COGITATIO

Politics and Governance (ISSN: 2183–2463)
2019, Volume 7, Issue 1, Pages 92–104
DOI: 10.17645/pag.v7i1.1791

Article

Energy Security Concerns versus Market Harmony: The Europeanisation of Capacity Mechanisms

Merethe Dotterud Leiren [1,*], Kacper Szulecki [2], Tim Rayner [3] and Catherine Banet [4]

[1] CICERO Center for International Climate Research, 0349 Oslo, Norway; E-Mail: merethe.leiren@cicero.oslo.no
[2] Department of Political Science, University of Oslo, 0851 Oslo, Norway; E-Mail: kacper.szulecki@stv.uio.no
[3] Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, NR4 7TJ, UK; E-Mail: tim.rayner@uea.ac.uk
[4] Scandinavian Institute of Maritime Law, University of Oslo, 0162 Oslo, Norway; E-Mail: catherine.banet@jus.uio.no

* Corresponding author

Submitted: 21 October 2018 | Accepted: 7 December 2018 | Published: 28 March 2019

Abstract
The impact of renewables on the energy markets–falling wholesale electricity prices and lower investment stability–are apparently creating a shortage of energy project financing, which in future could lead to power supply shortages. Governments have responded by introducing payments for capacity, alongside payments for energy being sold. The increasing use of capacity mechanisms (CMs) in the EU has created tensions between the European Commission, which encourages cross-country cooperation, and Member States that favour backup solutions such as capacity markets and strategic reserves. We seek to trace the influence of the European Commission on national capacity markets as well as learning between Member States. Focusing on the United Kingdom, France and Poland, the analysis shows that energy security concerns have been given more emphasis than the functioning of markets by Member States. Policy developments have primarily been domestically driven, but the European Commission has managed to impose certain elements, most importantly a uniform methodology to assess future supply security, as well as specific requirements for national capacity markets: interconnectors to neighbouring countries, demand side responses and continuous revision of CMs. Learning from other Member States' experiences also play a role in policy decisions.

Keywords
capacity mechanisms; energy; electricity; Europeanisation; European Union; public policy; energy security; energy supply; state aid

Issue
This article is part of the issue "EU Energy Policy: Towards a Clean Energy Transition?", edited by Kacper Szulecki and Dag Harald Claes (University of Oslo, Norway).

1. Introduction

Though a truly common European energy policy is still lacking, the European Union has for years seen energy market integration as an important goal, and the realisation of Europe's single market ideals in an important economic sector. The introduction of the Third Energy Package in 2009, which sought to further liberalise the internal electricity and gas markets, provided the cornerstone for the implementation of the Internal Energy Market (IEM)—a concept launched in 2014. Although formally in place, the IEM still suffers from significant problems. There is not enough physical connectivity between national electricity grids to realise the European Commission's (Commission) vision of trading electrons 'from Lisbon to Helsinki and from Bucharest to Dublin' (Glachant, 2013, p. 122). There is also a clear tension between European-level governance and national sovereignty over energy policy (Szulecki & Westphal, 2014). The IEM is governed by a myriad of national en-

ergy regulations, leading to a *fragmented* landscape in terms of energy mixes, strategies and policies.

Capacity mechanisms (CMs) constitute one policy area where the Commission seeks to reduce such fragmentation. CMs offer additional rewards to energy providers in return for maintaining existing capacity or investing in new installations. Providers receive support not only for electricity they sell, but also additional services, most importantly the capacity they make available when needed. While the Commission pushes in the direction of removing all market-distorting subsidies, a number of Member States have, since 1990, introduced instruments to address generation capacity and flexibility adequacy concerns.

Increasing market shares for renewable energy make capacity questions increasingly important. One visible effect of renewable electricity growth on European energy markets is to lower average wholesale energy prices and squeeze out conventional capacity. As renewables are typically intermittent sources of electricity, researchers argue that maintaining a certain level of conventional capacity facilitates the integration of a high share of renewables in the energy system, by providing a stable baseload and flexible backup in times of peak demand (González-Diaz, 2015). This means that significant conventional capacity stays 'dormant' for extended periods, earning no revenue on an energy-only market (which only pays for the electricity that is actually produced), but ensuring system functioning in periods of tightening supply. This state of affairs leads to the 'missing money' problem, as utilities have less funds to finance new capacity and keep existing plant online, and therefore do not invest. However, there is no consensus that new capacity and large amounts of conventional baseload are actually needed. Controversy occurs because energy security and, more specifically, the security of electricity supply can be framed in different ways: fuel adequacy, generation capacity adequacy, balancing and flexibility, as well as network adequacy–all with the ultimate goal of uninterrupted, resilient supply at lowest possible cost (Cherp & Jewell, 2014; Linklaters, 2014).

This means that overall resource adequacy in the IEM can emphasise supply-side elements (generation infrastructure), transmission (interconnectors) as well as demand-side responses and energy efficiency. Importantly, flexibility, demand-side responses, and cross-border coordination contribute to system balancing, while avoiding the risk of 'carbon-lock-in' which subsidising conventional capacity arguably carries. Different definitions and indicators of supply security and varying emphasis on the above elements lead to a very diverse set of instruments falling under the 'CMs' category. The menu includes strategic reserves, capacity payments, capacity auctions, capacity obligations or forward capacity options. These can be volume- or price-based, centralised or decentralised, market-wide or technology-specific (Agency for the Cooperation of the Energy Regulators [ACER], 2013; Linklaters, 2014).

The lack of agreement on the instruments and degree of capacity support, or on the very need to introduce them, creates challenges for the IEM. In 2016, the Commission found as many as 28 different CMs in just 11 Member States, all potentially distorting market harmony, while many were designed without assessing whether security of supply was in fact threatened (Commission, 2016a). It also highlights the perennial tension between harmonised EU energy governance and maintaining national sovereignty over energy policy and mixes. It is therefore interesting to understand the recent Europeanisation of the most comprehensive kind of market-wide CMs, that is *capacity markets*. What arguments do governments use to justify capacity markets? In what ways and to what extent has the Commission influenced national capacity market design, and has horizontal learning occurred between Member States?

To respond to these questions, we analyse the UK, France and Poland. The UK and France were among the first to discuss the need for CMs. However, they have arrived at two very different solutions: a capacity market based on centralised auctions in the UK, and a decentralised system based on a capacity obligation in France. Poland joined the discussions later and had the opportunity to learn from other Member States' experiences.

We seek to contribute to a still little-developed literature on CMs with a comparative case study. As the policy studies literature on CMs is only just emerging, there is a need for descriptive work to build foundations for more explanatory analyses. The comparative case study allows us to investigate how Member States justify the need for CMs, and what policy options they consider at different points in time. Problems related to the evolution of national CMs are better understood in terms of a 'what' question than the search for a conclusive answer to a 'why' question which might be futile, given that there is always a complex of causal factors behind it. We therefore focus on what factors influence the evolution of CMs.

We first lay out our theoretical framework for studying Commission–Member State relations in energy policy development, and our research method. We then sketch the existing EU policies for capacity and resource adequacy, before describing the policy debate over CMs in the three countries. Finally, we discuss the findings and conclude that the Commission has been successful in steering the policy debate by standardising supply security assessment methodology and narrowing down the set of available options, by means of State Aid Guidelines, while horizontal learning among Member States seems to be causing convergence on three types of CMs.

2. Theory and Method

To theorise the influence of the Commission on Member State energy policy decisions, we draw on the concept of Europeanisation. Europeanisation has been employed in many different ways. Olsen (2002) mentions five 'faces',

where one refers to domestic impacts of European-level institutions. Traditionally Europeanisation has been treated in this way: as an output at national level caused by European integration (e.g. Goetz & Meyer-Sahling, 2008). However, newer contributions hold that the EU can no longer be understood as an external force, but as one level within a multi-level system that includes EU, national and subnational levels (Trondal, 2017). In line with this, we acknowledge that EU and national-level decision-making is embedded in a common European political order. Given tensions between the levels, it is still of interest to understand to what extent policy development is driven by domestic factors and to what extent the EU has influenced policy-making. For such exploration, we distinguish between 'vertical' influence between EU institutions and Member States (here: top-down influence of the Commission), and 'horizontal' Europeanisation, encompassing different ways in which Member States influence each other.

In top-down Europeanisation we expect to see coercive adaptive pressures, as EU legislation prescribes certain requirements with which Member States have to comply (Knill & Lehmkuhl, 2002). Coercive pressures constrain domestic policy making not necessarily directly via EU law, but also due to legal uncertainty arising from the EU's market-making policies (Schmidt, 2008). Legal uncertainty may change opportunity structures and make national actors change their plans for policy-making (Töller, 2010). State Aid Guidelines are one example where the Commission, given its far-reaching competence to ban certain activities, negotiates with Member States rather than adopting formal decisions (Töller, 2010). CMs have significant implications for competition in the IEM. Many involve state aid, so are subject to corresponding EU rules. It can therefore be expected that vertical coercive pressures from the Commission, with its avowed aim to ensure a level playing field in the internal market, push the development of national CMs towards harmonisation (ideally a single design across Member States).

Horizontal Europeanisation is typically characterised by voluntary policy diffusion, most importantly learning (Ladrech, 1994). The voluntary aspect makes it more difficult to find evidence that Europeanisation is actually taking place (Radaelli, 2003). To qualify as Europeanisation, policy transfer has to emerge through EU policy or European integration processes and not simply be transfer across Member States (Howell, 2004). Because factors at the EU and national levels interact, there is a need to carefully study national energy policy debates and focus on Member States' justifications for introducing CMs. For example, if referring to experiences in other countries, are such references inspired by EU discussions or simply a wish to learn from other countries' practices? We trace the influence of vertical and horizontal Europeanisation mechanisms on capacity market design, observing the divergence from initial proposals to the actual policies introduced, and considering when policies were discussed nationally and when EU institutions addressed related ideas.

Out of the four Member States which currently have *capacity markets* in place (chronologically: UK, France, Italy and Poland), we analyse the policy debates in three: the UK, France and Poland. The first two have developed quite distinct approaches to resource adequacy, while the third opted for introducing a capacity market only after 2016, and faced a different approach from the Commission as well as opportunities to learn from the former two. Among the eleven Member States studied by the Commission in 2016, Poland and France have the lowest increase in renewable electricity shares (Commission, 2016c). This is interesting because the increase in renewables tends to be perceived as a key reason to introduce CMs. In contrast, the UK achieved a significant increase in renewable electricity. At the same time France and Poland are among the countries that rely the most on combustible fuels (Poland) or nuclear (France), while the UK has decreased reliance on coal considerably but is investing heavily in nuclear. These differences and similarities make these countries interesting for a study of the development of their different CMs.

The analysis builds on qualitative data, including, policy papers and official communication, consultancy reports, secondary literature and newspaper articles as well as, in the British case, information from six anonymous, semi-structured face-to-face interviews with one politician, two NGOs, two civil servants and one policy advisor carried out from 2016 to 2017. The interviews have provided data about perceptions, ideas and negotiation processes, which is otherwise difficult to access. We use this data to reconstruct the national debates and Member State-Commission negotiations of CM designs, focusing on the changes in options considered, justifications given for specific instruments and explicit references to transnational influence.

3. EU Policies for Capacity Adequacy Regulations

At the EU level, Electricity Directives from 2003 and 2009 regulate CMs, focusing on the need to attract funding and secure investments that otherwise would not have been implemented (González-Diaz, 2015). EU climate policy has also affected the perceived need for adequacy provision. The EU 2020 and 2030 renewable energy targets as well as the Renewable Energy Directive 2009 have required Member States to support renewable electricity, making conventional capacity potentially important as a back-up for intermittent solar and wind power.

Since CMs have an impact on competition, many will qualify as state aids under Article 107(1) of the Treaty on the Functioning of the EU and be subject to corresponding rules. In the Guidelines on State Aid for Environmental Protection and Energy (2014–2020), the Commission acknowledges that Member States may need to introduce CMs to assure a sufficient level of power generation. However, it also points out that: Member States

must define the CM clearly; competition must be assured in the allocation of support; and different technologies and alternative solutions should participate in competition (e.g., demand-side management, cables and storage technologies).

In the past, the Commission has been adamant that its energy-only 'Target Electricity Model' would be sufficient to deliver reliability (Newbery, 2015), without the need for separate arrangements to ensure capacity availability. The Directorate General for Competition (DG COMP) has been critical of capacity payments, arguing that they 'often have more to do with compensating generators for stranded assets than delivering reliability at least cost' (Newbery, 2015, p. 2). In its interim report of the sector inquiry on CMs, the Commission (2016a) expresses concerns that capacity markets may favour particular producers and technologies unduly and that they create electricity trade obstacles across borders, distorting cross-border electricity trade and competition.

4. National Capacity Markets

Despite the Commission's concerns, a large number of Member States has introduced different kinds of CMs, and four Member States now have market-wide CMs. In an energy-only market, prices should reflect demand and supply of energy. When there is a tightening supply, prices rise and this should reduce demand, but since energy demand is often not very elastic this may lead to severe consequences, possibly even a blackout. Extremely high energy prices and fears of blackouts are politically unacceptable. Therefore, Member States prefer to intervene in the energy market, introducing CMs for the purpose of reducing the frequency and level of price spikes (ACER, 2013), and making sure that there exists a safety margin in generation capacity in case of unexpected events. As a result, several Member States have opted for reforming their energy markets from energy-only to energy-and-capacity markets, citing future investment gaps and possible capacity adequacy issues.

4.1. The United Kingdom

Until 2014, the UK relied on an energy-only market to deliver sufficient capacity. The government introduced the country's first explicit CM as part of a wider Electricity Market Reform package, proposed in 2010 and adopted in the Energy Act 2013 and the Electricity Capacity Regulations 2014. The adopted Capacity Market instrument is a centralised capacity auction system, where generators compete for long-term contracts that define the payment for the capacity that must be delivered in the event of system stress during a defined 'delivery period'.

In terms of the need for a mechanism in principle, the government was persuaded by arguments based on the 'missing money problem'. Around a quarter of existing capacity—mainly coal and nuclear stations—was expected to close by 2020, to be replaced by new, low-carbon generation. However, the Department of Energy and Climate Change (DECC) calculated that 'de-rated' capacity margins could potentially fall, increasing the likelihood of 'blackouts'. Greater intermittency in generation and inflexibility compounded concerns about security of supply (DECC, 2010). A new instrument was deemed necessary, to deliver value for money and security of supply, while ensuring coherence with decarbonisation goals (DECC, 2014a). Later ministerial announcements made it clear that delivering new gas capacity was also expected (Orme, 2016).

As part of the policy-making process, DECC and its consultants considered the four main options: a capacity payment, a decentralised capacity obligation, an auction-based capacity market and a targeted strategic reserve. DECC's initial preference was for setting volume rather than price centrally (Bolton & Claussen, 2017). Of the two volume-based mechanisms, the strategic reserve or market-wide auctions, DECC initially indicated a preference for the former. Under a targeted mechanism, payments are made only to those generators that provide the additional capacity needed to make up any anticipated shortfall, rather than paying all generators the same. DECC predicted that a targeted mechanism would result in greater investment in new gas plants (Bolton & Claussen, 2017).

Responses were mixed. Many existing generators opposed a targeted mechanism (ECC Select Committee, 2011, p. 51), expressing concern about a 'slippery slope' effect, whereby remaining within the targeted subset of capacity receiving the payment becomes more attractive than remaining in the market, thus undermining the energy-only market further. This was deemed likely to exacerbate the 'missing money' problem. Others, including RWE and EON, were sceptical of the need for capacity payments at all (Lockwood, 2017, p. 47). The majority of the Big Six were in favour (ibid).

A further concern underlay the government's shift in favour of a market-wide auctioning mechanism. New calculations taking into account the effects of plant closures and increasing amounts of low-carbon generation indicated that de-rated capacity margins could fall to below 5% in some years, by the early to mid-2020s. At the end of the consultation process, a capacity market was eventually justified as the preferred option as 'it best addresses the market failures and is robust to a range of scenarios. It should also reduce regulatory and market risks for investors' (DECC, 2011, p. 1).

Critics pointed to how the emerging policy strongly favoured industry incumbents, and highlighted how the DECC team working on the reform had been boosted by a significant number of staff seconded from the Big Six energy companies (Carrington, 2012). Critics of the capacity market, including independent analysts and NGOs, also highlighted the role of National Grid, whose financial incentive to connect more capacity to the grid arguably influenced the methodological assumptions it adopts (interviews with one politician and two NGOs). In assess-

ing future security of supply and advising on the amount of capacity to be procured, National Grid made conservative assumptions regarding generation availability and the contribution to be made by both interconnection and demand-side response (Baker, Bayer, & Rączka, 2015; Newbery, 2015). Although its detailed assessment recognised that interconnection would likely contribute to security at times of peak demand, the amount of generation capacity to be procured for delivery in 2018/19 was based on the assumption of a zero net contribution from neighbouring systems, 'at odds with the standard probabilistic approach to security of supply' (Baker et al., 2015). While an independent Panel of Technical Experts designed to advise on National Grid's assessment was critical of its methods, and made a number of strong recommendations, they were not taken up (Newbery, 2015).

In order to secure Commission state aids approval, the UK agreed to enable interconnected capacity excluded from the first capacity auction to participate in the second (Commission, 2014). That this appeared to be the only condition imposed in a rapid DG COMP approval process triggered controversy (Energy Post, 2014), including internally at the Commission (Energy Post, 2016). Critics were disappointed that the Commission, though noting criticism from the likes of the UK Panel of Technical Experts highlighting the likelihood of over-procurement, gave the government the benefit of the doubt. While the UK government cited the missing money problem as one of the main market failures that the Capacity Market would address, there were grounds to believe that the problem would ease before the first delivery year, by which time energy prices would more fully reflect scarcity value thanks to reforms to the Balancing Market (Baker et al., 2015). A further issue arose in that by not allowing demand-side-response providers contract lengths longer than a year, while new power stations got 15 years, the dominance of fossil fuel generation would be strengthened, contrary to the State Aid Guidelines. In principle, these issues might have justified a 'phase two' state aids investigation. DG COMP's decision generated suspicion that it was politically, rather than legally motivated. At a time when relations between the UK and the Commission were already difficult owing to the December 2013 decision (Davey, 2013) to launch a 'phase two' investigation into the Hinkley Point proposed nuclear plant, 'pre-Brexit when Europe still cared about keeping UK on-side…I think they just gave them the capacity market' (interview with one NGO).

For their part, UK civil servants portray the role of the Commission as 'very significant', and the process of securing state aids clearance 'very onerous', having 'material effects on the design' (in interviews). Dialogue between the government and the Commission was intensive (DECC, 2014b, p. 12), but interestingly coincided with the discussions regarding the revision of state aid guidelines. If clearance for the capacity market was facilitated by taking into account the likely content of the new State Aid Guidelines in its design (interviews with two civil servants and one policy advisor), it is also noteworthy that the revised guidelines are themselves in keeping with the UK preference that capacity markets should have a place in a reformed model of electricity market regulation. A small flexibility services provider Tempus Energy opened a legal challenge against the Commission on grounds that it had violated the principles of non-discrimination, proportionality and legitimate expectation and made a wrong assessment of the facts when it approved the CM without a 'phase two' inquiry. In November 2018, the Court of Justice of the EU (2018) found in favour of Tempus' challenge, ruling the CM approval to have been unlawful (Coyne, 2018). The ruling could force the government to redesign the its policy, offering more favourable terms to providers of demand-side services, and resubmit it for state aid approval.

4.2. France

France faces several challenges that have made the government want to introduce a CM. Since the 1970s, nuclear has been a main electricity source, with little diversity in the generation mix and the dominance of the operator *Electricité de France* (EDF). France relies heavily on electric heating, which, since the end of the 1990s, has resulted in regular consumption peaks during cold winter periods, creating imbalance between demand and supply in the absence of storage capacity (Crevel-Sander & Beaugonin, 2015). In 2010, the French transmission system operator (Réseau de Transport d'Électricité [RTE]) published its annual assessment report, depicting an increasingly alarming situation: risks to electricity supply would increase and result in serious threats of energy shortage as early as 2015–2016 (RTE, 2010). Managing those peak situations is the main motivation for adopting a CM.

In the 2000s, the level of threat to security of supply increased due to decommissioning of some thermal production facilities and because of a 'missing money' problem due to a decrease in energy consumption after the 2008 financial crisis and the depreciation of the wholesale electricity price (RTE, 2017). The lack of investment and profitability in new capacity worried electricity producers, who informed public authorities of the difficulties they faced. In addition, the increasing share of renewable energy in electricity generation started to affect the energy system (intermittency) and market dynamics (competitiveness of sources able to contribute to peak situations) (Desessard, 2012). Between November 2012 and November 2013, renewable energy production grew by more than 33%, due to advantageous support measures.

These conditions, and the absence of a mechanism to develop demand response, prompted discussions on security of supply at the national level. The government's immediate reaction was to adopt, in 2009, a new multi-year plan of investment to define short term objectives. It established a working group to study the consump-

tion peak phenomenon and make proposals on how best to manage peaks. The working group concluded that an energy-only market could not alone deliver the necessary solutions and proposed a CM consisting of a capacity obligation on all suppliers along with a certificate market (Poignant-Sido Report, 2010). As the problem applies to the whole territory, the mechanism was recommended to be nationwide and, in order to involve all actors and capacity, it should be decentralised (with one exception for a new gas-fired power plant in Brittany) (Commission, 2017). Under a decentralised model, the responsibility for adequacy between the supply offered and the demand from the customers is born by actors like suppliers (and is therefore decentralised), while under a centralised system, it is usually the transmission system operator who is in charge of making the assessment for the other actors, bearing the responsibility for security of supply almost alone (therefore centralised). Both the Poignant-Sido Report and the parliamentary debates during the adoption of this law refer to foreign experiences with CMs in Europe and the United States, as a source of inspiration and comparison.

Shortly after the report's publication, the principle of a capacity obligation mechanism was enshrined in the Electricity Market Reform Law adopted in December 2010. The CM took the form of a decentralised obligation promoting both generation capacity and demand response. Electricity suppliers are required to hold a certain amount of capacity guarantees, determined by the transmission system operator in proportion to the electricity consumption of their consumers in peak periods in the four coming years. All operators of generation capacity and/or demand response are required to certify all of their capacity through a contract to be agreed with the transmission system operator, who issues the guarantees. To meet their obligation, the suppliers have to secure capacity guarantees by relying on their own means or by acquiring them from others. The design of the mechanism has been subject to much debate and took several years to agree on. Once set at national level, it was quickly brought into consistency with EU law and the Commission's requests, before the Commission approved it in November 2016, with 2017 as the first delivery year.

In order to implement the new mechanism, the Ministry in charge of energy and industry tasked the transmission system operator with elaborating detailed rules. RTE's report was subject to consultation and intense discussions: The Union of the French electricity industry was concerned about the equity of the system, arguing in favour of sharing amongst suppliers the burden of what they argued amounted to a public service obligation. The electricity-intensive industry and aggregators defended the valorisation of demand response. In its report, the transmission system operator defended a decentralised mechanism (RTE, 2011). Although a decentralised model in theory advantages new market entrants, alternative suppliers were concerned that a decentralised model would in practice favour EDF, and proposed a centralised bidding process based on investment projects. Being a dominant electricity producer, EDF could benefit from its position on the generation market and distort competition on the capacity obligations market. The transmission system operator rejected the latter proposal. The implementation decree (adopted in December 2012) confirmed the decentralised model and a market-based approach relying on a tradable certificates scheme (i.e., capacity obligations).

How to further implement the new capacity mechanism was again subject to consultation between 2012–2014. The national regulatory authority (CRE) and the national competition authority came with a series of critical comments, questioning the extent to which the mechanism contributes to security of supply, the lack of impact assessment, the additional costs for final customers, risks of distortion of competition on the envisaged capacity due to the dominant role of EDF and the fear that EDF could benefit from all the capacity payments (CRE, 2012). However, the Ministry in charge finally approved the rules on 22 January 2015.

The legislative basis for this mechanism has been challenged before national and EU courts, although the procedures are now closed (Banet, 2016). The applicant before national courts was the national association of alternative retail energy providers, which argued that the mechanism would automatically put EDF in a position to abuse its dominant position.

The initial stance of the French government was that the CM does not constitute state aid, and therefore not a matter for the Commission. The logic behind this was that a broad-based capacity mechanism that includes demand side response (DSR) and is backed by the market should qualify as a public service obligation (in relation to security of energy supply) and not as state aid (Linklaters, 2014, p. 13).

Nevertheless, the mechanism has been under the scrutiny of the Commission, both as part of the sector inquiry and an individual state aid case (SA.39621). DG COMP raised several questions as to its compatibility with the State Aid Guidelines. After intense negotiations between the French government and DG COMP, and the resulting adoption of some amendments, the French capacity market mechanism was deemed compatible with EU rules and duly authorised. The dialogue with the Commission services also involved the Directorate-General for Energy (DG ENER), whose signals were not always in line with DG COMP's (Marty & Reverdy, 2017). DG ENER was in the phase of finalising its proposal for the Clean Energy Package and preparing for a further step in the liberalisation of IEM (Commission, 2016b). DG ENER therefore saw some value in more temporary and targeted mechanisms, targeting plants to be decommissioned (Commission, 2016c).

The French minister argued that the approval decision required 'intense work between the Commission and the French authorities' (Actu Environnement, 2016).

Three key amendments were made, resulting in more stringent public control of the mechanism than the French government originally foresaw: one amendment opened the national mechanism to cross-border capacity from the delivery year 2019; another improved transparency in order to prevent distortion of competition resulting from the position of EDF; a third addressed the feared lack of signals for new investments by providing for an additional incentive through the conclusion of multiannual contracts between RTE and new capacity operators at a fixed price for seven years, following a bidding process.

4.3. Poland

Poland's electricity market has for years been energy-only; however, due to problems with adequacy, reliability of the system, and investment instability, there has—since 2009—been a discussion about introducing additional capacity payments (Sadowska, 2015). First capacity measures were introduced in 2013–14 and included a targeted reserve, where the transmission system operator pays selected energy producers to keep their capacity ready for use in case of a sudden shift in the system. The first contract for a 'cold reserve' was signed in 2014 (PAP, 2014). At the same time an operating capacity reserve was introduced, and the transmission system operator started organising demand-side response tenders (Sadowska, 2015). An independent energy think tank pointed out that the 'cold reserve', which pays a premium to plants which also participate in the regular and balancing markets, is in fact a capacity payment and state aid (Chojnacki, 2016).

Increasingly, however, the debate in Poland focused on possible supply shortages in near future as fossil plants were being decommissioned (due to their age and the strict EU industrial emissions regulations). Although improved prognoses on capacity adequacy have decreased the urgency of such measures for the transmission system operator, once the idea was put on the table, it was picked up by the incumbents. Energy industry organisations commissioned E&Y consultancy to develop a proposal for a capacity market, which it submitted to the Ministry of Economy and the regulator in November 2014. The proposal displayed awareness of the constraints imposed by 2014 EU State Aid Guidelines, and developed two options, drawing on the two existing European CMs: the UK centralised capacity auction model and the French decentralised capacity obligation model (Sadowska, 2015).

The Civic Platform (PO) government (2007–2015) resisted these postulates, fearing a hike in energy prices. However, as the Commission was already looking at European CMs, and inquiring into the Polish cold and operational reserves, the government suggested that a market-wide capacity mechanism could be created and called a 'decarbonisation reserve'. That was meant to frame it in climate-friendly terms, even though the main goal would be to keep coal plants online and support vertically integrated mining/energy conglomerates (Zasuń, 2015).

In 2016, the new Ministry of Energy in the Law and Justice (PiS) government proposed a framework for a market-wide capacity mechanism, modelled on the UK capacity auctions. This initiative came in the context of the newly introduced Renewable Energy Law, which replaced green certificates (quota) with volume-restricted feed in tariff tenders for specific technologies (based on auctions) (Szulecki, 2017). As a result, some of Poland's oldest coal plants, which benefited from green certificates from biomass co-firing, faced potential economic problems, while the age of the entire plant fleet called for phase-out or rapid retrofit.

The dual goal of the energy sector and the government was to secure funding for extending the life (modernising) of numerous baseload coal plants, as well as improving the economic rationale for their functioning (subsidising). Poland pre-notified the Commission in November 2016 and sent the full draft of the proposed CM legislation in December. All capacity over 2MW was to be subject to certification and allowed to take part in capacity auctions (Zasuń & Derski, 2016). The transmission system operator would then project the volume needed in a given year, the Minister of Energy would design the tenders while a 'capacity fee' to finance the mechanism would be set by the national regulator and added to electricity bills of final consumer—industrial and household.

The project omitted two important guidelines which the Commission issued earlier or at the same time. Following the initial report by DG COMP and the work on the Clean Energy Package, in November 2016, the Commission proposed that in future CMs, most carbon intensive generation (above 550 kg/MWh) should be excluded, which effectively bans coal plants from CMs (Neslen, 2016). The Polish project also did not initially envision capacity in neighbouring countries and interconnectors to be part of the system. Consultations between Poland and DG COMP took place between January 2017 and January 2018 (with 14 meetings and teleconferences) (Commission, 2018).

The Commission agreed with Poland's arguments, most importantly the demonstration of the missing money market failure, though the national transmission system operator was asked to conduct a modelling exercise based on a methodology approved by the European Network of Transmission System Operators for Electricity (the Mid-term Adequacy Forecast), which indeed showed that lack of investments will lead to considerable scarcities. In the process, the Commission emphasised that significant parts of the missing money problem can be dealt with by adjusting price signals on the existing energy market, without the need of state aid–and obliged Poland to introduce important reforms in the balancing market, making it more flexible and adding mechanisms targeting scarcity, including demand-side response.

The delay in introducing a CM allowed Poland to learn from the experience of other EU members, most

importantly the UK. To avoid some apparent mistakes, Polish legislators came up with the idea of three 'capacity baskets' in auctions: for existing, modernised, and newly constructed capacity. However, the Commission, apparently seeing the UK model of technologically neutral market-wide auctions as a preferred mold for new CM legislation (legal challenge notwithstanding), opposed the idea of baskets, and in October 2017 Poland's Energy Ministry offered an amended proposal which did not include these. Energy experts agreed that without an additional mechanism boosting investment in new capacity, the 'UK model' applied to Poland would only result in subsidising the modernisation of the 1950s/60s coal plants (Wysokie Napięcie, 2017).

The bill was passed on 8 December 2017 (the Capacity Market Law), with a final acceptance from the Commission in February 2018. By the first year of capacity delivery (2021) Poland is obliged to phase out all other capacity payments. The introduction of energy storages (potentially allowing renewables to enter the capacity market through the back door), as well as a premium for co-generation (power and heat), was welcomed by more green-minded experts. However, Maćkowiak-Padera and Swierczynski (2018) point out that the capacity market will initially only petrify the existing four-company oligopoly, and that without decarbonisation measures and better renewables support, the CM alone will not deliver any emissions reductions, making Poland's chances to reach its 2030 climate targets dubious.

Importantly, as the final justification published by the Commission in April 2018 shows, the final Capacity Market Law will have to be significantly reformed to reflect the compromise reached between Warsaw and Brussels. This includes necessary reforms of the balancing market, aimed at minimising the need for capacity subsidies. The rule that all other investment support and aid are deduced from capacity payments is even more important for the Polish energy sector as this includes free emission allowances in the European Trading System, translating to millions of Polish zlotys (Wysokie Napięcie, 2018). One last point is the increased role for cross-border capacities (through interconnectors), which have been assigned a larger share in the capacity market than the Polish authorities intended.

Table 1 summarises key characteristics of the CMs in the three countries.

5. Discussion

In all three countries the missing money issue was more frequently cited as justification for introducing CMs than supply irregularities caused by an increasing share of renewables. In the UK, lack of willingness to invest has been the most important reason, though the capacity market failed to incentivise new gas capacity. The instrument has been heavily criticised for decreasing opportunities for renewable energy through generous support of fossil-fueled power.

France introduced capacity obligations primarily because of the high load in winter due to heavy reliance on electric heating and lack of investment in particular following the decrease in energy consumption following the 2008 financial crisis. France is unique in that decentralised capacity assurance is clearly aimed at system stability, and in consequence, demand-side response plays a crucial role, as it provides flexibility to a nuclear-based system.

The initial concern in Poland was the risk of future power shortages due to decommissioning of fossil plants. However, the 'missing money' problem for modernisation (retrofit) and additional investment in for example, gas generation, became quickly conflated with calls for subsidising coal-based generation.

When it comes to stakeholders, the Big Six UK utilities had considerable influence on instrument design. Four of them favoured a market-wide centralised auction system and appear to have been particularly influential on the government department responsible. Similarly, the large public utilities in Poland had great influence on the design of the Polish capacity market. To some extent this case is akin to regulatory capture. The primary reason for introducing a capacity market in Poland was to provide an additional source of income for large utilities, to help coal-fired power plants compete with producers of renewable energy and to avoid power shortages. In France too, the design of the CM favours the dominant utility.

In terms of our theoretical expectations, we expected *vertical Europeanisation* to put the Member States un-

Table 1. CMs in the UK, France and Poland.

	The UK	**France**	**Poland**
What?	Centralised capacity auctions	Decentralised capacity obligation	Centralised capacity auctions
When?			
First decision	2010	2010	2014
Implemented	2014	2016	2018
Why?			
Key reason	Missing money	High winter load, missing money	Missing money
Other reason	Renewable policy	Renewable policy	Support utilities
Relation to the EU	Vertical	Vertical	Vertical and horizontal

der coercive pressures and that State Aid Guidelines in particular would push the development of national CMs towards harmonised cooperation. We find that the Commission has enforced some harmonisation–albeit not in the direction that CM critics were hoping for. In the UK case, the Commission was lenient in granting state aid although the Commission did enforce greater consideration of interconnected capacity, originally excluded from the auctions. However, critics of Commission leniency have been vindicated by the recent, highly consequential ruling of the General Court to annul the 2014 approval. We should also be reminded that the emergence of UK's auction-based mechanism coincided with growing calls for auctioning as a way to determine renewable energy support in some countries (e.g. Germany and Poland). It should not come as a surprise that the Commission opted for centralised auctioning in capacity markets as well, arguably achieving some harmonisation.

As with the UK, intensive negotiations also characterise the relationship between France and the Commission. France intended to adopt an instrument in line with EU law, choosing a market-based and -wide, decentralised, technology-neutral scheme, and hoped to avoid DG COMP inquiry altogether. However, there were doubts about the compatibility with the State Aid Guidelines and the French authorities were forced to re-design several elements of the CM, including: opening the national mechanism to cross-border capacity; improving transparency to prevent distortion of competition by EDF; and an additional incentive for investments through multiannual contracts between transmission system operator and new capacity operators based on competitive rounds.

Poland had to agree, in view of the 2016 Clean Energy Package, that future CM auctions would exclude the most carbon intensive forms of generation, effectively ruling out support to coal plants. The Polish authorities also had to integrate capacity in neighbouring countries and interconnectors in its system, abandon its idea of having separate auctions for existing, modernised and newly constructed capacity, and open the system up for storage and demand-side response providers. The Polish case is interesting, as due to the timing of the procedure, its CM design has been subjected to meticulous DG COMP inquiry, visibly informed not only by the State Aid Guidelines, but also lessons from the UK case, *horizontal learning* linked to the Clean Energy Package proposals, as well as a more clearly articulated Commission stance.

6. Conclusions and Outlook

The evidence shows that while the Commission encourages cross-border solutions, the UK, France and Poland have prioritised national CMs and developed them with domestic interests in mind. While the Commission seeks to minimise the use of CMs, risk-averse Member States exaggerate the actual need for capacity support to be on the 'safe side', notwithstanding the distorting effects on the IEM. However, in terms of *vertical Europeanisation*, the Commission has strong tools to affect the Member States' CMs: it has initiated state aid inquiries into such mechanisms. The UK, France and Poland have had intensive negotiations with the Commission and have adopted their designs more or less in alignment with the State Aid Guidelines (at least as interpreted at the time by DG COMP). That said, the development of CMs has largely been domestically driven in all the three countries. The developments have mostly been voluntary and are characterised by *horizontal learning* from other countries, in particular in the Polish case, where Polish authorities—under the pressure from the Commission—have looked at the experiences in other countries when changing their CM.

Critics of CMs express disillusionment that the Commission has not been 'tougher', but essentially allowed incumbent (often fossil fuel dominated) companies to be supported with taxpayers' cash, which would be better spent on clean renewables. However, the Commission has managed to achieve harmonisation in three important respects. First, as many CMs encompass state aid, Member States have to be clear about their purpose and follow certain standards (i.e. methodology), when calculating future supply security risks (Geysens, 2017, p. 119). Second, CMs are required to feature elements like cross-border capacity through interconnectors, demand-side response and competitive bidding. The *Tempus* court ruling, which may force the UK to make its CM more favourable to providers of demand-side services, shows that even in cases where the Commission is lenient, national authorities may still be forced to go further than they want to, as other actors may initiate legal challenges. Moreover, the Commission might use this power more fully now that the Court has ruled that DG Comp was not strict enough in applying the State Aid Guidelines in the UK case. Finally, the February 2018 round of approvals of certain Member States' CMs by the Commission shows that there are primarily three EU CM options: capacity markets (in the centralised auction 'UK' and decentralised obligation 'French' model), demand-side response schemes and strategic reserves. A fundamental cleavage seems to run between targeted strategic reserves (aimed at securing backup for intermittent renewables) and–what we have focused on in our analysis–market-wide mechanisms. While the former is aimed at securing backup for intermittent renewables, our study suggests that the latter focus on missing money.

To conclude, although the increasing share of renewables has changed the perception of CMs from the missing money problem to a back-up for intermittent electricity, the UK, France and Poland have introduced CMs chiefly because of lack of investment. However, increasing shares of irregular electricity will increase pressure for more back-up solutions. The Commission is likely to continue to use its power, promoting cross-country solutions, and Member States are increasingly investing in interconnectors. Moreover, the Commission suggests

that in future the EU's market design 'should not be too prescriptive', as different tools are intended to 'fit the situation of a particular member state or market' (Euractiv, 2018).

The interplay between targeted and market-wide CMs will be important over the next several years. New research should focus on how preferences for either are formed in relation to both the characteristics of national energy systems and domestic political discussions around energy and decarbonisation.

Acknowledgments

The Research Council of Norway has funded this study through the Large-scale Programme for Energy Research ENERGIX (InGrid, project no. 243994 and REMIX, project no. 243756). Statkraft, Statnett, The Norwegian Water Resources and Energy Directorate, Swedish Energy Agency and Energy Norway have also funded this project and contributed with valuable feedback in discussions. We are grateful to the interviewees, making it possible to write this article, and to the two anonymous reviewers, Anne Therese Gullberg, Aleh Cherp, Filip Černoch as well as the participants of the panel "Re-Shaping Energy Politics: Actors, Interests and Roles" at the 2018 ECPR General Conference in Hamburg for their constructive feedback.

Conflict of Interests

The authors declare no conflict of interests.

References

Actu Environnement. (2016, November 9). Le marché de capacité opérationnel dès 2017, avec l'aval de l'UE [The capacity market is operational from 2017, with the EU's backing]. *Actu Environnement*. Retrieved from https://www.actu-environnement.com/ae/news/marche-capacite-operationnel-2017-27841.php4

Agency for the Cooperation of the Energy Regulators. (2013). Capacity remuneration mechanisms and the internal market for electricity. *Acer*. Retrieved from http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/CRMs%20and%20the%20IEM%20Report%20130730.pdf

Baker, P., Bayer, E., & Rączka, J. (2015). *Capacity market arrangements in Great Britain*. Warsaw: Forum for Energy Analysis. Retrieved from http://www.fae.org.pl/files/file_add/file_add-9.pdf

Banet, C. (2016). *Capacity markets and the internal market: The French court case C-543/15. A missed opportunity?* Paper presented at EU energy law seminar, Energy Norway, Norway.

Bolton, R., & Clausen, T. (2017). *The capacity question: Electricity decarbonisation and market reform in Britain and Germany* (Draft paper). Edinburgh: University of Edinburgh.

Carrington, D. (2012, December 30). Energy company staff working at climate ministry. *The Guardian*. Retrieved from https://www.theguardian.com/environment/2012/dec/30/energy-companies-climate-ministry-decc

Cherp, A., & Jewell, J. (2014). The concept of energy security: Beyond the four As. *Energy Policy*, *75*, 415–421.

Chojnacki, I. (2016, January 5). FAE: Operacyjna rezerwa mocy nie działa dobrze [Forum for Energy Analyses: The operational power reserve is not functioning well]. *Wirtualny Nowy Przemysl*.

Court of Justice of the European Union. (2018). *The General Court annuls the Commission's decision not to raise objections to the aid scheme establishing a capacity market in the UK* [Press release No 178/18]. Retrieved from https://curia.europa.eu/jcms/upload/docs/application/pdf/2018-11/cp180178en.pdf

Coyne, B. (2018, November 15). Tempus Energy wins European Court case over Capacity Market bias towards generation over DSR. *The Energyst*.

CRE. (2012). *Délibération de la Commission de régulation de l'énergie portant avis sur le projet de décret pris pour application de l'article L.335-6 du code de l'énergie relatif au dispositif de contribution des fournisseurs à la sécurité d'approvisionnement en électricité et instaurant un mécanisme de capacité* [Deliberation of the Energy Regulatory Commission giving an opinion on the draft decree adopted for the application of Article L.335-6 of the Energy Code relating to the system of contribution of suppliers to the security of electricity supply and establishing a capacity mechanism] (29 March). Paris: Commission de Régulation de l'Energie.

Crevel-Sander, D., & Beaugonin, C. (2015). France, in capacity mechanisms in the EU energy market. In L. Hancher, A. de Hauteclocque, & M. Sadowska (Eds.), *Capacity mechanisms in the EU energy market* (pp. 256–270). Oxford: Oxford University Press.

Davey, E. (2013). *Written statement to Parliament. Hinkley point C state aid–EU Commission opening decision*. Retrieved from https://www.gov.uk/government/speeches/hinkley-point-c-state-aid-eu-commission-opening-decision

Department of Energy and Climate Change. (2010). *Electricity market reform. Consultation document* (Cm 7983). London: The Stationary Office.

Department of Energy and Climate Change. (2011). *Consultation on possible models for a capacity mechanism: Impact assessment*. London: Department of Energy and Climate Change.

Department of Energy and Climate Change. (2014a). *Electricity market reform—Capacity market: Impact assessment*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/354677/CM_-_revised_IA_and_front_page__September_2014__pdf_-_Adobe_Acrobat.pdf

Department of Energy and Climate Change. (2014b).

Electricity market reform: Allocation of contracts for difference. A government response on competitive allocation. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310272/competitive_allocation_government_response.pdf

Desessard, J. (2012, 11 July). *Électricité: Assumer les coûts et préparer la transition énergétique* [Electricity: Take responsibility for the costs and prepare the energy transition] (Report no 667, 2011–2012). Paris: Sénat. Retrieved from https://www.senat.fr/notice-rapport/2011/r11-667-1-notice.html

ECC Select Committee. (2011). *Electricity market reform. Fourth report of session 2010–12* (HC 742). London: The Stationery Office Limited.

Energy Post. (2014, July, 25). Brussels sets dangerous precedent by clearing UK capacity market. *Energy Post*. Retrieved from http://www.energypost.eu/brussels-sets-dangerous-precedent-european-energy-policy-clearing-uk-capacity-market

Energy Post. (2016, May 11). Capacity mechanisms: DG Competition and DG Energy clash over future of EU energy market. *Energy Post*. Retrieved from energypost.eu/capacity-mechanisms-dg-competition-dg-energy-clash-future-eu-energy-marke

Euractiv. (2018, September 12). *Capacity markets: How much 'flexibility' for EU countries?* Retrieved from https://www.euractiv.com/section/electricity/news/capacity-markets-how-much-flexibility-for-eu-countries

European Commission. (2014). *State aid SA.35980 (2014/N-2)—United Kingdom electricity market reform–Capacity market* (C (2014) 5083 final). Brussels: European Commission.

European Commission. (2016a). *Report from the Commission. Interim report of the sector inquiry on capacity mechanisms* (C(2016)2107 final). Brussels: European Commission.

European Commission. (2016b). *Communication from the European Commission, clean energy package for all Europeans* (COM(2016) 860 final). Brussels: European Commission.

European Commission. (2016c). *Final report of the sector inquiry on capacity mechanisms, commission staff working paper* (COM(2016)752 final). Brussels: European Commission.

European Commission. (2017). *SA.40454—Tender to support gas-fired power plant in Brittany* (JOCE L/235/2017). Brussels: Official Journal.

European Commission. (2018). *SA.46100—Planned Polish capacity mechanism*. Retrieved from http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_46100

Geysens, J. (2017). Capacity mechanisms after the Commission's winter package. *European Energy and Environmental Law Review*, *26*(4), 111–122.

Glachant, J. M. (2013). A vision for the EU gas target model: MECO-S. In J.-M. Glachant, M. Hallack, & M. Vazquez (Eds.), *Building competitive gas markets in the EU* (pp. 114–195). Cheltenham: Edward Elgar.

Goetz, K. H., & Meyer-Sahling, J.-H. (2008). The Europeanisation of national political systems: Parliaments and executives. *Living Reviews in European Governance*, *3*(2), 1–30.

González-Diaz, F. E. (2015). EU policy on capacity mechanisms. In L. Hancher, A. de Hauteclocque, & M. Sadowska (Eds.), *Capacity mechanisms in the EU energy market* (pp. 3–31). Oxford: Oxford University Press.

Howell, K. E. (2004). *Developing conceptualisations of Europeanization: Synthesising methodological approaches* (No 3/2004). Belfast: Queens Papers on Europeanization.

Knill, C., & Lehmkuhl, D. (2002). The national impact of European Union regulatory policy: Three Europeanization mechanisms. *European Journal of Political Research*, *41*(2), 255–280.

Ladrech, R. (1994). Europeanization of domestic politics and institutions: The case of France. *Journal of Common Market Studies*, *32*(1), 69–88.

Linklaters. (2014). *Capacity mechanisms. Reigniting Europe's energy markets*. London: Linklaters.

Lockwood, M. (2017). *The development of the capacity market for electricity in Great Britain* (EPG Working Paper: 1702). Exeter: University of Exeter.

Maćkowiak-Pandera, J., & Świerczyński, E. (2018, 21 February). Rynek mocy—Plaster czy panaceum dla polskiej energetyki? [Capacity market—Plaster or panacea for Polish Energy?]. *Wysokie Napięcie*. Retrieved from https://wysokienapiecie.pl/8132-rynek-mocy-plaster-czy-panaceum-dla-polskiej-energetyki

Marty, F., & Reverdy, T. (2017). Le Marché français de capacité d'électricité [The French market of electricity capacity]. *Revue de l'OFCE*, *154*, 179–210.

Neslen, A. (2016, November 30). EU targets energy waste and coal subsidies in new climate package. *The Guardian*. Retrieved from https://www.theguardian.com/environment/2016/nov/30/eu-declares-war-on-energy-waste-and-coal-subsidies-in-new-climate-package

Newbery, D. (2015). *Missing money and missing markets: Reliability, capacity auctions and interconnectors* (EPRG Working Paper 1508). Cambridge: University of Cambridge.

Olsen, J. P. (2002). The many faces of Europeanization. *Journal of Common Market Studies*, *40*(5), 921–952.

Orme, B. (2016). *Incapacitated: Why the capacity market for electricity generation is not working, and how to reform it*. London: Institute for Public Policy Research.

PAP. (2014, January, 20). Dwa bloki Elektrowni Dolna Odra będą interwencyjną zimną rezerwą mocy [Two blocs of the Dolna Odra power plant will constitute a cold intervention power reserve]. *CIRE*. Retrieved from https://www.cire.pl/item,87039,1,0,0,0,0,0,dwa-bloki-elektrowni-dolna-odra-beda-interwencyjna-zimna-rezerwa-mocy.html

Poignant-Sido Report. (2010). *Groupe de travail sur la maîtrise de la pointe électrique* [Task Force on peak electric handling]. Paris: La Documentation Française.

Radaelli, C. M. (2003). The Europeanization of public policy. In K. Featherstone & C. M. Radaelli (Eds.), *The politics of Europeanization* (pp. 27–57). New York, NY: Oxford University Press.

Réseau de Transport d'Électricité. (2010). *Bilan prévisionnel de l'équilibre offre-demande d'électricité en France* [Estimates of the electricity supply-demand balance in France]. Paris: Réseau de Transport d'Électricité.

Réseau de Transport d'Électricité. (2011). *Rapport au Ministre chargé de l'Industrie, de l'Energie et de l'Economie numérique sur la mise en place du mécanisme d'obligation de capacité prévu par la loi NOME* [Electricity transportation network (2011): Report to the Minister in charge of Industry, Energy and the Digital Economy on the implementation of capacity obligation mechanism laid down by the Act NOME]. Paris: Réseau de Transport d'Électricité.

Réseau de Transport d'Électricité. (2017). *Un mécanisme de capacité révisé pour améliorer la sécurité d'approvisionnement et maintenir la concurrence dans le secteur électrique* [A revised capacity mechanism to improve the security of supplies and maintain competition in the electricity sector] (Rapport d'accompagnement du nouveau jeu de règles). Paris: Réseau de Transport d'Électricité.

Sadowska, M. (2015). Poland. In L. Hancher, A. de Hauteclocque, & M. Sadowska (Eds.), *Capacity mechanisms in the EU energy market* (pp. 335–350). Oxford: Oxford University Press.

Schmidt, S. K. (2008). Beyond compliance: The Europeanization of member states through negative integration and legislative uncertainty. *Journal of Comparative Policy Analysis*, *10*(3), 299–308.

Szulecki, K. (2017). *Poland's renewable energy policy mix: European influence and domestic soap opera* (CICERO Working Papers 1/2017). doi:10.2139/ssrn.2964866

Szulecki, K., & Westphal, K. (2014). The cardinal sins of European energy policy: Nongovernance in an uncertain global landscape. *Global Policy*, *5*(1), 38–51.

Töller, A. E. (2010). Measuring and comparing the Europeanization of national legislation: A research note. *Journal of Common Market Studies*, *48*(2), 417–444.

Trondal, J. (2017). *The rise of common political order: Institutions, public administration and transnational space*. Cheltenham: Edvard Elgar.

Wysokie Napięcie. (2017, November 9). Debata o rynku mocy [The discussion on a capacity market]. *Wysokie Napiecie*. Retrieved from https://wysokienapiecie.pl/6568-debata-o-rynku-mocy

Wysokie Napięcie. (2018, April 19). Bruksela opublikowała treść decyzji w sprawie rynku mocy w Polsce [Brussels published the content of a decision regarding the capacity market in Poland]. *Wyokie Napięcie*. Retrieved from https://wysokienapiecie.pl/9729-bruksela-opublikowala-decyzje-w-sprawie-rynku-mocy-w-polsce

Zasuń, R. (2015, December 17). Czy jest plan dla energetyki? [Is there a plan for the energy sector?] *Wysokie Napięcie*. Retrieved from https://wysokienapiecie.pl/1161-czy-jest-plan-dla-energetyki

Zasuń, R., & Derski, B. (2016). Ustawa o rynku mocy—wprowadzamy, ale nadal nie wiemy, ile ma kosztować [The capacity market act—We are introducing it, but we still do not know how much it will cost]. *Wysokie Napięcie*. Retrieved from https://wysokienapiecie.pl/1942-ustawa-o-rynku-mocy-wprowadzamy-ale-nadal-nie-wiemy-ile-to-kosztuje

About the Authors

Merethe Dotterud Leiren is a is Senior Researcher and Political Scientist at Cicero–Center for International Climate Research, Oslo. She is particluarly interested in dilemmas in multi-level governance systems, where regulations at one political level creates new challenges at other political levels, focusing on energy and transport policies. She has been a Research Fellow at the Public Adminstration programme, University of Agder; Guest Researcher at the Humboldt University Berlin; and Senior Researcher at the Institute of Transport Economics, Oslo.

Kacper Szulecki is a Researcher at the Department of Political Science, University of Oslo, which he joined in 2014. Previously a Dahrendorf Postdoctoral Fellow at the Hertie School of Governance, and a Research Fellow at the Cluster EXC 16 "Cultural Foundations of Integration", University of Konstanz. He was also a visiting researcher at the Robert Schuman Centre for Advanced Studies/Florence School of Regulation at EUI Florence, and a guest researcher at the Department of Climate Policy, DIW Berlin.

Tim Rayner's research interests, since joining the University of East Anglia (Tyndall Centre for Climate Change Research) in 2006, have focused on climate policy and politics (spanning mitigation, adaptation, and 'climate engineering' aspects), especially in the context of the EU and the UK. His research has been funded by EU Framework Programmes and national sources. He maintains an interest in various aspects of the knowledge-policy interface, including the role of policy appraisal and evaluation in environmental and climate policy processes.

Catherine Banet is Associate Professor in energy law at the University of Oslo, Norway. She has background from private law practice (Norway, France), the European Commission (DG ENV), U.S. diplomatic mission and academia. She is member of the Advisory Academic Group to the International Bar Association, Section for Energy, Environment and Natural Resources and Infrastructure Law. She is co-director of the LL.M degree of North Sea Energy Law Programme and co-organiser of the annual European Energy Law Seminar.