Baltic Sea region into national energy transition and energy security policies.

In fact, studies show the region's outstanding potential regarding a sustainable energy transformation. Some scholars even emphasise the technical potential for regional climate neutrality well before the European target horizon

1 This chapter is based on previous research by the authors. This concerns Kalis, Michael (ed.): *The Energy Trilemma in the Baltic Sea Region—Security, Equity and the Environment*, London 2024; Becker, Marie: *KRITIS-Dachgesetz ohne Fundament*, in: *Infrastrukturrecht* 11–12 (2024), pp. 270–273; id.: *Transposing EU-legislation on critical infrastructure protection legal implementation performance in the Baltic Sea region*, in: *International Journal of Critical Infrastructure Protection* 50 (2025), 100781, <https://doi.org/10.1016/j.ijcip.2025.100781>, and Becker, Marie/Kalis, Michael: *Blurred Lines: The Role of Security and Non-Security Actors in the Energy Landscape*, in: *Energy Highlights* (2026), No. 21, pp. 41–45, www.enseccoe.org/publications/energy-highlights-no-21/ (19.02.2026). The research cited above was updated for this chapter and re-evaluated in the context of the research question at hand.

of 2045.² At the same time, individual countries in the Baltic Sea region have shown themselves to be flagships of a successful energy transition policy over long periods of time according to the observations of the World Energy Council.³ The Council also attests that the region as a whole has successfully overcome the energy crisis following the Russian war of aggression.⁴ Despite these and other regional and transnational success stories the region is characterised by a multi-speed and multi-pathway transformation,⁵ as highlighted not least in the different national energy transition policies and energy sources used.⁶

However, an increasing securitisation of energy policies in the region may result in a likewise increased harmonisation of energy policies among national states. In fact, following the Russian invasion of Ukraine, the onset of the energy crisis and, not least, the acts of sabotage on the Nord Stream pipelines in the Baltic Sea region, an increasing securitisation became apparent.⁷ In numerous international agreements, the countries bordering the Baltic Sea region emphasise their energy transition ambitions and the protection of

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- 2 Child, Michael/Bogdanov, Dimitrii/Breyer, Christian: The Role of Storage Technologies for the Transition to a 100 % Renewable Energy System in Europe, in: *Energy Procedia* 155 (2018), pp. 44–60.
 - 3 World Energy Council: *Evolving with Resilience and Justice—World Energy Trilemma 2024*, 2024, www.worldenergy.org/assets/downloads/World_Energy_Trilemma_2024_Full_Report.pdf?v=1713253987 (24.05.2024); World Energy Council: *World Energy Trilemma Index 2022*, 2022, p. 22, www.worldenergy.org/assets/downloads/World_Energy_Trilemma_Index_2022.pdf?v=1669839605 (24.05.2024); cf. IEA: *Denmark 2023*, www.iea.org/reports/denmark-2023 (28.05.2024).
 - 4 World Energy Council: *Evolving with Resilience and Justice*, p. 7, 14.
 - 5 Cf. De La Esperanza Mata Pérez, Maria/Scholten, Daniel/Smith Stegen, Karen: *The Multi-Speed Energy Transition in Europe: Opportunities and Challenges for EU Energy Security*, in: *Energy Strategy Reviews* 26 (2019), pp. 1–6, <https://doi.org/10.1016/j.esr.2019.100415>; cf. Slakaityte, Veronika/Surwillo, Izabela/Berling, Trine V.: *Energy Security in the Baltic Sea Region—Transition within Geopolitical Constraints—Danish Institute for International Studies Report*, 2022, pure.diiis.dk/ws/files/10998512/Energy_security_in_the_Baltic_Sea_Region_DIIS_Report_2022_08.pdf (29.05.2024).
 - 6 Cf. De la Esperanza Mata Pérez/Scholten/Stegen: *Multi-Speed Energy Transition*; cf. Slakaityte/Surwillo/Berling: *Energy Security in the Baltic Sea Region*.
 - 7 Cf. World Energy Council: *Evolving with Resilience and Justice*, p. 7, 14; cf. Surwillo, Izabela/Slakaityte, Veronika: *Energy Crisis at the Baltic Sea—Divergent National Paths Toward a Common Green Future*, in: Pundziute-Gallois, Emilija/Serry, Arnaud (eds.): *Permacrisis & Logistics: From Assessment to Foresight*, Caen 2023; Slakaityte/Surwillo/Berling: *Energy Security in the Baltic Sea Region*; cf. Kalis, Michael: *Energy Trilemma—Concept and Context in the Baltic Sea Region*, in: id. (ed.): *The Energy Trilemma in the Baltic Sea Region—Security, Equity and the Environment*, London 2024a, pp. 21–43, <https://doi.org/10.4324/9781003479178>.

common energy transition infrastructures.⁸ With its RePowerEU plan (COM (2022), 230), the European Union is also focusing on combining energy security and energy transition in the form of decarbonisation. Agreements between the EU and NATO on joint efforts to protect critical infrastructures as the backbone of Europe's and the region's energy transition (Joint Declaration EU-NATO 2023), as well as the new directive on the resilience of critical entities (Directive (EU) 2022/2557), are an expression of the aforementioned increasing securitisation and a changed understanding of energy security. This emerging energy security and energy transition policy in the Baltic Sea region is representative of an increasing harmonisation of energy transformation in the region under the umbrella of security.

Against this background, the developments of the energy transition and the understanding of energy security in the Baltic Sea region are analysed. In doing so, this chapter asks whether and to what extent a development from fragmentation to harmonisation of the energy transformation is taking place in the Baltic Sea region.

The Baltic Sea Region—A Focal Point of Fragmented Transformation

The Baltic Sea region is affected by extensive and numerous transformations, with the energy transformation—albeit significant and prominent—being but one phenomenon.⁹ Although transformation research has recently shown a clear focus on sustainability transformation and thus also on the energy or green transition as part of this,¹⁰ one must not ignore the various transformations in different contexts that might be intertwined with the sustainability transformation. This becomes particularly evident when turning to the ongoing

8 The Baltic Sea Energy Security Summit: Marienberg Declaration, 2022. www.regeringen.dk/media/11544/the-marienberg-declaration-_300822.pdf; WindEurope: Baltic Sea countries pledge closer collaboration to secure critical offshore energy infrastructure, 10.04.2024, windeurope.org/news/baltic-sea-countries-pledge-closer-collaboration-to-secure-critical-off-shore-energy-infrastructure/ (27.01.2026).

9 Kalis: Energy Trilemma, 2024a; Karimi, Farid/Rodi, Michael: Energy Transition in the Baltic Sea Region—Understanding Stakeholder Engagement and Community Acceptance, Abingdon 2022.

10 Cf. Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (WB-GU): Welt im Wandel—Gesellschaftsvertrag für eine Große Transformation, 2011, www.wbgu.de/fileadmin/user_upload/wbgu/publikationen/hauptgutachten/hg2011/pdf/wbgu_jg2011.pdf (01.01.2025); Wittmayer, Julia/Hölscher, Katharina: Transformationsforschung—Definitionen, Ansätze, Methoden, 2017, www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2017-11-08_texte_103-2017_transformationsforschung.pdf (01.01.2025).

ing transformation of the security architecture within the region and beyond (see Chapter Banka/Bussmann).

Given this background, it comes as no surprise that the Baltic Sea region is examined in the context of a fragmented transformation.¹¹ Here, fragmentation refers to both the fragmentation into a multitude of transformations and the fragmentation within transformations. The energy transformation makes such fragmentation particularly evident.

On the one hand, the energy transformation is characterised by a fundamentally concurrent objective of decarbonisation and ultimately climate neutrality of the energy systems in the nation states and the region. On the other hand, however, the energy transition policies are fragmenting into a multitude of divergent sub-targets, principles and measures, as a glance at the different energy sources and their role in the energy transition reveals. The coal phase-out and the nuclear phase-out on the one hand and the uptake of Liquefied Natural Gas (LNG), nuclear energy and carbon capture and storage technologies (CCS) on the other are only prominent fragments of these diverging transformation paths.¹² The divergences are also clearly shown in the context of transnational, transregional energy relations, and the infrastructure projects such as the NordStream pipelines.

Assembling the Fragments?—From Fragmented Transformation to Harmonisation Through the Prism of Energy Security

However, it may well be that precisely this view of transnational and transregional infrastructure projects and cooperation can ultimately show a change from a fragmented to an increasingly harmonised energy transformation in the region.¹³ Indeed, numerous transnational collaborations and infrastructure projects can be observed in the region, not least in the aftermath and in the context of the Russian war of aggression and the subsequent energy crisis.¹⁴ Accordingly, the question arises as to whether a harmonisation of

11 IFZO: Fragmented Transformations, 2024, ifzo.uni-greifswald.de/en/projects/fragmented-transformations/ (28.05.2024).

12 Cf. Surwillo/Slakaityte: Energy Crisis at the Baltic Sea; Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; cf. Kalis: Energy Trilemma, 2024a.

13 Cf. Kalis: Energy Trilemma, 2024a.

14 Cf. Surwillo/Slakaityte: Energy Crisis at the Baltic Sea; Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; cf. Kalis, Michael: Unravelling the Gordian Knot? The Energy Trilemma in the Baltic Sea Region in an Age of Transition, in: id. (ed.): The Energy

the previously fragmented transformation (here energy transformation) in the Baltic Sea region can be recognised in the course of an ongoing securitisation.

Against this background and with this guiding question in mind, this chapter examines fragments of the fragmented energy transformation under the prism of energy security for potential harmonisation effects in the region. Focusing on energy infrastructures and elaborating on a changing understanding of energy security, the chapter looks at past perspectives, current developments and trends of a potentially harmonised energy transformation in the Baltic Sea region.

Fragmentation and Fragments of Energy Transformation in the Baltic Sea Region

The energy transformation in the Baltic Sea region appears, *prima facie*, to be pursuing a largely similar goal, regardless of the large number of states and actors involved. Although not all states in the Baltic Sea region are members of the European Union, with Norway and Russia being exceptions, as parties to the Paris Agreement, they too are pursuing the goal of holding global warming well below 2 degrees Celsius. An essential part of this goal is the energy transformation and here the decarbonisation towards climate neutrality (cf. COM (2019), 640).

For the European Union and its member states, and thus also for Germany, Denmark, Sweden, Poland, Estonia, Lithuania, Latvia and Finland, the obligation to achieve climate neutrality and the associated energy transformation arises from European secondary law like the European Climate Change Act, Art. 2 Regulation (EU) 2021/1119. In addition, the listed states are parties of the Paris Agreement and have enacted national climate protection legislation and introduced national climate targets.

However, the transformation path towards the essentially identical goal of climate neutrality and the energy transformation shows significant variance.¹⁵ The energy transition policies in the Baltic Sea region and the European member states in the wider region certainly show overlaps, convergence and some synergies.¹⁶ However, they are characterised by significant differences

Trilemma in the Baltic Sea Region—Security, Equity and the Environment, London 2024b, pp. 271–283, <https://doi.org/10.4324/9781003479178>.

15 Cf. De la Esperanza Mata Pérez/Scholten/Stegen: Multi-Speed Energy Transition; cf. Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region.

16 Cf. Saurer, Johannes: Rechtsvergleichende Betrachtungen zur Energiewende, in: *Jahrbuch des öffentlichen Rechts der Gegenwart* (2016), Bd. 64, pp. 411–430.

rooted in the historical, geographical and socio-economic differences between the states, among other things.¹⁷ A comprehensive legal and political comparison cannot and should not be made here; rather, it is sufficient to briefly mention and refer to the evidence of different energy transition policies and their backgrounds.

The divergences in the energy mix and national priorities are particularly striking. For example, Germany has decided to phase out coal and nuclear power, while other countries in the region, such as Sweden, Finland and Estonia, continue to rely on nuclear energy.¹⁸ The Baltic states also had to overcome specific transformation challenges, such as decoupling from Russian power grids, due to their geopolitical situation and historical ties to the Russian energy system. Overall, the Baltic Sea region is an example of a multi-speed and multi-pathway transformation of energy supply,¹⁹ a phenomenon which is evidence of the fragmented energy transformation. This fragmentation within the Baltic Sea region and the energy transition policies of its littoral states and beyond becomes particularly evident when looking at transnational and transregional energy infrastructures such as the Nord-Stream 1 and 2 pipelines.²⁰ And yet, although previously being highlighted as a focal point on divergent perceptions of energy security and energy transition policies within the Baltic Sea region the NordStream pipelines are—without any evaluative assessment—a phenomenon of transnational cooperation.²¹ In fact, it is this phenomenon of transnational cooperation increasingly evident in transnational infrastructure projects such as the European Hydrogen Backbone (see Chapter Kalis) that may lead to an increasing harmonisation of energy transition policies within the Baltic Sea region. Next to the increase of transnational projects and infrastructures this can be analysed when looking at the joint and national policies towards these infrastructures and their resilience in the context of energy security.

17 Cf. De la Esperanza Mata Pérez/Scholten/Stegen: Multi-Speed Energy Transition; cf. Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; cf. Kalis: Energy Trilemma in the Baltic Sea Region, 2024.

18 Cf. Surwillo/Slakaityte: Energy Crisis at the Baltic Sea; Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; cf. Kalis: Energy Trilemma, 2024a.

19 Cf. De la Esperanza Mata Pérez/Scholten/Stegen: Multi-Speed Energy Transition; cf. Kalis: Energy Trilemma in the Baltic Sea Region, 2024.

20 Cf. Shagina, Maria/Westphal, Kirsten: Nord Stream 2 and the Energy Security Dilemma, in: SWP Comment 46 (2021), www.swp-berlin.org/publications/products/comments/2021C46_NordStream2.pdf.

21 Cf. *ibid.*

Transnationalism and Energy Security in the Baltic Sea Region After the Russian Aggression in Ukraine

Transnationalism in the Baltic Sea Region

Transnational cooperation is by no means a novelty within the Baltic Sea region. Rather, the region is characterised by increasing and ongoing energy market integration and harmonisation, regardless of national energy transition policies and existing divergences within them, at least within the European Union and its member states.

This integration process and transnational cooperation is particularly evident with regard to the Baltic states and the market integration of these. Under the flagship of the BEMIP, the Baltic energy integration plan, an integration of the energy sector was initiated. This integration is evident, among other things, from power lines, frequencies, etc., but also from gas pipelines such as the GIPL (Gas Interconnection Poland-Lithuania) and the Baltic Interconnector. In fact, it was precisely these interconnectors and the transnational cooperation behind them that helped to successfully overcome the European energy crisis and Russian interventions, for example in the form of cut-offs in Finland.²²

If transnational cooperation, whether successful or unsuccessful, is seen as a characteristic of the energy transformation in the Baltic Sea region,²³ it must be noted that recently this very characteristic, this supporting pillar of national and regional energy transition policies, has been the focus of change. The acts of sabotage against maritime pipelines in the Baltic Sea region, in addition to the Russian war of aggression in Ukraine, further hybrid and cyber warfare actions and other security threats in the region, have contributed to a changed understanding of energy security and its importance within the energy transformation.

22 Surwillo/Slakaityte: Energy Crisis at the Baltic Sea; Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; cf. Kalis: Unravelling the Gordian Knot?.

23 Cf. Kalis: Unravelling the Gordian Knot?.

Energy Security in the Baltic Sea Region

Energy security is a concept of many dimensions, even more—context-dependent—definitions,²⁴ and associated with an accordingly diverse set of possible tactics and measures that may work towards its achievement. From the perspective of NATO and its member states, the concept had its first major appearance on the geopolitical stage in the context of the Yom Kippur War of 1973, in which energy exports were used as a bargaining chip resulting in an oil price crisis in the United States and many Western European countries.²⁵ The International Energy Agency (IEA) founded in the aftermath (1974) consequently focused its energy security efforts on the dimensions of availability (i.e., uninterrupted sufficient supply) and affordability (price level and stability) mainly of oil. This focus on (oil) security of supply has remained prevalent in energy security debates and policies ever since.²⁶ The World Energy Council for instance still speaks of energy security as »the nation's capacity to meet current and future energy demand reliably, withstand and bounce back swiftly from system shocks with minimal disruption to supplies«.²⁷

Just like the concept itself, the instruments for ensuring energy security had, until recently, remained largely static. Informed by the experiences of 1973, diversification (both of sources and in terms of energy mix) and energy efficiency were usually emphasised in order to reduce delicate dependencies—an approach, that is still central to the European strategy (RePowerEU, COM (2022), 230). In principle, this also applies to the Baltic Sea region. Especially in the Nordics, however, national approaches have further prioritised stockpiling, owing to specific vulnerabilities emanating from seclusion and extreme

24 Sovacool, Benjamin K./Saunders, Harry: Competing Policy Packages and the Complexity of Energy Security, in: *Energy Elsevier* 67 (2014), pp. 641–651, <https://doi.org/10.1016/j.energy.2014.01.039>; Kruyt, Bert/van Vuuren, D.P./de Vries, H.J.M./Groenenberg, H: Indicators for Energy Security, in: *Energy Policy* 37 (2009), No. 6, pp. 2166–2181, [econpapers.repec.org/RePEc:eee:enepol:v:37:y:2009:i:6:p:2166-2181](https://www.econpapers.repec.org/RePEc:eee:enepol:v:37:y:2009:i:6:p:2166-2181).

25 Cf. Deese, David: Energy—Economics, Politics, and Security, in: *International Security* 4 (1979), No. 3, pp. 140–153, <https://doi.org/10.2307/2756902>.

26 Cf. *ibid.*, p. 140; Orttung, Robert/Perovic, Jeronim: Energy Security, in: Cavelti, Myriam D./Mauer, Victor (eds.): *The Routledge Handbook of Security Studies*, New York 2009, pp. 211–220: p. 211; Corner, Adam/Venables, Dan/Spence, Alexa/Poortinga, Wouter/ Demski, Christina/Pidgeon, Nick: Nuclear Power, Climate Change and Energy Security: Exploring British Public Attitudes, in: *Energy Policy* 39 (2011), No. 9, pp. 4823–4833; Novikau, Aliaksandr: Energy Security in Security Studies—A Systematic Review of Twenty Years of Literature, in: *Central European Journal of International and Security Studies* 17 (2022), No. 3, pp. 34–64, <https://doi.org/10.51870/PDDC2102>.

27 World Energy Council: *World Energy Trilemma Index 2022*, p. 5.

weather. Furthermore, based on the historical development of the region, system integration and transnational cooperation have always constituted a central part of energy security policies.²⁸ In fact, following the World Energy Council, it has been through (timely) system integration and transnational cooperation that the national states within the Baltic Sea region managed to cope with the energy crisis during the year 2023–2024.²⁹

New Momentum Towards Transnationalism and Energy Security

In the wake of perceived and realised security threats in the Baltic Sea region, an increasing momentum for securitisation and transnational cooperation can be observed. This becomes evident in the context of political agreements such as the Marienborg Declaration and the Vilnius Declaration.

However, transnational cooperation is equally evident, for example with regard to LNG projects between Finland and Estonia, ongoing plans for the Bornholm energy island, and large-scale hydrogen transformation projects in the region as part of the European Hydrogen Backbone. All these examples are not only characterised by a transnational component and a fundamental adherence to European and regional energy transformation goals, but also by an undeniable focus on energy security. However, energy security is no longer seen solely in the context of security of supply, but also in the context of new security threats.³⁰ In addition to a changed understanding of energy security towards resilience, as the World Energy Council already emphasised in 2020,³¹ this brings further actors and mandates for action into the energy transformation, especially in the Baltic Sea region. This becomes clear in the increasing role of NATO in ensuring the resilience of critical energy infrastructures in the region.

Overall, the region is increasingly focusing on energy security. This raises the question of whether, through the prism of energy security and resilience, an increasing harmonisation and thus an overcoming of existing fragmenta-

28 Cf. Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; Kalis: Energy Trilemma, 2024a.

29 Cf. World Energy Council: Evolving with Resilience and Justice, p. 7, 14.

30 *ibid.*, p. 11.

31 World Energy Council: World Energy Trilemma Index 2020, 2020, www.worldenergy.org/assets/downloads/World_Energy_Trilemma_Index_2020_-_REPORT.pdf?v=1602261628 (25.05.2024).

tion in regional energy transition policy can be seen. This question will be explored in the last paragraph focussing on critical infrastructures.

Harmonising Energy Transformation Through Transnational Energy Security?—The Case of Critical Infrastructure

Similar to the rest of Europe, strategic approaches to achieving and maintaining energy security of supply in the Baltic Sea region used to pay only little attention on the protection of critical infrastructure (CIP), rather focusing on diversification, stockpiling and redundancies (cf. RePowerEU, COM (2022), 230).³² More generally, coherent and overarching national approaches to CIP remained scarce,³³ oftentimes situating the matter either in the context of national security³⁴ or of civil protection.³⁵ While the latter has proved amenable to transnational cooperation,³⁶ it lacks the security focus that would allow for responding to, for example, the growing salience of hybrid threats.³⁷ On the flipside, regarding CIP through the lens of national security may obstruct transnational cooperation. Indeed, scholars have noted on multiple occasions the intractable reluctance by states to share authority on CIP, as a policy field in close vicinity to questions of national security and sovereignty.³⁸ Lacking

32 Cf. Slakaityte/Surwillo/Berling: Energy Security in the Baltic Sea Region; Kalis: The Energy Trilemma in the Baltic Sea Region, 2024.

33 The German CIP-strategy of 2009 constituting a rare example.

34 See for example the *National Security Act* used as a basis for the implementation of EU Directive 2008/114/EC (see below) by Latvia.

35 See for example Estonia's Emergency Act, used as a basis for the implementation of EU Directive 2008/114/EC (see below) as well as the transposition measures notified by Finland (see eur-lex.europa.eu/legal-content/EN/NIM/?uri=CELEX:32008L0114).

36 See for example the EU's explicit mandate based on Article 196 of the Treaty on the Functioning of the European Union (TFEU) and the civil protection-focused mandate of the most prominent macro-regional organisation, the Council of the Baltic Sea States.

37 Westgaard, Katrine: The Baltic Sea Region—A Laboratory for Overcoming European Security Challenges, Carnegie Endowment for International Peace, 12.21.2023, carnegieendowment.org/research/2023/12/the-baltic-sea-region-a-laboratory-for-overcoming-european-security-challenges?lang=en (09.12.2024).

38 Pursiainen, Christer: The Challenges for European Critical Infrastructure Protection, in: *Journal of European Integration* 31 (2009), No. 6, pp. 721–739, <https://doi.org/10.1080/07036330903199846>; Hegemann, Hendrik/Kahl, Martin: Security governance and the limits of depoliticisation—EU policies to protect critical infrastructures and prevent radicalization, in: *Journal of International Relations and Development* 21 (2018), No. 3, pp. 552–579, <https://doi.org/10.1057/s41268-016-0078-5>; Cassotta, Sandra/Sidortsov, Roman/Pursiainen, Christer/ Goodsie, Michael Evan: Cyber Threats, Harsh Environment and the European High North (EHN) in a Human Security and Multi-Level Regulatory Global Dimension: Which

a transnational framework, national approaches to CIP (including strategies, vocabulary, methodologies etc.) were left to develop freely and in accordance with the specific geopolitical contexts, administrative and political traditions, climatic and geographical conditions and so forth.³⁹ As a result, the region's overall perspective on CIP, for a long time, remained peripheral and highly fragmented.⁴⁰

A first concerted effort to change this took place at European Union level in form of the European Programme for Critical Infrastructure Protection (EPCIP) and, most importantly, *Directive 2008/114/EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection* (ECI Directive). With only very modest ambitions for a truly supranational approach to CIP, one of the ECI Directive's primary aims was to generate a common understanding and language for the very concept of critical infrastructure and to raise awareness of the transnational relevance of protecting particularly important ones (European critical infrastructures).⁴¹ Despite these modest goals, however, the ECI Directive's impact remained severely limited.⁴² While some Baltic Sea region states neatly transposed the ECI Directive into national law (e.g., Poland, Denmark), others' transpositions turned out fragmentary at best (e.g., Germany, Sweden) with the Baltic countries completing transposition, but failing to integrate the European approach with their pre-existing national concepts (»vital services«, »objects of state importance«) and systems of classification.⁴³ In the end, a patchwork of European and national approaches, concepts and ideas was left, doing little to facilitate cooperation, to lay the

Framework Applicable to Critical Infrastructures under »Exceptionally Critical Infrastructure Conditions« (ECIC)?, in: *Beijing Law Review* 10 (2019), No. 2, pp. 317–360. <https://doi.org/10.4236/blr.2019.102020>; Boin, Arjen/Busuioc, Madalina/Groenleer, Martijn: Building European Union capacity to manage transboundary crises: Network or lead-agency model?, in: *Regulation and Governance* 8 (2014), No. 4, pp. 418–436, <https://doi.org/10.1111/rego.12035>; Raik, Kristi: Renaissance of realism, a new stage of Europeanization, or both? Estonia, Finland and EU foreign policy, in: *Cooperation and Conflict* 50 (2015), No. 4, pp. 440–456, <https://doi.org/10.1177/0010836714560033>.

39 Cf. Pursiainen, Christer/Lindblom, Patrick/Francke, Per (eds.): *Towards a Baltic Sea Region Strategy in Critical Infrastructure Protection*, Nordregio Report (5), Stockholm 2007.

40 *ibid.*, see also Becker: Transposing EU-legislation.

41 Cf. EY and RAND Europe: *Evaluation study of Council Directive 2008/114 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection*. Final report, 2019, op.europa.eu/en/publication-detail/-/publication/118dcd3d-bb41-11ea-bb7a-01aa75ed71a1/language-en (01.01.2025).

42 *ibid.*; Becker: Transposing EU-legislation.

43 *ibid.*

basis for supranational governance or to strengthen the protection of infrastructures of transnational importance.⁴⁴ Here, the attachment to national traditions and the national monopoly over a policy field so closely tied to security and sovereignty trumped the objective need for a transnational approach, grounded in the growing interdependence and interconnectedness of energy systems and other vital services, and the associated growing risk of cascading failures.⁴⁵ Strikingly, even Finland and Sweden, otherwise known for they mostly impeccable transposition of European law, in this case, resisted.⁴⁶

With effect from October 2024, the ECI Directive was replaced by *Directive (EU) 2022/2557 of 14 December 2022 on the resilience of critical entities* (CER Directive). With high hopes placed on it,⁴⁷ it now remains to be seen, whether the CER Directive can succeed where its predecessor could not. On the one hand, it exhibits a much stronger supranational ambition, upgrading the Commission's role and competences and laying many more and much more detailed obligations upon member states.⁴⁸ It thus appears unlikely that national governments should now be willing to accept this further reaching interference in their national security business. Nor have national background conditions changed decisively: for example, Finland and Sweden still have a long way to go, while for the Baltics this is not the case.

On the other hand, however, the geopolitical environment has changed drastically.⁴⁹ With Russia's invasion of Crimea, its subsequent war of aggression against Ukraine and the accompanying proliferation of the weaponisation of energy imports and the targeted (hybrid) warfare against energy infrastructure, the need for resilient energy infrastructure is now more salient than ever.⁵⁰ At the same time, recent acts of sabotage against transnational cables and pipelines in the Baltic Sea have highlighted the challenge's transnational dimension, underlined not least by NATO's growing involvement.⁵¹

44 *ibid.*

45 OECD: Good governance for critical infrastructure resilience, in: OECD Reviews of Risk Management, Paris 2019, <https://doi.org/10.1787/02f0e5a0-en>; Pursiainen, Christer/Kytömaa, Eero: From European critical infrastructure protection to the resilience of European critical entities: what does it mean?, in: Sustainable and Resilient Infrastructure 8 (2022) (supl), pp. 85–101. <https://doi.org/10.1080/23789689.2022.2128562>.

46 Becker: Transposing EU-legislation.

47 Pursiainen/Kytömaa: From European critical infrastructure protection.

48 *ibid.*

49 See e.g., Westgaard: The Baltic Sea Region.

50 *ibid.*

51 Cf. Becker, Marie/Kalis, Michael: All hands on deck? Transforming the energy security landscape in the Baltic Sea Region, in: Energy Highlights (2024).

Furthermore, the approach adopted by the CER Directive might well attract a more favourable assessment by the Nordic states than the ECI Directive did—owing to its twofold re-focusing away from the protection of individual infrastructures and towards the resilience of entities providing vital services (hereby also further converging with the Estonian approach).⁵² This shift in emphasis has even been argued to represent a convergence of the European approach with the Nordic model, portraying the Baltic Sea region as a pioneer of change.⁵³

It is too early to get a definitive answer on how the CER Directive has or has not driven harmonisation in CIP in the Baltic Sea region's energy sector—especially as only Estonia and Lithuania have notified transposition measures so far.⁵⁴ We can, however, begin to observe some tendencies. The Lithuanian transposition stays close to the Directive's original text, adopting the concept of »critical entity« at its core, including the identification of European critical entities.⁵⁵ This contrasts with the country's transposition of the ECI Directive, where it had introduced the term *critical infrastructure* largely pro forma and else resorted back to its established list of objects of state importance.⁵⁶ While the Estonian transposition stays well away from a literal transposition of the CER Directive's text and preserves its national approach centred on vital services,⁵⁷ the adjusted focus of the Directive itself does much to reduce friction between Estonian and European law. Suddenly, the addition of the concept of the vital service *provider* suffices to essentially match the Directive. A further piece of evidence, though potentially fleeting, is the latest draft of the German transposition in form of the *KRITIS Dachgesetz*. Though the imminent change in German government will likely lead to a more or less far-reaching revision of the document, one can already state with good confi-

52 Pursiainen/Kytömaa: From European critical infrastructure protection; Becker: Transposing EU-legislation.

53 Pursiainen, Christer: Critical infrastructure resilience—A Nordic model in the making?, in: International Journal of Disaster Risk Reduction 27 (2018), pp. 632–641, <https://doi.org/10.1016/j.ijdrr.2017.08.006>.

54 See eur-lex.europa.eu/legal-content/EN/NIM/?uri=CELEX:32022L2557.

55 See the amendment to the Lithuanian *Crisis Management and Civil Protection Act* of November 7, 2024, accessible at www.e-tar.lt/portal/lt/legalAct/94aa4950a2611efa605b9842742bf37.

56 Becker: Transposing EU-legislation.

57 See for example the central Estonian Act amending the Emergency Act and other acts related thereto of September 25, 2024, accessible at www.riigiteataja.ee/akt/108102024001.

dence that the transposition, though late, will turn out much more complete and more accurate than its barely existing counterpart for the ECI Directive.⁵⁸

While these puzzle pieces allow for cautious optimism, the fact that six out of eight Baltic Sea region countries have missed the implementation deadline by already five months (and counting), should not be made light of. If not for a lack of will on part of national governments, this delay constitutes at least evidence of substantial hurdles that the transposition of the CER Directive—and the associated harmonisation of CIP—is encountering on the national level. Furthermore, while the focus on resilience has emerged as the prevalent approach across relevant actors in the Baltic Sea region, including NATO, the EU's conceptual innovation of *critical entity* has, so far, not found much resonance elsewhere. Even in EU-NATO collaborations (such as the joint taskforce) on the matter, the focus on critical infrastructure has proved quite sticky.⁵⁹

Finally, one, if not *the*, central challenge of CIP remains to be solved on the national level: the so-called public–private dilemma.⁶⁰ With a state ultimately responsible for the security of supply of vital services, including energy, and an energy sector largely in the hand of private operators and owners, tensions are inevitable. Where profit-oriented firms would determine the extent of resilience measures on the basis of cost-benefit calculations, the state would rather opt for maximum resilience in the service of national security, economic and societal welfare.⁶¹ How this gap is addressed—through hard regulation and enforcement (possibly at the cost of efficiency and economic competitiveness), self-regulation, incentives, state funds or even active involvement of military and law enforcement—remains unclear in many countries and will likely end up diverging across the region, as, here too,

58 The draft can be accessed at www.bmi.bund.de/SharedDocs/gesetzgebungsverfahren/DE/KRITIS-DachG.html; Becker: Transposing EU-legislation.

59 See for example the task force's final assessment report from 2023, well after the publication of the CER Directive, accessible at commission.europa.eu/system/files/2023-06/EU-NATO_Final%20Assessment%20Report%20Digital.pdf.

60 Dunn-Cavelty, Myriam/Suter, Manuel: Public–Private Partnerships are no silver bullet—An expanded governance model for Critical Infrastructure Protection, in: *International Journal of Critical Infrastructure Protection* 2 (2009), No. 4, pp. 179–187.

61 See for example Dunn-Cavelty/Suter: Public–Private Partnerships; Pusiainen/Kytömaa: From European critical infrastructure protection; Bueger, Christian/Liebetrau, Tobias: Critical maritime infrastructure protection—What's the trouble?, in: *Marine Policy* 155 (2023), p. 105772, <https://doi.org/10.1016/j.marpol.2023.105772>; Fritzon, Åsa/Ljungkvist, Kristin/Boin, Arjen/Rhinard, Mark: Protecting Europe's Critical Infrastructures: Problems and Prospects, in: *Journal of Contingencies and Crisis Management* 15 (2007), No. 1, pp. 30–41, <https://doi.org/10.1111/j.1468-5973.2007.00502.x>.

frame conditions (degree of privatisation and liberalisation, strength of security culture in the private sector etc.) and experiences vary significantly.⁶² While Finland has had marked success with its approach relying on collaboration and self-regulation,⁶³ Germany is still struggling to negotiate the challenge.⁶⁴ While Latvia and Estonia made the connection between CIP and the role of the military already in their transposition of the ECI Directive, most other countries have yet to make much-needed decisions in this regard.⁶⁵ With hybrid threats and wartime scenarios as an increasingly central consideration, the role of civil preparedness, closely tied also to the concept of »total defence«,⁶⁶ as found in Finland and the Baltic states,⁶⁷ will also further grow in importance, but has, so far, no counterpart in countries such as Germany.

In conclusion, while first efforts to harmonise CIP in the Baltic Sea region's energy sector yielded all but no results, the changing geopolitical environment and the EU's pivot towards a resilience- and vital service-based approach seem to indeed drive harmonisation. In fact, the extensive experience with issues of civil preparedness and societal resilience held throughout the Baltic Sea region makes the region a pioneer of change on the matter—a gold mine of expertise from which the rest of the EU might yet learn. Nonetheless, the speed and decisiveness with which different states move to fit their national frameworks to a common one, continues to vary—also in the Baltic Sea region—leaving the fragments of the past clearly visible and yet to be mended.

Assembling the Fragments?

The energy transition in the Baltic Sea region has long been marked by fragmentation, shaped by national priorities, administrative traditions, and geopolitical considerations. However, the increasing prominence of energy security—exacerbated by Russia's aggression in Ukraine, hybrid threats, and

62 Becker: Transposing EU-legislation.

63 OECD: Good governance for critical infrastructure resilience.

64 Becker, Marie: KRITIS-Dachgesetz ohne Fundament.

65 Becker: Transposing EU-legislation.

66 See for example regarding Sweden Lukasik, Stephen J./Goodman, Seymour E./Longhurst, David W.: Protecting critical infrastructure against cyber-attack, Oxford 2003.

67 Pursiainen/Lindblom/Francke (eds.): Towards a Baltic Sea Region Strategy in Critical Infrastructure Protection; Wither, James Kenneth: Back to the future? Nordic total defence concepts, in: Defence Studies 20 (2020), No. 1, pp. 61–81, <https://doi.org/10.1080/14702436.2020.1718498>; Kuczyńska-Zonik, Aleksandra: Boosting civic aspects of defence in the Baltic states, in: Publishing series IEŠ Policy Papers 3 (2023), No. 41, pp. 41–59.

infrastructure sabotage—has introduced a new momentum toward transnationalism and regional cooperation. This chapter has explored whether this shift in focus towards energy security, resilience, and CIP is fostering greater harmonisation in the Baltic Sea region's energy transition policy.

One of the key takeaways from this analysis is that transnational cooperation is not a novelty in the Baltic Sea region but has become a crucial factor in ensuring energy security. The integration of the Baltic energy markets under the BEMIP framework, the development of interconnectors such as GIPL and the Baltic Interconnector, and LNG projects between Finland and Estonia demonstrate that cross-border collaboration has been instrumental in mitigating the energy crisis and reducing dependence on Russian energy sources. However, the security dimension of energy policy has gained newfound importance, prompting further institutional and strategic adaptations.

Energy security in the region is undergoing a conceptual transformation. While traditionally framed around diversification, stockpiling, and efficiency, recent events have underscored the need for resilience against external threats, including cyber warfare, hybrid attacks, and direct sabotage. NATO's increasing involvement in securing critical energy infrastructure reflects this changing landscape, suggesting a closer alignment between energy policy and defence strategies.

The case of CIP illustrates both progress and persistent challenges in harmonising energy security policies across the region. The previous European Programme for Critical Infrastructure Protection EPCIP and the ECI Directive failed to achieve substantial integration, as national security concerns limited transnational cooperation. However, the new CER Directive offers a renewed opportunity for alignment, focusing on resilience and the protection of vital service providers rather than individual infrastructures. Early indicators from Lithuania and Estonia suggest a growing convergence with European frameworks, yet delayed transpositions by most Baltic Sea region states highlight ongoing hurdles to full regional integration.

Despite the promising trajectory toward harmonisation, significant divergences remain. National traditions, geopolitical contexts, and administrative structures continue to shape distinct approaches to energy security. The public–private dilemma further complicates matters, as different states navigate varying levels of privatisation and state intervention in securing energy infrastructure.

In conclusion, while the Baltic Sea region is witnessing a shift toward greater harmonisation in energy security policies, the process remains incomplete. The region has emerged as a pioneer in resilience-based approaches to

CIP, offering valuable lessons for the broader EU. However, fragmentation persists, with national differences in governance structures, implementation speeds, and security cultures still evident. The future of energy security and transition in the Baltic Sea region will likely depend on continued political commitment, deeper institutional integration, and the ability to balance national sovereignty concerns with the pressing need for transnational cooperation in an increasingly volatile geopolitical environment.

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