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EU Energy Policy: Towards a Clean Energy Transition?

Editors

Kacper Szulecki and Dag Harald Claes

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Editorial

Towards Decarbonization: Understanding EU Energy Governance

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Abstract
This editorial introduces the thematic issue "EU Energy Policy: Towards a Clean Energy Transition?", nesting it in broader discussion on European Union's (EU) energy policy. For over a decade, the EU has displayed an interest and political motivation to integrate climate policy priorities into its energy governance. However, the history of European energy governance does not start there, though political science scholarship has tended to downplay the importance of energy sector regulation. Recent years have finally seen the merging of two distinct research programs on European energy politics, and the emergence of a more inclusive and historically accurate approach to energy governance in Europe. This thematic issue follows that new paradigm. It is divided into three sections. The first investigates the EU Energy Union, its governance and decarbonization ambitions. The second section looks at the increasing overlaps between energy and competition policies, particularly the role of State Aid Guidelines in influencing energy subsidies—for renewable as well as conventional energy. Finally, the third section analyses the energy and climate policy of "new" EU members and the relationship between the EU and non-members in the energy sector.

Keywords
climate policy; decarbonization; electricity; energy policy; energy transition; European Union; governance; public policy; renewable energy; state aid

Issue
This editorial 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).

Energy policy in Europe is receiving increasing attention as an area of contested competence between the European Union (EU) member states and the European Commission. Already before the United Nations climate summit in Copenhagen in 2009 and more fundamentally around the 2015 Paris summit, which brought a long awaited global climate agreement (Bang, Hovi, & Skodvin, 2016), the EU has been perceived as a climate policy champion, and a leader in renewable energy ambition (Oberthür & Roche Kelly, 2008). Although that perception is debatable (Wurzel, Connelly, & Liefferink, 2017), the political motivation to reform the energy sector with decarbonisation in mind is visible in EU legislation from the 2020 Climate and Energy Package, the 2030 Climate and Energy Framework to the recent Energy Union and the "Clean Energy for all Europeans" package (also known as "Winter Package") of 2016.

These developments are attracting increasing attention in political science research. Although energy was an element of the EU's dual root—the 1952 Coal and Steel Community and the 1958 European Atomic Energy Community—the dominant opinion until recently was that the EU does not have a common energy policy in the strict sense, and therefore there is nothing to research about. Nevertheless, two parallel but largely unrelated research programs have been, for some time, drilling into the matter from two sides. On the one hand, scholars in International Political Economy (IPE) and International Relations (IR), interested in energy security issues, have increasingly begun to inquire about EU's insti-

tutional setup, capacity and power to influence the fossil fuel sector, most importantly gas supplies. On the other hand, scholarship originating in environmental politics became interested in EU energy policy through climate policy. As these two programs are finally beginning to interact, the late realization occurs that while indeed there was little *energy policy* on the EU level until recently, the history of European *energy governance* started long before 2009. Our thematic issue shows that these new or rather different analytical lenses can indeed help us see much more clearly how the energy systems in Europe are steered—both in more empirical detail, and with more historical accuracy. Paul A. Van Baal and Matthias Finger (2019) show in their contribution to this issue that energy governance in Europe—across borders and with the aim of transnational coordination—can be traced back as far back as the 1951 Union for the Coordination of the Transmission of Electricity. The growing historical research on European energy systems, particularly the electricity grid, suggests that transnational governance and cross-border coordination preceded national regulation (Lagendijk, 2008; Schot & Lagendijk, 2008). In a way, we are returning to the roots obscured by a statist paradigm, which dominated in the thinking about (electric) energy generation between the end of World War II and the beginning of market liberalization in the 1990s.

Governing the common European energy system is of course a tall order, and the analysis of these efforts is as complex as it gets. The magnitude of aspects, dimensions, dynamics, actors and institutions, at various analytical levels, is immense. This thematic issue provides contributions that reflect this complexity, but still speak to each other and the present amalgamation of energy and climate policy in the EU. Likewise, the contributions reflect the interconnection between studies of how the Union meets its energy security challenges from the IPE/IR tradition and those interested in EU as a public policy machine, with attached actors and institutions.

This thematic issue revisits the question of EU energy and climate policy beyond 2020, which was raised at the conference "The 2020 Strategy Experience: Lessons for Regional Cooperation, EU Governance and Investment" held at DIW Berlin in June 2015 (Szulecki, Ancygier, & Neuhoff, 2015). Back then, the "Energy Union" was still an empty vessel to be filled with content, and the incoming Juncker Commission's energy policy still difficult to foresee (Szulecki, Fischer, Gullberg, & Sartor, 2016). As time went by, the Energy Union's direction, possible policy impact and the actual nitty gritty details of the governance mechanism began to materialize, and received increased scholarly attention (Fischer, 2017; Ringel & Knodt, 2018; Siddi, 2016).

The first of the three sections in this issue looks at the different aspects of the Energy Union and EU's energy and climate policy in the 2030-time horizon. Sebastian Oberthür's (2019) contribution looks back at the 2030 Framework, adopted in October 2014, and compares it with the earlier 2020 Framework as well as the parallel Paris Agreement on the axis between "hard" and "soft" governance. After it was adopted, the 2030 Framework was criticised as "too soft" because its renewable energy targets are not binding on the national, but only EU level. To deal with this, the original Framework pointed to its "governance mechanism" which was to be worked out later, building on member state peer review and policy surveillance by the Commission. As Oberthür (2019) shows, with the Energy Union's governance regulation in place, the 2030 Framework is much "harder" than was previously believed, scoring high on four criteria of governance bindingness and stringency. However, how the available tools are used will depend very much on the incoming Commission which will take over in 2019.

If back in 2015 the Energy Union appeared to be a rather vague idea, waiting to be forged into a concrete agenda but also potentially able to reconcile the divergent interests of Member States, it has since become much more concrete. The article by Karoliina Isoaho, Fanni Moilanen and Arho Toikka (2019) uses a big data analysis of policy documents to show that the Energy Union is no longer a "floating signifier", but has a clear decarbonization agenda, which dominates other energy policy dimensions.

The article by Jale Tosun, Laura Zöckler and Benedikt Rilling (2019) provides an important reality check to one of Energy Union's promises, namely, initiating "an energy dialogue with stakeholders to inform policy making and support active engagement in managing the energy transition" (European Commission, 2015, p. 18). Is EU energy governance accessible for citizen-led initiatives? To answer this, the authors look at renewable energy cooperatives (RECs) and conclude that participation is difficult and path dependent. Furthermore, if "democratization" of energy governance is to be treated seriously (Szulecki, 2018), the Commission has to inquire about the actual opportunity structures, costs of engagement and limited capacity of grassroots energy governance actors.

While the Commission is central to EU energy governance processes, there are also other important actors involved. Torbjørg Jevnaker and Barbara Saerbeck (2019) scrutinize the role of EU agencies—executive-administrative entities set up to provide technical, scientific and managerial expertise to the Commission (Egeberg & Trondal, 2011, 2017). They use an organizational approach to evaluate the usefulness and impact on the Commission's work of the two most important agencies in the energy sector: the Agency for the Cooperation of Energy Regulators (ACER) and the European Environmental Agency (EEA). They find that ACER's "intergovernmentalist" logics—that is, the fact that it is a forum of national regulators and its output "could be heavily coloured by national interests"—limits its direct impact on Commission's work, though both ACER and EEA are important sources of knowledge and expertise.

The second section of this volume focuses on different forms of energy subsidies and how State Aid rules have come to influence the energy sector. The

European Commission has traditionally had significant competences in the area of competition, understood as crucial for the harmonization of the internal market (Schmidt, 2011). Given the observed tendency for the Commission to increase its influence over the energy sector (Maltby, 2013), it is perhaps no surprise to see that the 2014 State Aid Guidelines—a competition policy instrument—have become a tool for influencing energy policy. Linking this to a broader process of "constitutionalization", Elin Boasson's (2019) contribution shows how the Commission's Directorate General for Competition (DG COMP) as well as the Court of Justice of the EU have played a role in the emergence of stronger EU steering in renewable energy support schemes. In their article, Oscar W. Fitch-Roy, David Benson and Bridget Woodman (2019) illustrate the way State Aid Guidelines influenced the ascent of one particular kind of renewable energy support scheme—the RES auction—into dominance across Europe, but also point to the fact that behind the generic "auction" label there are quite different support schemes fitting different state ambitions. In turn, Merethe Dotterud Leiren, Kacper Szulecki, Tim Rayner and Catherine Banet (2019) analyse the flip side of the coin of renewable support—the emerging Capacity Markets (CMs). Looking at three recent cases of Commission-approved CMs—in France, Poland and the United Kingdom—they show the extent to which state aid regulation was important in shaping the final outcome. Finally, Marie Byskov Lindberg (2019) analyses the European decarbonization policy mix, consisting of the Emissions Trading System (ETS) and renewable energy support inscribed in the Renewable Energy Directive. She traces the way policy preferences of key non-governmental actors aligned in three policy debates: on the ETS reform, the 2030 Framework and the Clean Energy Package, noticing, that electricity industry actors displayed a shift in preferences, from a strong emphasis on the ETS as the main if not only instrument, to endorsement of RE support in the last debate.

The last section of this issue looks at energy and climate policy in the "new" EU Member States and the relationship between the EU and non-members. Stefan Ćetković and Aron Buzogány (2019) study the voting behaviour of six Central Eastern European (CEE) member states in the European Council on energy and climate-related legislation, assuming that the domestic political economy of the energy sector should be crucial for understanding Member State preferences. This article deepens and nuances their earlier work on the "varieties of capitalism" as a factor explaining energy and climate policy ambitions (Ćetković & Buzogány, 2016), and indeed shows that domestic state-market structures affect voting behaviour. At the same time, they find that CEE countries do not form a uniform group, and weak, issue-based coalitions facilitate further EU energy policy integration. Brigitte Horváthová and Michael Dobbins (2019) zoom in on the domestic level, looking at two of the CEE states—Czech Republic and Hungary—and the way domestic interests are organized to influence national nuclear energy policy. Their analysis complements Ćetković and Buzogány's (2019) article, showing how the insulated and non-participatory energy governance mode of CEE countries, blocking the inputs from civil society organizations, paved the way for economic interest of large energy sector incumbents in the formation of national energy policy.

The already mentioned article by van Baal and Finger (2019) analyses the effect of European integration on Swiss energy policy. Structuring the analysis around three modes of governance: markets, hierarchies and networks, they show that networks can in fact be more important than EU membership in harmonizing energy governance, but that the recent tendency for closer EU integration in the energy sector might leave Switzerland in a difficult position if no bilateral agreement is worked out. This of course can be read as a lesson for the post-Brexit arrangement with the United Kingdom. In the last research article of this issue, Benjamin Hofmann, Torbjørg Jevnaker and Philipp Thaler (2019) propose an ambitious conceptual framework for studying the possible influence of third countries on EU energy policy. Using two dimensions—third country access and third country structural power resources—they put forth a typology of the roles third countries can play: *outsiders* (Belarus), *challengers* (Russia, Turkey), *followers* (Energy Community, Iceland), and *shapers* (Norway, Switzerland), and provide a comparative case study of followers and shapers.

The research articles are supplemented by a Commentary by the Florence School of Regulation experts Maria Olczak and Andris Piebalgs (2019), former EU Commissioner for Energy, focusing on the different possible scenarios for natural gas and the potentials and limitations of its contribution to the transition to Europe's decarbonized energy future.

We hope that this comprehensive and timely issue will contribute to a better and deeper understanding of EU energy governance, facing the difficult but imminent challenge of decarbonization.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

The Effect of European Integration on Swiss Energy Policy and Governance

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Abstract
The unique "Swiss way" of association with the European Union (EU) has received increasing attention in light of recent events such as Brexit as it is based on sectoral agreements without an overarching institutional framework. As such, Europeanization of Swiss domestic policy does not follow a straightforward process. We examine the external governance processes that drive the Europeanization of Swiss energy policy. Switzerland and the EU are highly interdependent in energy due to Switzerland's geographical position but there is a relatively low level of policy alignment, as there is no formal EU-Swiss energy agreement nor has Switzerland autonomously implemented legislation equivalent to the EU energy acquis. The EU has fully liberalized the energy market and is focusing on consumer empowerment and decarbonization through the Clean Energy Package, whereas the Swiss energy sector remains only partially liberalized. Through a series of expert interviews with key stakeholders, we reconstruct the historical developments in Swiss energy policy, focusing on the relationship with, and the influence of the EU. We observe elements of each of the three ideal modes of governance—markets, hierarchies, and networks. The relative importance of these modes of coordination in governing EU-Swiss energy relations has shifted considerably over time. Gradual harmonization of EU energy markets and certain key events have driven Swiss exclusion from EU network governance processes, leading to more hierarchy. We identify the strengths and weaknesses of each mode of governance for EU-Swiss energy relations in their historical setting and discuss the implications for energy policy in Switzerland in the context of the Clean Energy Package and EU external relations in general.

Keywords
energy policy; European Union; external governance; history; network governance; power; Switzerland

Issue
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1. Introduction

The European Union (EU) associates with third countries in a variety of manners (Lavenex, Lemkuhl, & Wichmann, 2009). The unique "Swiss way" of association has received increasing attention in the context of Brexit because Switzerland has no institutional framework agreement with the EU (Tobler, 2016). The EU-Swiss relationship is defined by sectoral agreements. Additionally, Switzerland has significantly aligned its domestic legislation with the EU in certain sectors without a formal agreement. There have been various quantitative studies on the influence of EU policy on Swiss policy (Bartle, 2006; Gava & Varone, 2014; Jenni, 2015). However, few analyze the governance processes that drive such adaptation. Identifying these processes is important because the absence of an institutional agreement between the EU and Switzerland implies a lack of standard procedures of association and could provide insight into future relations between the EU and other countries.

The case of electricity is particularly pertinent as the reliable operation of an electricity system requires the continuous cooperation of all parties involved. However, there is no formal EU-Swiss agreement on electric-

ity. European energy affairs have traditionally been coordinated through various private and public networks (Jegen, 2009), yet, Switzerland's position in these networks has significantly deteriorated the last few decades, up to the point of exclusion in certain instances (Jenni, 2015). At the same time, Switzerland has committed to an ambitious energy transition focusing on the gradual phasing-out of nuclear energy, the most important source of electricity besides hydropower, which will likely increase its future dependence on the EU electricity system (Demiray et al., 2018; ElCom, 2018; Verhoog, van Baal, & Finger, 2018).

Research on policy diffusion tells us that uncoordinated, unilateral adoption of EU-compatible policies in Switzerland can result from either competitive or coercive pressure, or through learning and emulation (Börzel & Risse, 2011; Elkins & Simmons, 2005; Simmons, Dobbin, & Garret, 2006). The EU external governance literature started from the observation that the EU sphere of influence extends beyond its Member States (Friis & Murphy, 1999) and has proven successful in explaining Europeanization processes (Lavenex, 2004; Mugyenzi, 2015; Schimmelfennig & Sedelmeier, 2004). Both policy diffusion and external governance use 'conditionality' as a key mechanism driving policy proliferation in third countries. However, unlike policy diffusion, external governance theory is not limited to the implementation of policies but includes other forms of coordination as well, often studying these in light of the traditional 'modes' of governance—markets, hierarchy, and networks (see, e.g., Knill & Tosun, 2009). Joint operation of the European power system requires continuous coordination between all countries involved, and external governance theory allows us to analyze all the governance processes involved. We use the external governance theoretical framework which was originally defined by Lavenex and Schimmelfennig (2009) to analyze the processes that drive the Europeanization of Swiss energy policy. The framework was developed specifically in a European context and offers several explanatory hypotheses regarding power relations, domestic structures, and EU institutions. As EU external governance modes are strongly path- and sector-dependent (Lavenex, Lemkuhl, et al., 2009), we have to look at how the current situation has developed to discuss the future implications for European integration.

We, therefore, reconstruct the history of EU-Swiss energy governance by utilizing public reports, press releases and official government publications, alongside thirteen interviews with key stakeholders. All of the stakeholders interviewed were directly involved with EU-Swiss (energy) affairs at a certain point in the history. We interviewed seven high-ranking public administration officials, two diplomats, and four business leaders. The stakeholder selection was made by mapping from the documentary sources and a snowball approach during the interview process. We took efforts to include critical voices and to balance European and Swiss perspectives. Although the interviews were a primary source of information, we triangulated the information obtained with official documents and research reports for accuracy and reliability. Interviews are cited in-text as CH# or EU# and refer to a specific Swiss or EU interviewee, respectively. Anonymity was promised to all participants due to the current political sensitivity of EU-Swiss relations.

Section 2 explains the modes of external governance and relevant hypotheses in further detail. Section 3 and 4 describe the key elements of European and Swiss energy history, respectively. Special attention is given to those developments which have been relevant in the shaping of EU-Swiss relationship. Section 5 provides a discussion of these developments using the external governance framework. The last section summarizes our results and provides a perspective on the future of EU-Swiss energy relations.

2. Modes of External Governance

Williamson (1975) defined markets and hierarchies as distinct 'modes of governance', based on dispersed competition and hierarchical control, respectively. Later researchers pointed to networks as an additional mode of governance, based on reciprocal patterns of communication and exchange, contrasting and competing with markets and hierarchies (Jones, Hesterly, & Borgatti, 1997; Powell, 1990). Although this governance approach was traditionally applied to internal governance, Lavenex (2004, p. 682) argued that the governance approach is particularly useful for studying EU external relations because of its emphasis on hierarchical and horizontal, formal and informal forms of policymaking. EU external governance has been defined as "institutionalized forms of coordinated action that aim at the production of collectively binding agreements…beyond the borders of the EU and its formal, legal authority" (Lavenex & Schimmelfennig, 2009, p. 795). Using this definition, Lavenex and Schimmelfennig (2009) further defined the three ideal modes of governance in the context of EU external relations.

They firstly define *hierarchical governance* as a formalized, asymmetrical relationship based on the principle of domination and subordination, enforced through legally binding, non-negotiable legislation. They argue that the traditional form of hierarchy is never strictly present in an EU external governance context, as third countries retain formal sovereignty. Nonetheless, certain parts of EU external governance come close to this mode of governance, such as the European Economic Area (EEA) overarching framework agreement. They point to the existence of precise rules, formal procedures, monitoring, and sanctioning as indicators of hierarchy.

Secondly, Lavenex and Schimmelfennig (2009) define *network governance* as institutionalized, ongoing coordination, both formal and informal. Actors are formally equal, even if power imbalances exist, as no party is able to formally bind the other party without their con-

sent. The presence of central institutions is a strong indicator of EU network governance, but network governance can also exist without a central institution (Provan & Kenis, 2008).

Thirdly, they define *market governance* as the outcome of competition between formally autonomous actors. In the context of EU external relations, this can be best seen by the competitive pressure of the Single Market. Competitive forces can drive an approximation of EU legislation or the adoption of EU standards in third countries, even without a formal requirement. This conceptualization of market governance invokes similar principles as described in the policy diffusion literature (see, e.g., Simmons et al., 2006), as the outcomes are the result of unilateral decisions of third countries in order to gain or avoid material consequences.

Lavenex and Schimmelfennig (2009) offer several hypotheses as to why certain governance forms become dominant. Observing that the mode of governance varies with structures of power relations and levels of interdependence, they hypothesize that an asymmetrical, high interdependence tends to favour hierarchical governance, whereas symmetrical, strong interdependence is most conducive to market governance. Network governance arises in situations with medium interdependence. In our analysis, we will examine whether these hypotheses hold in the case of EU-Swiss bilateralism in the area of energy. Table 1 summarizes the three modes of governance.

3. European Energy History

The history of European energy policy has been described by many authors (e.g., Hancher, 1997; Jevnaker, 2015; Meeus, Purchala, & Belmans, 2005; Vasconcelos, 2005). This section will not provide a detailed account of EU energy policy development but rather highlight the most relevant aspects of the relationship with Switzerland. Figure 1 shows an overview of the most pertinent events and legislation.

3.1. Transit Directives and First Energy Package

The EU took the first step towards the internal energy market (IEM) by passing the Directives on the Transit of Electricity and Gas in 1990 and 1991, respectively (Nylander, 2001). These "Transit Directives" asked Member States to facilitate cross-border trade, without, however, specifying how. Further legislation was necessary to integrate the energy markets. In 1996, the first Electricity Directive was adopted; the first Gas Directive followed in 1998. This first "Energy Package" mandated legal unbundling, a transmission system operator, and the gradual opening of markets to competition (Meeus et al., 2005). Notably absent was a compensation mechanism for cross-border trading, which was to be settled bilaterally.

Aware of the regulatory gaps created by the first Energy Package, the European Commission (EC) convened the first Florence Forum in 1998 (Vasconcelos, 2005,

Table 1. Structural modes of EU external governance. Adapted from Lavenex and Schimmelfennig (2009).

	Actor constellation	Institutionalization	Mechanism of rule expansion	Interdependence
Hierarchy	Vertical: domination and subordination	Tight, formal	Harmonization	High, asymmetrical
Network	Horizontal: formal equality of partners	Medium-tight, both formal and informal	Coordination, negotiation	Medium, symmetrical or asymmetrical
Market	Horizontal: formal equality of partners	Loose, informal	Competition, market pressure	High, symmetrical

Note: the last column assumes the mode of governance is primarily determined by power relations.

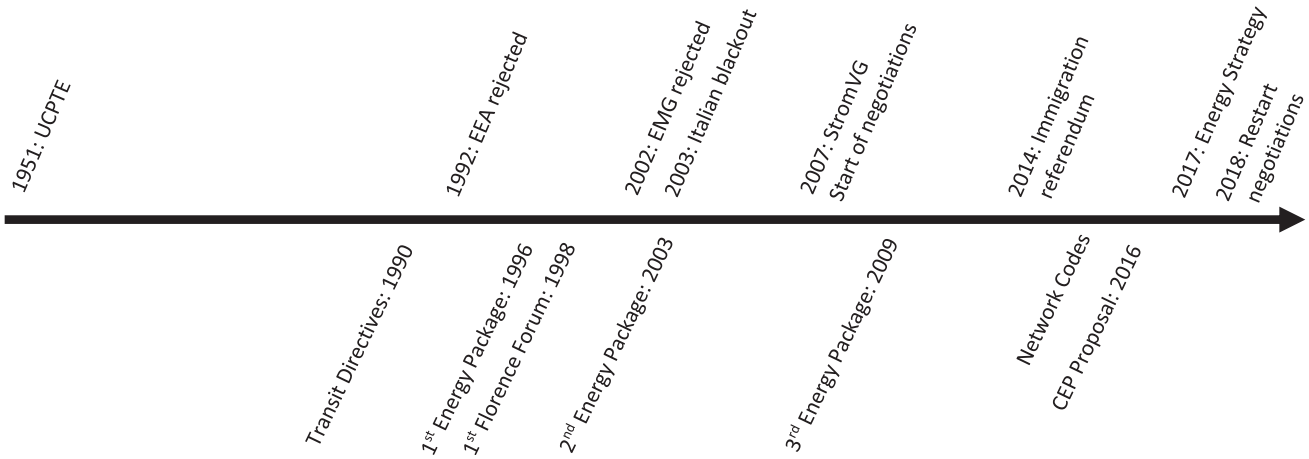

Figure 1. Timeline of relevant energy history of the EU (below) and Switzerland (above).

p. 90), which brought together all relevant stakeholders to devise regulatory solutions through consensus building. New organizations were created to facilitate this process. Examples include the Council of European Energy Regulators (CEER) and the Association of European Transmission System Operators (ETSO). Their first task was to define a mechanism for cross-border trade. In 2000, a solution was developed and presented to the EC: cross-border trades would be settled through inter-TSO compensation (ITC), considering only physical flows and compensating transit countries such as Switzerland. However, adoption of this solution was delayed until 2003 due to fierce opposition mainly by the German government (Vasconcelos, 2005, p. 91).

3.2. Second Energy Package

Unsatisfied with the pace of liberalization and the remaining regulatory gaps (Jevnaker, 2015, p. 934), the EU adopted the second Energy Package in 2003. The legislative package mandated full market opening for all customers across the EU, stronger network access regulation, as well as the establishment of an independent regulator. It also created the European Regulators Group for Electricity and Gas (ERGEG), which was largely equivalent to the CEER but included the EC as an observing, non-voting member (Coen & Thatcher, 2008).

3.3. Third Energy Package and Network Codes

The newly established ERGEG had almost no formal power (Coen & Thatcher, 2008) and adoption of the agreed regulatory solutions remained voluntary, which the EC considered inadequate (Jevnaker, 2015, p. 934). The solutions it provided were unclear and significant regulatory gaps remained across the IEM, especially regarding cross-border mechanisms. A third Energy Package aimed to solve these problems in 2009 through stronger EU-level governance and centralized cooperation (Jevnaker, 2015, p. 935). The Agency for the Cooperation of Energy Regulators (ACER) was created to succeed the ERGEG and the European Network of Transmission System Operators for Electricity (ENTSO-E) to succeed the ETSO and the Union for the Coordination of Transmission of Electricity (UCTE). These organizations institutionalized the informal power held by their predecessors. A new legislative process was started between ENTSO-E and ACER to develop the Network Codes (NCs)—binding standards on operation, connection and market conditions (Jevnaker, 2015, p. 928).

3.4. Clean Energy Package

The three Energy Packages had mostly focused on liberalization, integration, and security of supply. Climate and sustainability concerns were addressed by separate legislative packages. Proposed by the EC in November 2016, the Clean Energy Package (CEP) harmonizes climate and sustainability with the rest of EU energy policy. Besides updating the targets for the 2030 horizon, the CEP legally defines new types of actors such as aggregators and local energy communities, expands the mandate of ACER, proposes an EU distribution system operator (DSO) entity, and expands the scope of the NCs (Meeus & Nouicer, 2018).

4. Swiss Energy History

4.1. Before 1990

Switzerland was a main driver of European integration in the electricity sector as a founding member of the Union for the Coordination of Production and Transmission of Electricity (UCPTE)[1]. In 1958, the "Star of Laufenburg" substation was commissioned in the Canton of Aargau, connecting the electricity grids of Switzerland, France, and Germany for the first time. The UCPTE grid grew rapidly and by 1996 it crossed 19 European countries from Poland to Portugal, with the Laufenburg control centre still at its core (UCTE, 2009). The Swiss companies in the UCPTE were influential and were not restrained by the Swiss national authorities. Although national governments sometimes sent delegates to UCPTE meetings (CH1), they held no formal power within the organization.

4.2. 1990 to 2003

In 1990, the Swiss public voted overwhelmingly in favour of giving the national government a constitutional energy mandate, which had previously been a mostly cantonal affair. In this period, the Swiss economy was stagnating, and following a referendum rejecting EEA membership in 1992, the Swiss government was exploring new ways to stimulate the economy. It was clear from the European side that the future of the electricity sector was going to be liberalized, unbundled, and competitive. Notable publications from de Pury (1995) and Cattin (1995) garnered significant media and political attention by highlighting the economic benefits of liberalization in Switzerland (CH1). A liberalization law, called the Electricity Market Law (EMG), was being drafted based on the recommendations of the Cattin report (Jegen, 2009). Although economic benefits were a main driver for the EMG, it was developed in line with the first Energy Package to ensure EU-compatibility and maintain market access (Jegen & Wüstenhagen, 2001).

When the Florence Forum convened for the first time in 1998, the participating stakeholder organizations were not official EU institutions, and therefore membership was not strictly reserved to EU Member States. Thus, Swiss delegates were able to participate, unlike in the formal EU legislative process. Switzerland had less influence in the Florence Forum than it did in the UCPTE, but was able to participate and represent its interests. For in-

[1] The UCPTE changed its name to UCTE in 1999, dropping the "P" for production (UCTE, 2009).

stance, the ITC solution proposed by the Florence Forum was co-developed and strongly advocated for by Swiss representatives as it favoured transit countries (CH6). Because there was no formal TSO or regulator in Switzerland, the electricity companies and the government sent delegates to represent these roles. Their European counterparts mostly accepted this, as long as they did not push their conflicting interests too strongly (CH6). It was the same for several EU Member States—not all of them had a regulator or had fully unbundled their companies. The credibility of Swiss actors in the Florence process was based on skilled diplomacy and on the "promise" that EU-compatible domestic legislation was in development, integration would proceed, and that their presence in Florence was therefore needed (CH6).

The seven Swiss electricity companies that owned the high-voltage transmission grid set up ETRANS in 1999, an organization taking on the role of national grid operator. Creating ETRANS allowed the companies to retain ownership of their assets, as ETRANS merely coordinated their work centrally. The companies had openly been against the creation of a national grid company, afraid of losing ownership of their valuable grid assets (Bartle, 2006).

The EMG was rejected by referendum in 2002 (Jegen, 2009, p. 584). While the opposition did not appeal to an anti-European sentiment, the rejection could still be seen as a Eurosceptic outcome as the EMG was meant to streamline Swiss domestic policy with the EU. Regardless, the rejection did not elicit a strong reaction from the EU (CH1). Switzerland was still seen as a reliable country. The first Energy Package was a sort of "menu" approach where each Member State had a significant choice on how to direct their internal affairs (Hancher, 1997, p. 101). Hence, regulatory gaps were commonplace within internal EU borders and Switzerland, as an isolated case, did not raise too many concerns at that point. Additionally, technical compatibility, including regarding security measures, was assumed to be ensured through the UCTE.

4.3. 2003 to 2014

An Italian blackout originating on the Swiss border in 2003 changed the political landscape. The blackout had an immense effect: 56 million people were left without electricity for up to 19 hours, with economic damage estimated at about €1.2 billion (Walker, Cox, Loughhead, & Roberts, 2014, p. 17). Switzerland was heavily criticized for not responding to the warning signals in a timely manner, as well as for not having a properly unbundled TSO (CH6; EU3). However, an official investigation showed that Switzerland had not broken UCTE rules and could thus not be held accountable for damages (UCTE, 2004). Regardless, it became clear that the UCTE rules were not strict enough to guarantee reliability, and that reliability depended on Swiss participation.

In April 2004, the Swiss companies voluntarily agreed to merge the seven transmission grids into a single control area under control of Swissgrid, a Swiss TSO (d'Arcy & Finger, 2014). This was not only in response to the European criticism but also in anticipation of a new domestic liberalization law which was sure to include a requirement for a Swiss TSO. By forming Swissgrid on their own terms, they could determine their own rules. Rather than owning the transmission grid directly, the companies took ownership of Swissgrid—it thus remains an imperfectly unbundled grid operator (d'Arcy & Finger, 2014).

Even though the first liberalization law was rejected in 2002, the Federal Tribunal ruled in 2003 that the cartel law *de facto* necessitated liberalization (Bellanger & Cavaleri Rudaz, 2006, p. 197). This allowed the government to propose a new liberalization law—the Electricity Supply Act (StromVG)—which passed in 2007 (Jegen, 2009, p. 584). It called for the opening of the market in two steps, the creation of a national regulatory authority (ElCom), and a national grid operator (Swissgrid). The electricity market was opened to all consumers with an annual consumption higher than 100 MWh in 2009 (Federal Council [FC], 2013). There was no referendum for the StromVG, primarily because the second liberalization step would be subject to a possible referendum.

After the blackout, calls for stricter coordination with Switzerland intensified on both sides (CH6; CH7; EU1; EU2). Formal negotiations for a bilateral agreement on electricity started in 2007 (EC, 2007). The negotiations, although slow, were happening in good faith as the recent Swiss developments had consistently been EU-compatible. Pragmatism directed this indirect Europeanization: the changes not only aided in the overall security of supply and economic efficiency through enhanced EU-compatibility, but it also created goodwill by preparing for the implementation of the electricity agreement under negotiation.

Regardless of these domestic developments and the ongoing negotiations, Switzerland was slowly becoming less influential in European energy affairs. The second and third Energy Packages and subsequent creation of ERGEG and ACER in 2003 and 2009, respectively, institutionalized the network governance approach started by the EC with the Florence Forum after the first Energy Package. These organizations were now official EU organizations and therefore less open to delegates of non-Member States. This also held true for the programs that they launched, such as the Regional Initiatives, for which Switzerland was only an observer country (Jegen, 2009, p. 591). Nonetheless, when ENTSOE was created, Swissgrid was allowed to become a member as it had traditionally been a member of the UCTE which ENTSO-E succeeded. Through ENTSO-E, Swissgrid participated in the development of the NCs.

4.4. 2014 to Present

In 2014, eleven years after the Italian blackout and following seven years of formal bilateral negotiations, the end of the negotiations was in sight, with a verbal con-

sensus having been achieved regarding many of the issues on the table (CH5). However, all negotiations were halted in 2014 when the Swiss population voted to limit immigration from all EU countries (Jenni, 2016, p. 284). This was in direct opposition to the Agreement on the Free Movement of People (AFMP) signed a decade earlier. The EC put all bilateral negotiations, including those on the electricity agreement, on hold pending on how the government decided to implement the referendum results (EC, 2014). Most EU-Swiss agreements contain guillotine clauses, meaning they can all be terminated if one party terminates a single agreement.

The political relationship with Switzerland became strained (CH5; EU3). When the first NCs came into force, they had an ultimatum for Switzerland: until a bilateral electricity agreement was signed, Switzerland would be excluded from participating in the intraday, day-ahead, and balancing market coupling mechanisms of the EU[2]. Besides a loss of market opportunities, this exclusion caused an increase in unscheduled loop flows and a subsequent need for re-dispatching in Switzerland (Swissgrid, 2018).

In 2016, Switzerland implemented an AFMP-compatible version of the immigration bill in order to appease the EU (FC, 2016). The open dossiers could be picked up again (EC, 2016). However, the relationship had changed drastically (CH5). Switzerland had become acutely aware of its dependency on the EU, and the EU was not sure how to deal with Switzerland. It was not in their interest to break all ties with Switzerland, however, they wanted to make clear that the agreements were an "all or nothing" package. The EU was dealing with several crises—a dragging economic crisis, the refugee crisis, and Brexit. Uncertainty in the relationship with Switzerland was far from desirable and the EU could not set a soft precedent in light of Brexit (Brunsden & Atkins, 2018). A sentiment of distrust had also grown in Brussels regarding Swiss politicians, as their promises and any agreements were limited by federal competencies and the possibility for referenda (CH5). Even though it was not formally ended at the time, the EU had already signalled back in 2008 that the unique "Swiss way" of association based on bilateral agreements was reaching its limits (Council of the European Union, 2014). Preliminary negotiations on an institutional framework started in 2011 (FC, 2011). However, after the 2014 referendum, all open dossiers became conditional on the institutional framework negotiations, including the electricity agreement (CH5).

Prior to 1990, when the EU started legislating, Switzerland was central and influential in European energy affairs. This stands in stark contrast to the situation in 2018, when it had become excluded from influential organizations and market mechanisms. Gradual EU institutionalization and key events such as the 2003 blackout and 2014 referendum were the main contributors. This deterioration of the Swiss position has gone hand in hand with a shift in the power balance. Whereas in previous decades the EU wanted an agreement with Switzerland because of its strong interconnection and valuable hydropower resources, it is now Switzerland that needs an agreement with the EU. Deteriorating market access could have real consequences for Swiss security of supply, while EU countries are gradually increasing their interconnection (EC, 2017), making Switzerland less essential as a transit country.

Contemporary Swiss energy policy is focused around the *Energy Strategy 2050* (ES50). Passed by referendum in 2017, the legislative package embodies the Swiss sustainability transition: gradually phasing-out nuclear energy while supporting renewables and energy efficiency (FC, 2017). This nuclear phase-out is likely to increase Swiss reliance on electricity imports, both seasonal and annual, further exacerbating this shift in power (Demiray et al., 2018; ElCom, 2018; Verhoog, van Baal, & Finger, 2017). In comparison to the CEP, which is a broad legislative package focusing on consumer empowerment, security of supply, energy market design, as well as climate and sustainability goals, the ES50 is more limited as it focuses solely on the latter. A revision of the StromVG, for which the parliamentary process started in 2018, is scheduled to address those other issues (FC, 2018).

5. Discussion

5.1. Networks

Network governance can be seen early on in European energy affairs. The creation of the UCPTE, a network administrative organization, by the electricity companies, is a clear sign of network governance (Provan & Kenis, 2008). This organization was coordinating the European power grid long before the EU became involved. The UCPTE's rapid growth and the duration of its existence is a clear sign of the success of this type of coordination.

Network governance continued to be the preferred method of governance for the EU when it began legislating the energy markets. The consecutive energy packages gradually institutionalized the network governance mechanisms. Jegen (2009) shows that this institutionalization has progressively made it harder for Switzerland to participate. However, we observe an overall trend of increasing hierarchy as well, with EU legislation increasingly taking over network functions.

The Transit Directives, and to a certain degree the first Energy Package, contained few binding rules and left the Member States ample choice to coordinate and implement their own procedures and standards. The UCPTE was in the ideal position to take a leading position but failed to do so to a sufficient extent. The creation of the Florence Forum by the EC was meant to find regulatory solutions through network governance. The voluntary rule-creation in Florence was still open to representatives of invited third countries. Swiss companies, repre-

[2] See art. 1(6) of the Electricity Balancing Guideline and art. 1(4) of the Guideline on Capacity Allocation and Congestion Management.

sented through ETRANS, were successfully able to represent their interests. However, the participants in the Florence Forum failed to reach consensus on the ITC, and the EU subsequently felt compelled to enforce the measure in the second Energy Package.

The 2003 blackout further showed that weak forms of coordination were not sufficient to ensure reliability in the increasingly complex grid. The EU intervened with the third Energy Package by creating a new organization, ENTSO-E, to take over the functions of the UCTE and ETSO. If the companies in those organizations had committed to binding technical rules through the UCTE, perhaps this would not have been necessary. The UCTE was a loose form of collaboration relying more on mutual trust than binding rules. Even though ENTSO-E is still a network organization, it is an EU agency mandated to create legally binding rules and procedures, introducing more hierarchy into the network. The first NCs—developed by ENTSO-E and ACER—excluded Switzerland from participation in several market mechanisms.

The formation of Swissgrid, in the wake of the Italian blackout, was a clear signal of network governance as well. Although there was no clear hierarchy enforcing the creation of a TSO, the criticism endured from other network participants—at the Florence Forum and through the UCTE—spurred this approximation of EU energy policy, even in the absence of domestic legislation. Much of the work that Swissgrid has done in the subsequent years to coordinate technical affairs through ENTSO-E can be attributed to network governance as well.

Lavenex and Schimmelfennig (2009) postulate that network governance is most favoured in situations of medium interdependence, both in asymmetric as well as symmetric power relations, which seems to be consistent with our observations. Interdependence of the European electricity markets has grown continuously, both physically and economically, and as a result, pure network solutions were no longer deemed sufficient or optimal, leading the EU to introduce governance processes that were more hierarchical in nature.

5.2. Markets

Jegen (2009) argues that Swiss companies' successful participation in UCTE and ETSO is a form of market governance which at least partially compensates for the decline in their influence over the increasing institutionalization of EU energy policy. We argue this is not a form of market governance, driven by dispersed competition, but rather a form of network governance as it results from ongoing multilateral coordination through a central organization. The Swiss network participants are predominantly market actors but that does not imply competitive pressure is de facto the driving mode of governance.

Markets have rarely been the dominant mode of governance in EU-Swiss energy relations. Throughout most of the 20th century, energy companies remained vertically integrated companies. Since their monopolies were often legally protected, there was no competitive pressure that could incite any approach of EU-Swiss legislation. Rather, network governance coordinated the relations between companies through the UCTE as soon as trade became possible, due to the complexity of the physical infrastructure.

Nonetheless, when EU Member States started opening their electricity markets and breaking monopolies, competitive pressure arrived. One of the strongest rationales for the first liberalization law in Switzerland was EU compatibility to ensure market access (Jegen & Wüstenhagen, 2001). Even though it was ultimately rejected, and liberalization did not arrive in Switzerland at that time, the Swiss companies felt compelled to change their business model. The formation of ETRANS is a clear example. The Laufenburg control centre had historically been operated by EGL who therefore had longstanding relationships with foreign electricity companies. The other Swiss companies were afraid that these business relationships would become a significant competitive advantage for EGL once they were able to start trading across Europe (CH6). The Swiss companies were therefore in favour of creating ETRANS, as the control centre would come under the control of all seven companies. This decision was not negotiated with any EU authority or through any network. Market pressure spurred this form of adaptation to EU energy policy in the absence of any hierarchy or network.

Other examples of adaptation to EU energy policy can be attributed, at least partly, to market pressure. Examples include the EU-compatible provisions of the StromVG and the introduction of a power exchange in Switzerland. This does not preclude domestic affairs being the main driver of these developments but merely points to the presence of economic pressure as a contributing factor. A common factor is asymmetry, as it has consistently been Switzerland which has followed EU developments, contradicting the hypothesis of Lavenex and Schimmelfennig (2009) that market governance stems from symmetrical power relations.

5.3. Hierarchies

Negotiated bilateralism was established as the mode of EU-Swiss coordination after Switzerland rejected EEA membership in 1992. Lavenex and Schimmelfennig (2009) would argue that this is a form of network governance, as both actors retain formal sovereignty and rule expansion is based on mutual consent. However, we argue that Swiss bilateralism has evolved into a type of hierarchical governance. When the Swiss population voted to restrict immigration in 2014, the guillotine clauses in the bilateral agreements acted as a way to enforce compliance. Formally speaking, Switzerland could have implemented immigration quotas for EU nationals as the referendum demanded, but this would have broken all bilateral agreements with the EU and therefore Switzer-

land refrained. The EU relationship has become an "all or nothing" package akin to the EEA or even EU membership itself, as Brexit has demonstrated. The asymmetrical power balance between Switzerland and the EU has developed into a form of hierarchical governance in those areas where bilateral agreements have been signed.

The negotiations for such an agreement in electricity have been ongoing since 2007. If successful, the scope of this hierarchy will be extended to electricity. Even though EU legislation has no formal power over Switzerland, recent EU energy legislation tries to pressure Switzerland to comply regardless—a sign that hierarchy is being established. The NCs exert strong market pressure by explicitly excluding Switzerland from market coupling on the intraday, day-ahead, and balancing markets until an agreement is signed. Market pressure has been a strong motivation for Switzerland to pass EU-compatible legislation in the past, as described in the previous section. The NCs also contain technical standards which for Switzerland are practically impossible not to follow due to its physical integration into the European power grid. This trend of increasing hierarchy, also briefly hinted at in section 5.1, is consistent with the hypothesis of Lavenex and Schimmelfennig (2009) that high, asymmetrical interdependence tends to favour hierarchical external governance.

6. Conclusion

We examined Swiss-EU bilateralism in energy as a case for EU external governance. This section will summarize our main findings as well as provide a discussion on the implications for future EU-Swiss relations and EU external governance.

European energy affairs have historically been coordinated through network governance. EU modes of external governance are strongly path-dependent (Lavenex, Lemkuhl, et al., 2009), as can be seen in energy. Network governance remained the dominant mode of coordination when the EU started legislating. However, the trend towards hierarchy is clear in both EU internal and external governance. Other researchers have similarly pointed out that even though the EU institutionalized network governance, it has retained formal power and hierarchically enforces compliance (Coen & Thatcher, 2008; Eberlein & Grande, 2005). This trend has continued with the subsequent passing of new EU energy legislation. This steady march of institutionalization of the EU energy market has made the relationship with Switzerland increasingly asymmetric, and we observe a consequent marginalization of the role of Switzerland in European network governance, in which it had traditionally held a central role. Key events such as the 2003 Italian blackout and 2014 immigration referendum further contributed to these shifts in the mode of governance. These findings are consistent with the power-based hypotheses of Lavenex and Schimmelfennig (2009) concerning hierarchy and networks as modes of external governance, favouring hierarchy when interdependence is higher and asymmetric. Nonetheless, only network governance provides an organizational opening for the inclusion of third countries in the policy process of the EU, as hierarchy assumes an institutional relationship—which Switzerland formally does not have—and the implied absence of hierarchy in market governance precludes organizational inclusion.

The ongoing negotiations present an opportunity as well as a risk to Switzerland. The risk lies in deepening the hierarchical relationship that has emerged over the years, following the trend of hierarchy seen in internal EU affairs. If an agreement is signed on electricity, with or without an institutional framework agreement, it will likely contain an explicit or implicit guillotine clause linking it to the existing bilateral agreements, further developing the hierarchical relationship. However, the opportunity lies in the re-integration into the network governance mechanisms of the EU, in which it has historically been particularly capable in advocating its interests. The CEP expands the scope of the NCs, which are negotiated and drafted by the central institutions ENTSO-E and ACER. The CEP further proposes the creation of a DSO-entity that will also participate in the creation of the NCs (Meeus & Nouicer, 2018). Participation and voting rights in ACER and the new DSO-entity would integrate Switzerland into these legislative processes. Such inclusion will only be possible through an agreement between the EU and Switzerland. The interdependence of the EU and Swiss energy sectors will mean the second generation of NCs will have a similarly strong impact on Switzerland as the first generation, regardless of whether or not an agreement is signed.

Exclusion has not only diminished Swiss influence on legislative processes but also its market access. Historically, market pressure was a strong driver for Switzerland to unilaterally adopt EU-compatible legislation. The increasingly asymmetrical power balance between the EU and Switzerland makes it hard for Switzerland to resist such pressure and it is therefore likely that this will impact the future relationship.

However, the CEP is not included in the negotiation mandate for the EU-Swiss electricity agreement. The negotiation mandate was originally based on the second Energy Package but was extended to include the third Energy Package in 2010 (FC, 2010), therefore it is possible the CEP is added at a later stage. Regardless, the second generation of NCs it proposes will be coordinated through the network agencies into which Switzerland could become a member. Thus, even if the agreement does not include the CEP, it would be able to participate in the legislative process.

It is unlikely that Switzerland will implement the CEP provisions without an agreement. Swiss and EU energy policy has increasingly diverged since the passage of the third Energy Package, and this trend will likely continue if no agreement is signed. The second generation of NCs might contain exclusion provisions, as has been

the case with the first generation. The past rationale to autonomously adopt EU-compatible legislation was, for the most part, to ensure technical compatibility and market access. However, such incentives are not provided by the CEP. The way forward for EU-Swiss bilateralism thus remains politically uncertain. However, it is clear that the question of whether or not Switzerland will further diverge or integrate into the EU energy markets will depend on general EU-Swiss relations more than sectoral dynamics.

Although not the topic of this study, our findings have implications for the relations of other third countries with the EU. The harmonization and institutionalization of the internal market, one of the core missions of EU internal policy, has given the EU increasing leverage in its relations with neighbouring countries. Membership conditionality is no longer the strongest leverage over governance processes the EU has in its association with third countries. Membership in various network organizations, such as ACER or ENTSO-E in energy, and participation in pan-European policy initiatives such as electricity market coupling platforms, might be a stronger influencing factor than EU membership for countries without EU membership aspirations such as the UK or Switzerland. This increasingly asymmetric relationship means external governance processes will be more hierarchical and thus exceptions are less likely to be granted in future bilateral negotiations. The "Swiss way" of EU association was mostly negotiated in a time when the EU internal market was not as advanced as it is today and can be considered an artefact rather than a realistic option for other countries.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Hard or Soft Governance? The EU's Climate and Energy Policy Framework for 2030

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Abstract
This article investigates the stringency of EU climate and energy governance along the soft-hard continuum as a key determinant of its ability to achieve its ambitions. It introduces four criteria for a systematic and differentiated assessment of the bindingness/stringency of legislative instruments and governance frameworks, namely: (1) formal legal status, (2) the nature of the obligations (substantive—procedural), (3) their precision and prescriptiveness, and (4) the means for effecting accountability and effective implementation. The application of this assessment framework to the EU's Climate and Energy Policy Framework for 2030 in comparison with the preceding 2020 Framework and the international Paris Agreement on climate change demonstrates the added value of this approach. The focus is on regulations, adopted in 2018, regarding greenhouse gas emissions, renewable energy (RE), and energy efficiency as well as the surrounding framework for planning, reporting, monitoring, and enforcement. The EU's 2030 Framework scores high on the four criteria. Despite implementing the comparatively soft Paris Agreement, it does not fall behind the stringency of the 2020 Framework, as the abandoning of binding national targets for RE is balanced by strengthened obligations to prepare national plans, long-term strategies, and regular progress reports, as well as the enhanced monitoring and supervisory powers of the European Commission. While actual delivery will not least depend on how the Commission will use its established and newly acquired powers and tools, the 2030 Framework reinforces EU interest in strengthening international climate governance under the Paris Agreement.

Keywords
bindingness; climate governance; energy governance; Energy Union; European Union; Governance Regulation; hard governance; Paris Agreement; soft governance

Issue
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1. Introduction

This article focuses on a key aspect of the effectiveness of EU (and indeed international) climate policy, namely the certainty that it will be able to achieve its ambitions. It is well established that the national climate action plans under the 2015 Paris Agreement on climate change (dubbed "Nationally Determined Contributions"—NDCs) and the objective of EU climate policy to reduce greenhouse gas (GHG) emissions by at least 40 per cent compared to 1990 levels by 2030 are insufficient. These plans and objective fail to put the world on a path towards averting dangerous anthropogenic climate change and limiting the increase of global average temperature to well below 2 or even 1.5°C as envisaged by Article 2 of the Paris Agreement (e.g., United Nations Environment Programme [UNEP], 2018). Much less attention has been paid to exploring how certain we can be that the established ambition will actually be delivered, with recent analyses reinforcing doubts in this respect (European Environment Agency [EEA], 2018; UNEP, 2018). This article aims to shed light on this issue by focusing on the features of policy frameworks which help ensure that established plans and targets will actually be implemented and achieved. Foundational for this thinking is the conceptualisation of the bindingness and stringency of par-

ticular policies and policy frameworks along a soft-hard continuum, as further developed in Section 3.

Empirically, the article focuses on the EU's Climate and Energy Policy Framework consisting of a number of legislative instruments. In 2017/18 this Framework was updated and extended from the existing time-horizon of 2020 to 2030 in response to the international Paris Agreement, as discussed in Section 2. In order to assess how certain we can be that the ambitions of the 2030 Framework will be delivered, the stringency of governance embodied in this Framework is to be analysed. In approaching this question, identifying changes from the existing 2020 Framework seems useful, as it allows us to assess whether delivery has become more or less certain. In addition, the stringency of international climate governance under the Paris Agreement constitutes a valuable point of reference, as it puts EU climate and energy governance in a broader context.

The investigation thereby also aims to enhance clarity of existing debates on the stringency of EU climate and energy governance that have led to apparently contradictory findings. On the one side, research has in part held that EU energy governance has traditionally tended to be soft and that the 2030 Framework could harden this softness to some extent (Ringel & Knodt, 2018; see also Szulecki, Fischer, Gullberg, & Sartor, 2016). On the other side, the decision to abandon binding national targets for renewable energy (RE) in the 2030 Framework and to devise a new framework for EU climate and energy governance have fed concerns about a possible weakening of this governance (e.g., ClientEarth, 2016; Meyer-Ohlendorf, 2015; Meyer-Ohlendorf, Duwe, Umpfenbach, & McFarland, 2014). Such concerns have been further nourished by the softening of international climate governance under the 2015 Paris Agreement which the 2030 Framework implements. By establishing clear and firm criteria for the bindingness/stringency of governance, this article attempts to provide a firm basis for clarifying and addressing these apparently contradictory findings. It thereby also holds potential for further research on European governance touching on aspects of soft and hard governance, such as research on the Open Method of Coordination (OMC) and "experimental governance" (de la Porte & Pochet, 2012; Sabel & Zeitlin, 2008, 2010; Trubek & Trubek, 2005).

Against this backdrop, the article proceeds in three steps. First, Section 2 introduces the EU Climate and Energy Policy Framework as it evolved from 2020 to 2030, as well as the related international Paris Agreement on climate change concluded in 2015. This is followed by the introduction of four key criteria for the bindingness of governance along the soft-hard continuum in Section 3 (formal status, nature of the obligations, prescriptiveness and precision, means for effecting accountability and effective implementation). Subsequently, Section 4 employs these key criteria to assess the bindingness of the 2030 Framework in comparison with the preceding 2020 Framework, and to contrast it to global climate governance under the Paris Agreement. The concluding part synthesises and discusses the results, including with respect to the aforementioned discussions.

Overall, I argue that the 2030 Framework features a relatively high level of bindingness and does not reduce the stringency of EU climate and energy governance compared to the 2020 Framework. However, it does modify the balance of the four dimensions of bindingness. Whereas binding national targets for RE are discontinued (nature of the obligations), obligations to prepare national plans, long-term strategies, and regular progress reports, as well as the monitoring and supervisory powers of the European Commission are significantly strengthened. While the 2030 Framework reinforces EU interest in strengthening international climate governance under the Paris Agreement, actual delivery will not least depend on how the Commission uses its established and newly acquired powers and tools.

2. The EU's 2030 Climate and Energy Policy Framework and the Paris Agreement

2.1. 2030 Framework

The EU's 2030 Climate and Energy Policy Framework builds on the preceding 2020 Framework. The 2020 Framework contains and implements three headline targets of 20 per cent for 2020: a 20 per cent GHG emission reduction, a 20 per cent share of RE in final energy consumption, and a 20 per cent improvement in energy efficiency (EE). While the first two targets are binding on member states (entailing specific differentiated national sub-targets), the EE target is indicative only. The 2020 Framework has been implemented through four key legislative instruments: three Directives (on the EU emissions trading system, RE and EE) and an "effort-sharing" decision on reduction targets for member states' GHG emissions outside the emissions trading system (Delbeke & Vis, 2015; Jordan, Huitema, van Asselt, Rayner, & Berkhout, 2010; Oberthür & Pallemaerts, 2010). The 2018 analysis of the EEA suggests that the EU remains on track to overachieving its binding GHG emission reduction target for 2020 and has its binding RE target within reach, but may find it difficult to achieve its indicative EE target (EEA, 2018).

The 2030 Framework updates and further develops the 2020 Framework. After the European Council defined the cornerstones of the 2030 Framework in October 2014 (European Council, 2014), the European Commission issued proposals for implementing legislative instruments in 2015 and 2016. The European Parliament and the Council of Ministers then amended and adopted these in 2017/2018. Accordingly, the following six legal acts form the core of the 2030 Framework:

- Directive (EU) 2018/410 amending Directive 2003/87/EC on the EU emissions trading system (the ETS Directive);

- Regulation (EU) 2018/842 on binding annual GHG emission reductions by member states from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement (the Effort-Sharing Regulation);
- Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources (the RE Directive);
- Directive (EU) 2018/2002 amending Directive 2012/27/EU on energy efficiency (the EE Directive);
- Regulation (EU) 2018/841 on the inclusion of GHG emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework (the LULUCF Regulation);
- Regulation (EU) 2018/1999 on the governance of the Energy Union and climate action (the Governance Regulation).

This core is complemented by further legislative instruments not addressed in detail here, including Directive 2018/844 on the Energy Performance of Buildings, a Regulation on the electricity market (which awaits final adoption after agreement was reached in trialogue negotiations in December 2018) as well as several other pieces of legislation related to energy policy (see overview in Ringel & Knodt, 2018). While a more comprehensive analysis of the legislation of the 2030 Framework is beyond the scope of this article, the following discussion focuses on the key features. Some further details relevant for the analysis of the stringency of governance are presented in Section 4.

The 2030 Framework upgrades and updates the three headline targets for 2030. Accordingly, the EU establishes a binding target of reducing its GHG emissions by at least 40 per cent from 1990 levels. This target is implemented through the ETS Directive and the Effort-Sharing Regulation. The ETS Directive determines a linear GHG emission reduction path declining by 2.2 per cent per year from 2021 to deliver a total reduction of 43 per cent below 2005 levels in 2030 in the ETS sectors (ETS Directive, revised Article 9). The Effort-Sharing Regulation obliges each member state to reduce its GHG emissions in the non-ETS sectors linearly towards a specific emission reduction target in order to deliver an overall EU emission reduction in these sectors of 30 per cent below 2005 levels in 2030. The EU's new RE target for 2030 is 32 per cent of final energy consumption and the new EE target is a 32.5 per cent improvement by 2030. Both these targets were significantly increased in the legislative process from the 27 per cent targets the European Council agreed for each in 2014. The RE Directive defines a "binding (overall) Union target" (Articles 1 and 3), but it does not anymore contain binding targets for each individual member state. The EE target remains indicative ("headline target": Article 1 of the EE Directive).

The new LULUCF Regulation integrates the LULUCF sector, which was previously not covered, into the EU's Climate and Energy Policy Framework. It determines that each member state will have to ensure that LULUCF emissions do not exceed removals by the sector from 2021-2025 and from 2026-2030 (LULUCF Regulation, Article 4). On the basis of agreed accounting rules, each member state has to submit a national forestry accounting plan for the five-year periods 2021–2025 (by 2018) and 2026–2030 (in 2023) under Article 8 of the LULUCF Regulation.

The new Governance Regulation establishes an integrated framework for planning, reporting, and review related to the 2030 Framework (including other key elements of the Energy Union such as energy security). Building on related provisions in the existing RE and EE Directives, the Governance Regulation, in particular, requires each member state to submit in 2019, and every ten years thereafter, an integrated National Energy and Climate Plan (NECP). This plan is to include national contributions to the EU-wide RE and EE targets as well as related existing and planned policies and measures and is to be updated every five years (Articles 3, 9 and 14). Member states are also required to submit biennial progress reports on the implementation of their NECPs (Articles 17, 20–25), report biennially on policies and measures to implement their GHG emission target (Article 18) and annually on GHG emissions (Article 26). Member states also have to prepare, submit, and regularly update long-term strategies for climate and energy with a time horizon of at least 30 years (Article 15).

The Governance Regulation furthermore mandates the European Commission to monitor progress and take any remedial action (Articles 9 and 13, Chapter 5), assisted by the EEA (Article 42). In addition to regularly assessing overall progress by the EU as a whole, the Commission is to assess individual member states' plans and progress in their implementation, including the ex-ante assessment of draft plans before they are finalised (Articles 9 and 13, Chapter 5). Where the Commission finds the overall ambition of plans or overall progress towards the relevant energy and climate targets to be insufficient, it is empowered/tasked to take targeted action in response. This includes recommendations to individual and/or all member states as well as proposing other measures (e.g., legislation) and exercising "its powers at Union level" (Articles 31 and 32). Member states whose progress on expanding RE is lagging are required to implement additional measures within one year to make up for the gap. Such additional measures may include contributing to an RE financing mechanism set up at Union level and need to be specified in the biennial progress reports (on the basis of which the Commission, in turn, can again issue recommendations) (Articles 32 and 33). Regarding overall progress, the Commission is to release a State of the Energy Union report annually (Article 35).

2.2. The Paris Agreement on Climate Change

Concluded in 2015, the Paris Agreement provides a new global framework for international climate governance

under the UN Framework Convention on Climate Change. In contrast to the Kyoto Protocol which, for the EU and other developed countries, established binding emission targets, the Paris Agreement adopts a more procedural approach. While the Agreement has a comprehensive scope (including adaptation, finance, technology, capacity building and others), I focus on the approach to mitigation as the most relevant aspect for the EU's Climate and Energy Policy Framework.

In brief, the new approach to international governance of climate mitigation under the Paris Agreement can be crystallised in three main components. First, the Paris Agreement establishes and specifies clear overall targets and objectives for international climate governance. Article 2 determines the global temperature goal of "holding the increase of the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels". To this end, Article 4.1 further specifies that global net GHG emissions should reach zero "in the second half of this century". Second, the Paris Agreement establishes primarily procedural obligations to prepare, submit, maintain, and update NDCs and to report on emissions and the implementation of NDCs followed by a review of this information. Parties are obliged to "pursue domestic mitigation measures" towards their NDCs (Article 4.2), but they are not strictly required to achieve what they promised in their NDCs. Third, the Agreement sets up a regular cycle of review and revision to ratchet up efforts and increase ambition over time including a 5-yearly stocktake of past efforts (starting in 2023) as a basis for subsequent rounds of strengthening of NDCs (on the Paris Agreement, see Bodansky, 2016a; Doelle, 2016; Keohane & Oppenheimer, 2016; Klein, Carazo, Doelle, Bulmer, & Higham, 2017).

Finally, it is relevant to mention that, especially as a result of the EU's Governance Regulation, EU climate and energy governance and the Paris Agreement have become aligned in important respects. In particular, the five-year cycle of the submission/revision of NECPs is in line with the five-year cycle of review and revision under the Paris Agreement, as is annual reporting on emissions and biennial reporting on implementation progress. Both systems are furthermore directed at creating an upward dynamic (while preventing backtracking). Moreover, the requirement to prepare and submit long-term plans/strategies under the Governance Regulation implements the related requirement under Article 4.19 of the Paris Agreement. In addition, the review of RE and EE targets foreseen under Articles 3 of the respective EU Directives by 2023, fits with the international review of progress under the Paris Agreement to be undertaken in 2023.

3. Assessing the Bindingness and Stringency of Governance: Four Criteria

How can we assess the bindingness and stringency of particular regulations and governance frameworks? I suggest in the following a set of four criteria which are rooted in political science/governance but also informed by international and European law. Going beyond a narrower conception of formal legal bindingness (e.g., Bodansky, 2016b), the criteria are based on literature on hard versus soft law as well as the bindingness and legalisation of (international) governance (e.g., Abbott & Snidal, 2000; Kalimo & Staal, 2014; Keohane, Moravcsik, & Slaughter, 2000; Oberthür & Bodle, 2016; Shaffer & Pollack, 2010; Trubek & Trubek, 2005). Being generic, the criteria enable a differentiated and systematic assessment of the bindingness/stringency of both international and European governance frameworks. They are based on an understanding of softness and hardness (stringency) that is gradual rather than binary and aims at assessing governance rather than law as such.

3.1. Formal Status

The formal status of the rules on which a governance framework rests constitutes a first basic criterion for its bindingness (see the standard of "obligation" by Abbott & Snidal, 2000). At stake is therefore whether governance is rooted in legal acts that are formally capable of establishing binding rules, rights/entitlements, and obligations. For example, in EU governance, the European Treaties, as well as Regulations, Directives and Decisions, are formally binding (see Article 288 of the Treaty on the Functioning of the European Union, TFEU). If requirements are not based on such binding instruments, actors will not strictly be legally obliged to adapt their behaviour accordingly. While formally non-binding instruments may still carry significant political weight and push actors to behavioural change, they also face significant limitations regarding accountability and legal implementation/enforcement (see below).

3.2. Nature of Obligations

Second, the substance of the "what" of the obligations is significant for the stringency of a governance framework. Particularly relevant in this respect is whether and to what extent any obligations directly address the substantive behaviour at stake or only indirectly relate to such behaviour without strictly requiring it to change. Some of the legal literature has introduced a distinction between "obligations of result" (e.g., an obligation to achieve a certain emission reduction) and "obligations of conduct" (e.g., an obligation to report on emissions). This distinction seems problematic, however, since some obligations of conduct can be rather substantive (e.g. an obligation to introduce a certain policy instrument such as a carbon tax). It may hence be more useful in our context to distinguish between "substantive" obligations that imply significant behavioural adaptations related to the problem at stake, such as reducing emissions or introducing/increasing a carbon tax, and purely "procedural" obligations which may at best only indirectly encour-

age behavioural change, such as requirements to measure emissions, submit a report or prepare a plan (see discussion in Mayer, 2018; Oberthür & Bodle, 2016).

3.3. Prescriptiveness and Precision

Third, how prescriptively and precisely rules establishing rights/entitlements and obligations are worded affects the actual bindingness of governance. The precision of a provision depends on how well defined the addressee (who), the substance (what), and the timeline (by when) are. Prescriptiveness depends on the discretion left to the subject of an obligation. In contrast to a clear-cut "shall" provision, the use of the word "should" leaves some discretion. Other ways to blur what the addressee is expected to do include the use of "may" or "could" or of expressions such as "to take into account", "encourage", "strive to", or the qualifications "as appropriate" and "as far as possible" (Abbott & Snidal, 2000; Oberthür & Bodle, 2016). The precision and prescriptiveness of the relevant rules determine the clarity of what the subjects of these rules are expected, entitled, and required to do.

3.4. Accountability and Effective Implementation (Including Enforcement)

Last, but not least, it is important to consider the means available to promote and ensure accountability and effective implementation (including enforcement). In this respect, transparency (through monitoring and reporting) is a fundamental requirement. Without a minimum level of transparency of relevant actions and behaviour, even otherwise binding obligations may not "bite" in reality. In addition, mandating a dedicated body to oversee implementation and address implementation issues has been found to be of utmost importance in supporting effective implementation (Keohane et al., 2000). In this respect, the availability of effective measures to address deficiencies in implementation, including effective incentives and/or means of enforcement, seems particularly important (Bang, Hovi, & Skodvin, 2016). Being able to hold the subjects of a rule to account for their implementation and compliance gives teeth to this rule and provides an important motivation for adapting behaviour accordingly.

3.5. Four Meaningful Criteria Capturing Key Aspects of the Stringency of Governance

There is, in principle, no correlation between the four dimensions and they can have varying scores along a gradual scale. Both formally binding and non-binding instruments can contain substantive and/or procedural requirements of varying precision and prescriptiveness with varying accountability and means for ensuring effective implementation attached. While the overarching framework in which rules and regulations are embedded affect these dimensions (see, for example, Section 4.4 below on the special enforcement powers under supranational EU law), the stringency of governance is hence not understood as binary (soft—hard, binding—non-binding) but as gradual (see also Kalimo & Staal, 2014). It is also difficult to establish trade-offs between the four dimensions. As a result, it is not easy to determine where soft governance ends and hard governance starts.

Taken together, these four criteria provide for a quite comprehensive, systematic, and differentiated conceptualisation of the bindingness/stringency of governance, including for comparative purposes. All four criteria are directly behaviourally relevant since they capture which behaviour is targeted and how strong the impetus is to adapt this behaviour accordingly. They depict key aspects that actors may employ to escape changing their behaviour: they could claim that the actual legal instrument as such (formal status) or a specific rule (prescriptiveness and precision) are not binding; they could also adapt procedures as required without changing the relevant substantive behaviour (nature of obligation), or they could neglect inconvenient obligations (accountability and effective implementation). Among the four criteria, the nature of obligations adds a new content element to previous accounts of softness and hardness (e.g., Keohane et al., 2000; see also Kalimo & Staal, 2014). Overall, we may arguably expect that a higher score across the four dimensions may entail a higher degree of certainty of substantive behavioural effects.

4. How Hard or Soft is the EU's 2030 Framework?

This section applies the assessment framework developed above to the analysis of the EU's 2030 Framework as compared with the preceding 2020 Framework and the mitigation-related provisions of the international Paris Agreement. The comparison with the 2020 Framework enables us to identify whether EU climate and energy governance has become more or less stringent. International climate governance under the Paris Agreement can, due to the far-reaching differences between international and EU governance in general, and the approach of the Paris Agreement in particular (e.g., Bodansky, 2016a; Doelle, 2016; Klein et al., 2017; Oberthür & Bodle, 2016), be expected to be comparatively soft. As such, it provides a useful contrast that helps put the stringency of EU climate and energy governance, and related changes, in perspective, and serves to illustrate the far-reaching differences between international and supranational EU governance.

4.1. Formal Status

The 2030 Framework is firmly based on instruments of binding EU law. The legal acts that form the core of the 2030 Framework (see above) are Directives and Regulations that were proposed by the European Commission and subsequently adopted under the EU's "ordinary leg-

islative procedure" by the European Parliament and the Council in 2018 in accordance with Articles 192 (environment) and/or 194 (energy) of the TFEU.

This aspect of the 2030 Framework is unchanged from the preceding 2020 Framework. The 2020 Framework was based on earlier versions of the ETS, RE and EE Directives as well as the 2009 Effort-Sharing Decision (Decision No 406/2009/EC), the predecessor of the Effort-Sharing Regulation (on the 2020 Framework, see Delbeke & Vis, 2015; Jordan et al., 2010; Oberthür & Pallemaerts, 2010). The new legal base of the RE and EE Directives—TFEU Article 194 on energy that was introduced in the 2009 Lisbon Treaty—does not change their formal legal status.

The formal status of the legal instruments of the 2030 Framework is also comparable to that of the Paris Agreement. In accordance with Article 2 of the 1969 Vienna Convention on the Law of Treaties, international treaties constitute instruments of international law that their parties are legally required to implement, much like EU member states (and others) are required to implement Regulations, Directives and Decisions. The 2015 Paris Agreement on climate change is an international treaty in this sense (on the legal nature of the Paris Agreement, see Bodansky, 2016b; Oberthür & Bodle, 2016). That its formal legal status is thus comparable to the 2030 Framework is not meant to negate the crucial qualitative differences that exist between international and EU law (not least, direct effect, including on individuals, and qualitatively different means of enforcement) as also reflected in other criteria of bindingness addressed below (see especially Section 4.4 on accountability and effective implementation).

4.2. Nature of Obligations

The 2030 Framework combines substantive and procedural obligations in specific ways. As presented in Section 2 above, key substantive obligations are especially included in the ETS Directive and the Effort-Sharing and LULUCF Regulations. In addition, the RE and EE Directives, in particular, establish a number of further substantive requirements. These include obligations on member states to ensure 2020 RE targets are not undercut (Article 3.4) and that RE in transport reach 14 per cent by 2030 (Article 25) as well as relating to support schemes for renewables (Articles 4–6), renewable self-consumption and RE communities (Articles 21 and 22), RE in heating and cooling (Article 23), sustainability criteria for biofuels, bioliquids, and biomass (Article 26) as well as the verification of compliance with them (Article 30, all RE Directive) and annual energy savings of 1.5 per cent by 2030, with various flexibilities (EE Directive, revised Article 7), among others. Key procedural components, as especially contained in the Governance Regulation, relate to NECPs, national forestry accounting plans, biennial and annual reports, and long-term strategies. Importantly, member states are required to specify their national contributions to the EU's RE and EE targets in their NECPs and, where the Commission finds progress on RE to be lacking, to take additional measures within one year.

It is not clear whether the nature of the 2030 Framework's obligations is more or less stringent than the 2020 Framework. On one hand, binding national targets for the expansion of RE for individual member states have been discontinued. On the other hand, the accompanying procedural obligations have been significantly strengthened. Planning elements that were previously separate (RE, EE, climate action) have been further improved and integrated into the NECPs, which enhances visibility; and a firm requirement for member states to prepare, submit, and regularly update long-term strategies has been introduced. Furthermore, as further discussed in the next section, an agreed formula allows national RE contributions to be determined for each member state in case the actions taken by member states do not add up to the EU's overall target of 32 per cent by 2030. Any member state that falls short in its progress is required to implement additional measures. Overall, the abandonment of national binding RE targets is hence significantly balanced by the introduction and strengthening of other elements.

Both the substantive and the procedural obligations under the 2030 Framework are significantly more stringent than those under the Paris Agreement. To start with, the significant substantive obligations of EU member states under the 2030 Framework (including quantitative targets) contrast with the Paris Agreement's nearly exclusive focus on procedural obligations, even if tuned towards agreed global goals (see Section 2.2 above). In addition, the Paris Agreement has fewer procedural obligations in comparison (related to NDCs and reporting and review; see Bodansky, 2016a, 2016b; Keohane & Oppenheimer, 2016; Oberthür & Bodle, 2016). As we will see in the next section, they also are much vaguer when compared to the 2030 Framework.

4.3. Prescriptiveness and Precision

The key substantive and procedural obligations of the 2030 Framework generally score highly on prescriptiveness and precision. The aforementioned obligations and quantitative targets under the ETS Directive, the Effort-Sharing Regulation and the LULUCF Regulation are well defined. Specific dates for the submission of draft, updated, and final NECPs, national forestry accounting plans, long-term strategies, biennial reports, and annual reports are determined. Guidance on the information these plans and reports have to contain and the methodologies which have to be applied, where relevant, is detailed.

Several flexibilities granted in the 2030 Framework limit its prescriptiveness without undercutting it. The ETS Directive allows free allocation of emission allowances to industries in international competition and to power plants in certain (central and eastern European) mem-

ber states. The Effort-Sharing Regulation permits (limited) banking and borrowing, transfer of emissions reductions between member states, and off-setting with ETS allowances as well as with GHG removals in the LULUCF sector up to a defined maximum (Articles 5–7 and Annexes II and III). The LULUCF Regulation also provides some flexibility, including the possibility of banking net emission removals for subsequent years and transferring them between member states (Articles 11–13). The RE Directive furthermore allows member states to engage in statistical transfers and joint projects with each other and with third countries in order to achieve their national contributions (Articles 8–12). Other substantive requirements of the RE and EE Directives also introduce flexibilities. Overall, these flexibilities soften the prescriptiveness of the well-defined obligations in a limited and clearly defined way.

Similarly, a number of ambiguities soften some obligations to some extent without abandoning them. Prominently, the RE and EE Directives do not contain national RE and EE targets for member states but only define Union-wide targets for 2030 (Article 3 RE Directive; Article 1 EE Directive). Similarly, the Governance Regulation allows member state contributions to the EU targets for RE and EE to be based on loosely defined "national/relevant circumstances" (including, in the case of RE, "early efforts") to be explicated in NECPs (Articles 5 and 6). The other aforementioned substantive requirements of the RE and EE Directives on support schemes for RE etc. also introduce ambiguities at times, including with respect to the annual energy savings target of 1.5 per cent and the increase of RE in heating and cooling. Overall, however, the ambiguities remain limited in number and scope.

The 2030 Framework has both strengthened and weakened the prescriptiveness and precision of the preceding 2020 Framework. Many of the flexibilities and ambiguities included in the 2030 Framework already exist in the 2020 Framework. However, the abandonment of binding national RE targets and the extension of flexibilities member states enjoy under the Effort-Sharing Regulation (regarding LULUCF and ETS allowances) in particular, even though well defined, have weakened precision and prescriptiveness. In contrast, requirements relating to plans, progress reports, and the long-term strategy have become much more precise with the Governance Regulation (compare the relevant provisions in the Governance Regulation with the pre-existing requirements in the 2009 RE Directive 2009/28/EC, especially Article 22, and the 2012 EE Directive 2012/27/EU, especially Article 24 and Annex XIV; see also Article 15 and Annex IV of the Governance Regulation). Importantly, the Regulation contains a detailed formula for calculating each member state's fair share of the EU RE target of 32 per cent for 2030 (Article 5 and Annex II). The Commission is required to use this formula as a reference where the aggregate contributions of the member states fall short of the EU target (Article 31.2). While not containing national RE targets, the Governance Regulation hence allows such targets to be derived for each member state. These only come into play formally if individual contributions are insufficient, but they may well provide guidance to member states in designing their contributions and serve as a more general point of reference. On balance, the 2030 Framework has hence hardly weakened the prescriptiveness and precision of EU climate and energy governance.

In comparison, the Paris Agreement is much less prescriptive and precise overall. Its largely procedural obligations are fewer and more discretionary than those of the Governance Regulation, e.g. by leaving the structure and content of NDCs largely up to each party (Keohane & Oppenheimer, 2016; Oberthür & Bodle, 2016; United Nations Framework Convention on Climate Change [UNFCCC], 2018). This contrasts with the much higher number of precise obligations for each member state under the EU's 2030 Framework relating to the ETS, the non-ETS sectors, the LULUCF sector, the preparation and submission of NECPs and long-term strategies, and various aspects of RE and EE (see above).

4.4. Accountability and Effective Implementation (Including Enforcement)

Both the general EU governance framework and the 2030 Framework itself, in particular, the Governance Regulation, provide significant means supporting accountability and effective implementation. Hence, failure to implement legal obligations arising from the 2030 Framework (see above) can in principle be subject to infringement proceedings in accordance with Articles 258–260 of the TFEU (involving the Commission and the Court of Justice of the EU with the possibility of penalty payments). To the extent that it has "direct effect", EU law can furthermore to a significant extent be enforced through the national courts of the member states (Craig & de Búrca, 2015, especially Chapters 7 and 8). It is here that the embedding of EU climate and energy governance in the overarching supranational order of the EU matters most. In addition, the Governance Regulation not only enhances transparency through planning and reporting by member states but also mandates the European Commission to monitor implementation and take remedial action, as elaborated in Section 2.1 above.

As such, the 2030 Framework maintains a high level of support for effective implementation and enforcement (compared to the 2020 Framework). On one hand, infringement proceedings under Articles 258–260 can no longer be employed to enforce national RE targets, as these targets have been abandoned. On the other hand, the Governance Regulation introduces an obligation for member states to take corrective action where their efforts towards the EU-wide RE target of 32 per cent for 2030 fall short. Even though form and content of such corrective action are left to each member state, failure to take effective action can in principle lead to in-

fringement proceedings. In addition, the integration of planning and reporting across the different dimensions of the "Energy Union" enhances transparency and accountability, and the monitoring and enforcement powers of the Commission have been strengthened (ex-ante assessment of plans, Commission recommendations). Member states are now required to take "due account" of Commission recommendations (Article 34.2), to report on their follow-up and provide justification in case they do not act upon these recommendations. On balance, accountability and effective implementation can hardly be said to have suffered from the 2020 to the 2030 Framework.

These arrangements for promoting accountability and effective implementation are significantly more stringent than those under the Paris Agreement. The differences are particularly pronounced with respect to available response measures and, to a lesser extent, monitoring of implementation. The Paris Agreement in its Article 13 and its further implementing provisions (UNFCCC, 2018) requires parties to report on GHG inventories and the implementation of NDCs in a similar way as, but in less detail than, the Governance Regulation does for EU member states. It also foresees technical reviews of such reports by teams of technical experts. However, there is no review of the ambition of NDCs and the review of implementation is limited because achieving/implementing NDCs is not a legal requirement. Recommendations on NDCs and their implementation are not provided for and the mechanism for facilitating implementation and ensuring compliance under Article 15 of the Agreement will focus on particular problems rather than assessing implementation of each and every party (as the Commission is mandated to do under the Governance Regulation). Furthermore, the mechanism will only have soft, facilitative measures available (see Bang et al., 2016; Klein et al., 2017; Oberthür & Northrop, 2018; UNFCCC, 2018).

5. Discussion and Conclusions

The EU's 2030 Framework scores relatively highly on the four dimensions of governance stringency and bindingness distinguished here (see Table 1). It is based on binding EU legal acts, namely various Regulations and Directives, and establishes both significant substantive and procedural obligations/requirements. While the Framework does leave considerable degrees of discretion to member states, this is not unusual for EU legislation (and indeed immanent in the instrument of EU Directives) and this discretion is confined in important ways. Furthermore, the governance framework and its embedding in broader supranational EU governance structures provide for high levels of accountability and effective implementation. Various obligations under the Framework are generally suitable for the European Commission to initiate infringement proceedings in case of there being a lack of implementation. In addition, the Governance Regulation mandates the European Commission to follow up with each member state on its planning and reporting and provides specific means for the Commission to advance implementation (including recommendations).

The 2030 Framework differs slightly from its predecessor, the 2020 Framework, but these changes, on balance, do not make EU climate and energy governance less stringent or less binding (see also Table 1). On the downside, binding national RE targets became lost in the 2030 Framework and some new flexibilities give additional, though limited room for member states to cushion the required behavioural changes. On a more positive side, however, member states' procedural obligations to prepare energy and climate plans and long-term strategies as well as to report on progress in implementation have been strengthened, as have the aforementioned powers of the European Commission to monitor and promote implementation. Furthermore, the Governance Regulation contains a formula that, in the absence

Table 1. Stringency of climate/energy governance frameworks.

Dimension	EU 2030	EU 2020	Paris Agreement
Formal status	**high** (binding EU legal acts)	**high** (binding EU legal acts)	**high** (international treaty)
Nature of obligation	**medium-high** (substantive & enhanced procedural requirement, incl. binding emission targets)	**medium-high** (substantive & procedural requirement, incl. binding targets for emissions and RE)	**low** (procedural requirements)
Prescriptiveness and precision	**medium-high** (precise obligations with limited ambiguities/ flexibilities)	**medium-high** (precise obligations with limited ambiguities/ flexibilities)	**low-medium** (high degree of discretion)
Accountability and implementation	**high** (reporting, enhanced follow-up by COM, infringements)	**high** (reporting, limited follow-up by the COM, infringements)	**medium** (reporting, expert review, facilitative response measures)

Source: own assessment based on Section 4 (see there for further detail).

of national RE targets, allows national RE shares to be determined for each member state, in the event that aggregate ambitions of member states are insufficient for the collective target of 32 per cent by 2030. Overall, a limited loss of substantive obligations is balanced by gains in procedural obligations and powers to promote effective implementation.

Differences between this assessment of EU climate and energy governance and others may in part result from the specific set of criteria systematically applied here. In contrast to the above assessment, others have likened current EU energy governance to the OMC, arguing that it is soft and that the 2030 Framework, especially its Governance Regulation, amount to "'harder' soft governance" (Ringel & Knodt, 2018, p. 215, see also p. 219). Part of the difference may arise because the assessment put forward here goes beyond energy governance in the strict sense, taking an integrated view of EU energy and climate governance. Such an integrated view is immanent in the 2030 Framework and the EU's Energy Union project and enshrined in the overarching Governance Regulation which has a double legal base and covers both aspects. Perhaps more importantly, the four-dimensional conceptualisation of the stringency of governance along the soft-hard continuum advocated here goes beyond an analysis focusing—implicitly—on procedural aspects. In this context, the contrast with the international Paris Agreement illustrates the relative stringency of the EU governance framework. Overall, the systematic and differentiated approach to assessing governance stringency pursued here, based on explicit criteria that capture key aspects of bindingness, enables an encompassing and fine-grained appraisal and can hopefully facilitate future debate on how to measure and evaluate the stringency of governance.

The prospect for delivery of the EU's 2030 targets for climate and energy hence remains strong. The 2020 Framework has, even without significant recourse to infringement proceedings, led to significant adaptations of member state policies and industry behaviour. As a result, the EU remains on track to overachieving its binding GHG emission reduction target for 2020 and has its binding RE target within reach (while successful achievement of its indicative EE target remains uncertain) (EEA, 2018). Admittedly, more factors than simply the stringency of the governance framework affect whether or not the EU will succeed in achieving its strengthened 2030 targets. However, the 2030 Framework builds on the proven 2020 Framework and introduces further means to promote delivery, especially by further strengthening the role of the European Commission, as mentioned above. Whether this will be sufficient to ensure actual delivery will not least depend on how the Commission uses the powers and tools it has received (in addition to those it continues to have at its disposal under the EU Treaties).

It may not be surprising that EU climate and energy governance under the 2030 Framework, therefore, remains much "harder" than international climate governance under the Paris Agreement (see Table 1). While the formal status of the relevant legal instruments is similar, the nature of the obligations, their prescriptiveness and precision, and the means available for promoting accountability and effective implementation differ widely. The Paris Agreement primarily establishes procedural obligations to prepare and submit national climate plans in the form of NDCs and to report on emissions and NDC implementation subject to expert review. In contrast, the 2030 Framework establishes both various substantive and procedural obligations, with the latter going far beyond the Paris Agreement. The 2030 Framework's requirements are also much more prescriptive and precise than the Paris Agreement and are backed up by far stronger mechanisms for promoting accountability and effective implementation led by the European Commission.

This raises the question of why the EU, although updating its climate and energy governance towards 2030 to implement the Paris Agreement, did not weaken it in light of this Agreement. Whereas the EU was obliged to achieve its GHG emission target under the Kyoto Protocol, the Paris Agreement lacks a similar substantive international obligation (see Section 2). While this article has not investigated the factors that may help us explain the continued stringency of EU climate and energy governance, we may consider that there are strong forces within the EU that support such continued stringency. They include significant interests in the continued promotion of RE and EE, the status of climate and energy governance as a domestic and international signature issue for the EU, the supranational system of EU governance built on "the rule of law" as a whole, and general path dependency favouring continuity and incremental change. As long as these forces remain in place, they may also drive the development of EU climate and energy policy beyond 2030. One important implication is that—since the implementation of the Paris Agreement so far relies nearly exclusively on domestic delivery systems and hence remains highly vulnerable to related shortcomings—the EU continues to have a strong interest in strengthening international climate governance as well.

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Conflict of Interests

The author declares no conflict of interests.

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Article

A Big Data View of the European Energy Union: Shifting from 'a Floating Signifier' to an Active Driver of Decarbonisation?

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Abstract
The Energy Union, a major energy sector reform project launched by the European Commission in 2015, has substantial clean energy and climate aims. However, scholarly caution has been raised about their feasibility, especially with regards to accommodating climate objectives with other closely related yet often competing policy goals. We therefore investigate the policy priorities of the Energy Union by performing a topic modelling analysis of over 5,000 policy documents. A big data analysis confirms that decarbonisation and energy efficiency dimensions are major building blocks in the Energy Union's agenda. Furthermore, there are signals of policy convergence in terms of climate security and climate affordability policies. However, our analysis also suggests that the Commission is not actively prescribing trajectories for renewable energy development or paying close attention to declining incumbent energy generation technologies. Overall, we find that the Energy Union is not a 'floating signifier' but rather has a clear and incrementally evolving decarbonisation agenda. Whether it further develops into an active driver of decarbonisation will largely be determined by the implementation phase of the project.

Keywords
clean energy transition; climate policy; energy efficiency; energy policy; European Commission; European Union; policy integration; renewable energy; sustainability; topic modelling

Issue
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1. Introduction

Decarbonising the energy sector and shifting towards clean energy is high on the agenda in the European Union (EU). A major demonstration of the political will to integrate climate and energy objectives came in February 2015, when the European Commission (hereafter, EC or the Commission) unveiled its blueprint for launching a 'European Energy Union'. While the Energy Union project was set to push the European energy market towards better security, sustainability and affordability, it also included novel substantial elements to transform the EU's energy system into one working towards clean energy (Siddi, 2016, p. 131).

However, despite being applauded for having the potential to fundamentally transform Europe's energy system (Ringel & Knodt, 2018), the Energy Union has also received scholarly criticism. This is because the Energy Union package comprises numerous policy goals and the emphasis given to each dimension still remains an open question (Szulecki, Fischer, Gullberg, & Sartor, 2016). Caution has also been specifically raised in terms of the EU's decarbonisation ambitions. Prior research has highlighted that despite climate gaining traction as a topic at the EU level, actual climate and energy policy integration in EU legislation has remained difficult (Dupont & Oberthür, 2012; Russel, den Uyl, & de Vito, 2018). It is therefore clear that for the Energy Union to succeed in its

decarbonisation objectives, it will have to face and overcome the challenges of delivering policy convergence in a way that other policy areas, such as security and competitiveness, are not at odds with sustainability goals.

Is the Energy Union transforming the EU's energy policy agenda towards more policy convergence and active promotion of climate and decarbonisation objectives? If it is, this is likely to be visible already in the Commission's energy policy goals, language and structure, as the Energy Union project is proceeding towards its implementation phase from 2019. Motivated by this knowledge gap in the literature, and in light of the concern about the Energy Union's policy ambiguity identified in prior research, this article looks at large-scale energy policy document corpora before and after the launch of the Energy Union. We investigate the priorities given to the different policy dimensions and identify potential signs of policy convergence. To do so, we perform a topic modelling analysis on over 5,000 policy documents. While many studies have examined the EC's decarbonisation discourse and agenda at the conceptual level or based on smaller qualitative data sets (Benson & Russel, 2015; Schreurs, 2016; Szarka, 2016), taking a big data approach allows us to gain a novel perspective of the Energy Union. We investigate changes at the policy document level at a scale that has been beyond reach for previous studies that used other methods. As such, the results will offer valuable stepping stones to further research and policy.

The article unfolds as follows. Section 2 briefly introduces the climate and energy policy development in the EU and discusses the agenda shaping power of the Energy Union project. Section 3 outlines the analytical approach used in this article. Section 4 explains the steps taken in our data collection and analysis, while section 5 presents the results. Finally, we discuss our findings in section 6 and give concluding remarks in section 7.

2. An Energy Union in the Making

2.1. Climate and Energy Policy Nexus in the EU

Energy policy in the EU has remained exclusively under the control of national administrations (Benson & Russel, 2015). While energy policy is a shared competence between the EU and its member states, the latter retain the right to decide on their respective energy mixes as per Article 194 of the Treaty on the Functioning of the EU (EU, 2007). The Lisbon Treaty of 2009 was a first step towards introducing energy policy as an independent issue area at the supranational level (Council of the European Union, 2007). The subsequent years introduced groundwork initiatives towards integrating climate and energy policy objectives into European legislation. In the aftermath of the Lisbon Treaty, the Commission also started to form a discourse about a common European energy policy, featuring security of supply, sustainability and competitiveness as its main pillars (Szulecki et al., 2016). Thus, at the discursive level, the EC made attempts to link previously separate and oftentimes conflicting policy to create an idea of the energy-climate nexus as 'European in scope' where 'the problem is a common European one, and by extension so is the solution' (Maltby, 2013, p. 437).

The change of presidency in the Commission in 2014, coupled with climate and energy security becoming critical matters in the European policy scene, created a 'window of opportunity' for further integrating climate and energy at the policy and institutional level (Bürgin, 2018). The Energy Union project was officially launched in 2015 by the Commission's new president, Jean-Claude Juncker, as part of the 'ten Commission priorities for 2015–2019' (EC, 2015). The initiative for such a Union was first proposed by Donald Tusk, the previous President of the European Council and the Prime Minister of Poland. Tusk saw the Union as a means to secure the exploitation of member states' fossil fuel reserves, focussing largely on ensuring security of supply. He outlined the first strategies of the Energy Union to be a response to concerns about energy security in Europe following the Ukrainian crisis. However, with the Juncker Commission in charge, the Western European states became the decisive actors behind the Energy Union, and the project was geared towards questions of market integration and clean energy ambitions (Siddi, 2016). The Energy Union was designed to contain five 'closely related and mutually reinforcing dimensions': (1) energy security, solidarity and trust; (2) a fully integrated European energy market; (3) energy efficiency contributing to moderation of demand; (4) decarbonising the economy; and (5) research, innovation and competitiveness (EC, 2015). These dimensions show that the EC's overarching objective is transforming the energy system towards being a clean energy system, parallel to creating one common European framework for energy. In 2016, the Commission published its 'Clean Energy for All Europeans' package, where a more detailed agenda was established for putting energy efficiency first, achieving global leadership in renewable energies (RES) and providing a fair deal for consumers (EC, 2016).

2.2. The Agenda Shaping and Institutional Power of the Energy Union Concept

Despite the Commission's efforts to put its decarbonisation plans into practice, the Energy Union project has been received with caution by many scholars. As Szulecki et al. (2016, p. 584) aptly summarise, while the Energy Union is a significant policy idea, it runs the risk of remaining 'a floating signifier' or 'an empty box in which every stakeholder tries to put whatever is on the top of their priority list'. This is partly because the Commission did not specify the order of priority for the five Energy Union dimensions to begin with. In other words, while the primary aim of the Energy Union is to form a streamlined and coherent energy policy framework, its nature and ambition has been left open for interpretation. There is

a risk that, when multiple political groups try to push the project to reflect their priorities and demands, the Energy Union absorbs rather than emits meaning, either becoming 'everything', i.e. signifying an impossible combination of policy ambitions in pursuit of limiting contestation, or 'a floating signifier' (Laclau & Mouffe, 2013), where the concept is non-fixed in its meaning and can thus be used to advance different policy objectives and priorities depending on the context.

Why is the Energy Union's conceptual development of importance? When drawing insights from the EU institutional and governance scholarship, two interlinked points come to the fore. First, by institutionalising the European energy policy through the Energy Union, the Commission is working actively as an energy 'policy entrepreneur' to shape the energy policy agenda on the European continent (Tosun, Biesenbender, & Schulze, 2015). We refer to 'agenda shaping' here in line with Tosun et al. (2015) as a process through which certain images are emphasised or reemphasised to introduce new issues, restructure the existing strategies and plans, or bar issues from the political agenda. Through agenda shaping, the EC is creating the ideational structures for the Energy Union, which in turn play a central role in determining which issues are considered significant and legitimate in the new institutional setting (Carstensen & Schmidt, 2016). The way the EC decides to promote energy policy through the Energy Union concept also has ramifications for institution building. For instance, scholars have noted that as a policy entrepreneur, the EC also steers the implementation rules for policy, thereby affecting institutional structures and their potential effectiveness (e.g. whether the emphasis is on depth or participation) (Bernauer, Kalbhenn, Koubi, & Spilker, 2013).

Second, the conceptual development of the Energy Union project is important because it highlights the challenges to institutionalise a common European agenda when member states hold power over their domestic energy policy. This will not be feasible unless the voice of the major member states and member state blocks are taken into account (Tosun et al., 2015, p. 7). Scholars have already highlighted sticking points in the Energy Union's formation as member states seek to influence the Commission's agenda by shaping activities to further their domestic policy priorities (Bürgin, 2018; Szulecki et al., 2016). These include, for example, a debate surrounding the role of energy efficiency in the Energy Union's agenda. A block of member states has viewed efficiency questions as being at odds with affordability, especially as over 70 per cent of the existing building stock remains highly inefficient and, thus, costly to upgrade (Ringel & Knodt, 2018). As a result of this controversy, energy efficiency was even omitted from the agenda of some of the meetings surrounding the launch of the Energy Union (Siddi, 2016). Another major challenge has to do with promoting decarbonisation objectives. Many Central and Eastern European countries have wanted to take advantage of the Energy Union to improve their own energy security and exploitation of domestic resources (coal and shale gas), whereas the Western member states have had a clear preference for advancing climate policy (Bocquillon & Maltby, 2017).

It is also important to note that the Energy Union's agenda shaping is not done in a vacuum between member states and EU institutions. The agenda of the Energy Union is also susceptible to international influence, like the Paris Climate Agreement, and driven by external events like the Ukrainian crisis or economic recession (Szulecki et al., 2016). In this article however, we are less interested in the causality in agenda shaping—i.e., what is influencing the Energy Union's formation—but rather focus on exploring the substance and shape of the Energy Union's concept and related agenda.

3. A Text-as-Data Approach to the Energy Union

We approach the Energy Union project with a text-as-data approach. These refer to research designs in which texts are analysed statistically with different degrees of automation. For machine coding, both open-ended and a priori defined methodologies are available. In machine learning terminology, these are referred to as unsupervised and supervised methods. While supervision means that the method is supplied with examples to learn from, unsupervised machine-learning methods are solely based on associations between terms in the corpus itself (Toikka & Purhonen, 2016). The choice of a computational method is always connected to the research question, and there is no one globally best method to use—but rather various different tools to augment human interpretation (Grimmer & Stewart, 2013). While the main goals of the Energy Union are explicit and known, the status of its current agenda is less so. Thus, applying unsupervised methods that reveal latent thematic structure in a corpus is considered the most appropriate approach to gaining insights into the Energy Union's conceptual development.

Specifically, in this article we have chosen to apply the method of topic modelling (Blei, 2012). Put briefly, topic modelling is a collective term given to a family of computational algorithms built on Bayesian probabilistic theory. The intuition behind topic modelling is simple: it refers to a generative process in which an algorithm tries to recreate a given corpus assuming 'that each document is made up of a mixture of topics, as well as a mixture of words associated with each topic' (Boussalis & Coan, 2016, p. 92). In other words, if we ignore all syntax and grammar and simply imagine that the documents were generated by an author picking tokens (words or combinations of words) from topics (probability distributions of the tokens), the topic model estimates the word and token distributions that would most likely have generated the observed corpus. The output contains two items: the topic word proportions (usually presented as a set of word lists) and the document topics proportions (van Atteveldt, Welbers, Jacobi, & Vliegenthart,

2014). These are then subjected to human interpretation. Hence, unlike in supervised or qualitative text analysis techniques, topic modelling shifts interpretation of data to a later stage as the computer is allowed to categorise all data before human intervention. It is important to note that it is not given that all the word clusters generated as topic output clearly represent content categories of the policy context analysed. Some topics may represent multiple issues or even non-policy-related areas. Therefore, it is pivotal for the researchers to reflect critically on the results against their empirical case and pay close attention both to the words in a topic and the documents most associated with these words when interpreting the topics.

The particular algorithm we apply is Latent Dirichlet Allocation (LDA; Blei, Ng, & Jordan, 2003), which is the most-used and is a well-established algorithm in text analysis. The main function of LDA is to provide an automated way to explore 'the presence of meaningful clusters of terms' running through a corpus (Boussalis & Coan, 2016, p. 92). As words in these clusters—topics—relate to one another through word co-occurrence and probability distributions, topic modelling analysis is argued to have 'high levels of substantive interpretability' (DiMaggio, Nag, & Blei, 2013) and has been found to be effective in applied settings in social and political science (Nowlin, 2016).

In our case, there are several reasons why we find applying topic modelling to policy document analysis particularly relevant. First, topic modelling gives us the benefit of scale and scope for the analysis as it allows for coverage of more data than researchers could qualitatively read. Second, deconstruction of large policy corpora is also important because it helps reveal how specific policy questions are presented by policy-makers. This is because policy language can be seen as expressing political purpose and intended courses of action by policy-makers (Majone, 1989). Third, taking a topic modelling approach to policy document analysis is insightful in the EU context. As 'a policy entrepreneur', the EC has agenda-shaping power vis-à-vis the Energy Union (Bürgin, 2018). In this light, the policy documents the EC publishes are likely to yield important signals of the ways in which the Commission is constructing its representation regarding a problem and, in our case, regarding decarbonisation.

Indeed, harnessing a topic modelling approach also comes with limitations. It is clear that policy documents alone do not exhaustively cover the policy challenges surrounding decarbonisation, but rather they provide a focalised account of the descriptive phases in the policy cycle (Knill & Tosun, 2008). It is also important to acknowledge that the topic model technique does not intend to fully utilize all the rich information available in political texts but rather to reveal latent structure in a corpus. Nonetheless, while the topic model does not take into account semantics, syntax or the order of words in the documents, topics have been found to correspond to similar substantive issues when compared against manually-annotated themes (van Atteveldt et al., 2014). In our study, we interpreted topic output as signals of policy ideas and issues. Topic models provide us with an aggregate picture of the latent thematic structure of the EC's policy documents—a snapshot of the policy documents—which is useful in exploring the thematic formation of the Energy Union. For a more in depth account about how to interpret topics for the purposes of political science research, see for example Chang, Gerrish, Wang and Blei (2009) and van Attenveldt et al. (2014).

Finally, the reader should also be informed that there are also extensions of the LDA approach which have been developed to improve the simple LDA by including document metadata into the analysis (e.g., author metadata with author-topic models, time metadata with dynamic topic modelling, generalized to any number of factors as with factorial LDA). These extensions are definitely useful for numerous research questions, especially when relevant metadata related to the issues of interest are available. However, our aim is to offer the reader an empirical exploration of the energy policy documents rather than claim to reveal causal relations or the like. Thus, for both model parsimony (use the simplest model that answers your questions) and the sake of presentation, we decided that a simple LDA would be sufficient for the analysis here.

4. Data Collection and Analysis

In our approach, we compared the thematic structure of two policy document corpora. The first one comprises documents written and published prior to February 2015, i.e., the official launch of the Energy Union, and therefore represents the EC's policy path prior to the Energy Union. The earliest documents in the pre-corpus date to 2001, although 90% of the corpus has been published between 2009 and 2014. The second corpus contains documents developed under the Energy Union agenda, from the period of 2015–2018. As the Energy Union was given a four-year schedule (2015–2019), most of the agenda setting forming the thematic development of the Energy Union will have taken place prior to 2019.

4.1. The Two Corpora

The data set consists of 5,055 documents from the Commission's Directorate-General for Climate Action (DG Clima) and from the Directorate-General for Energy (DG Energy) websites. These sources were chosen as they regroup the main EU-level documents for energy and climate-related matters. The data were downloaded in April 2018 and collected as follows: we started from the energy-relevant main pages and followed all internal links as long as they stayed within the domain, downloading all PDF documents available.

Table 1 presents our data set. We coded document year manually to guarantee correct timestamps and

assigned each document a category using the EC's official list of document types. These were supplemented by our own categories when documents did not fall into any of the official ones. As Table 1 shows, the bulk of our data set consists of EU regulations, member states' reporting documents and research publications. Items facilitating communication, like meeting agendas, communications and such, are also a major category. These include two categories written by outside actors as stakeholder and consultation inputs (SI, CI). While we have not systematically sought to include input from the public into the data set—these are generally published elsewhere on the EU websites—the DGs have occasionally published these documents as supplements to meeting information etc., and so we have not removed them. We treat all the documents in the same way regardless of their type—we do not e.g. give priority to regulation as we simply look at how thematic content is shared among different documents. After several rounds of data collection and categorization rechecks by two researchers, we divided the documents into two corpora.

Table 1. Data set. Table represents document types and allocation for each corpus.

		Documents in pre-Energy Union corpus	**Documents in post-Energy Union corpus**
COM	Proposed legislation and other Commission communications to the Council and/or the other institutions, and their preparatory papers. Commission documents for the other institutions (legislative proposals, communications, reports, etc.)	**177**	**218**
SWD	Commission staff working document	**127**	**184**
SEC	Documents which cannot be classified in any of the other series	**101**	**2**
C	Documents relating to official instruments for which the Commission has sole responsibility. Some are transmitted to the Council or Parliament for information.	**196**	**26**
Communication paper (CP)	Communication to the public, for example flyers, information sheets, PowerPoint presentations etc.	194	202
Country report (CR)	Documents which discuss a certain member state or which are produced by a member state	884	584
Research paper (RP)	Research and document papers authored by commission officials, JRC, researchers or consultants	331	330
Strategy paper (SP)	EU strategies and future-orientated planning	28	20
Meeting paper (MP)	Documents related to a certain project or meeting in DG Clima or DG Energy	472	199
Policy Implementation (PI)	Practical guidance for the implementation of the Commission's policy	68	30
Law (L)	Commission's law publications from *Official Journal of the European Union*	329	136
Communication (CJOURNAL)	Commission's communication publications from *Official Journal of the European Union*	37	41
Stakeholder input (SI)	Stakeholders' independently expressed opinions on policy	1	85
Consultation Input (CI)	Stakeholders' opinions on policy when requested by a consultant	1	52
Overall no. of documents		**2,946**	**2,109**

Notes: The classification of documents was done in accordance with (a) the Commission's categories, which are highlighted in bold and (b) supplementary categories developed by the authors. The EC categories are available at: https://ec.europa.eu/transparency/regdoc/?fuseaction=helpcote&language=en

4.2. Data Analysis

Topic modelling, like any other natural language-processing method, requires pre-processing of the data: the raw files need to be tokenised or transformed into units of analysis. We have chosen to use single words or unigrams in our analysis. Although it can be more appropriate to generate the bag of words using multiword phrases (essentially, model the probability of 'climate change' instead of 'climate' and 'change' separately), topic modelling can produce better results with the simplest unigram tokens (Yau, Porter, Newman, & Suominen, 2014). We used tidytext (Silge & Robinson, 2016), and topicmodels (Grün & Hornik, 2011) R packages for data handling and modelling. To generate the tokens, we removed too common words using stopword from the Snowball English language stopword list, technical terms related to EU documentation (like the repeating EN on every page signifying that this is the English version), too rare words using a cut-off point for the minimum number of documents to include a word, and removed any punctuation, numbers and non-alphabetical characters. We transformed each text into a row on a document-term matrix, summing how often each word in the corpus is used in the document.

It is the researcher's task to decide in advance how many topics the model should produce as its output. While some measures have been proposed for deciding on the number of topics (Chang et al., 2009), there is no standardised one-fits-all procedure for researchers to use. Thus, we followed a popular qualitative approach, which is to define the number of topics based on semantic validity (Quinn, Monroe, Colaresi, Crespin, & Radev, 2006). To gauge the extent to which each topic represents a distinct theme and is coherent in meaning, we ran topic models varying the number of topics and the cut-off point for rare words. We tried 10, 20 and 30 topics, requiring each word to appear in a minimum of 10, 15, and 20 per cent of documents. To compare the models on semantic validity, three researchers independently gave descriptive labels to the topics generated by the test runs by looking at the 20 most probable words and by consulting the 10 most probable documents associated with each topic. Based on the researchers' discussions, we saw that 30 topics gave a good balance: it enabled the model to distinguish clear themes (no themes seemingly discussing two issues) yet did not allow for topics that were too specific to emerge based solely on words associated with a writing style or genre, for example.

The topic interpretation, in other words, assigning a label to each word list, was done by two researchers based on looking at the 20 most probable keywords and consulting the 10 most probable documents associated with the given topic. In Appendix 1 we illustrate the topic interpretation process with examples and in Appendix 2 we present the descriptive name or 'topic label' for all the topics in both corpora, along with the 10 most probable words from each topic. Here we want to highlight that the labelling of topics was done with no prior categorisation in mind. After the interpretation process, we saw that the large majority of topics fell under the broad categories of the Energy Union dimensions (the exceptions being topics about terminology and regulation, see Table 2). We therefore decided to use the five dimensions as an analytical and presentational aid. Using the Energy Union's dimensions also allowed us to compare our results against the official goals of the project, which worked as a form of additional step to guarantee the semantic coherence of our results. As to how the topics were categorised under these dimensions, one researcher compared each topic label (words and top 10 document content) with how the Commission's Communication document (EC, 2015) had defined the dimensions for the Energy Union.

5. Results

To compare topic structure pre- and post-corpus, we grouped the topics in accordance with the five Energy Union dimensions outlined by the EC (see Section 2.1). The topics are presented in Table 2, and their thematic emphasis is illustrated in Figure 1.

By looking at Figure 1, it is clear that the energy efficiency and decarbonisation topics are the most predominant policy issues, covering 50 per cent of the policy themes in the pre and 63 per cent in the post-corpus. The latter corpus also seems slightly more thematically oriented as it has fewer general themes based on regulation and terminology than the pre-corpus. To evaluate changes in the policy documents language under the Energy Union project, we next open up and compare the semantic structure of key decarbonisation and climate-related topics in more detail.

Under the energy efficiency dimension, both corpora exhibit multiple topics on national reporting in the context of the respective time periods' directives. The most probable documents commonly relate to the National Energy Efficiency Action Plans (NEEAs) under the Energy Efficiency Directive 2012/27/EU. Similarities can also be seen with topics that deal with setting standards for transport sectors. However, the pre-corpus topics are about emissions reduction in transport (pre12, pre13), while the post-corpus has a clear emphasis on engine, fuel and combustion efficiency (post15, post26). There are three main differences between the corpora: cogeneration in combined heating and power (CHP) emerged as a solid, new theme (post10, post13); building efficiency is exclusively about the renovation of existing buildings in the post-corpus; and consumers are more present in the post topics, whether through eco-labelling schemes (post9) or considerations over energy costs and poverty among the EU households (post18).

With regards to the decarbonisation dimension, international climate agreements by the United Nation's Framework Convention on Climate Change (UNFCCC) feature in both corpora (pre14, post17), accompanied by

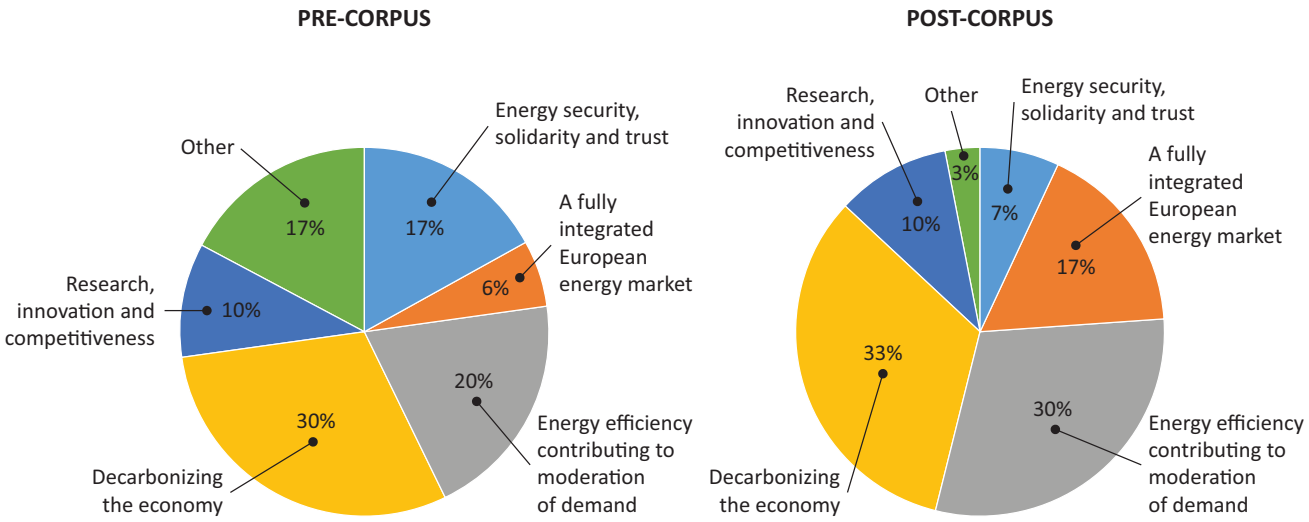

Figure 1. Comparison of pre and post-corpus topic structure.

topics on related reporting on member states' annual GHG inventories (pre15, pre17, pre18, post18). However, the model clearly estimates a shift in emphasis to the regulation on binding annual emissions reductions by member states, which come into effect through the Effort-Sharing Regulation and include sectors, such as transport or buildings, which are not covered by the emissions trading scheme (ETS) (post19). Furthermore, 'renewable energy use and promotion' emerges as a similar topic in both corpora, mostly covering progress reports on the National Renewable Energy Action Plan (NREAs). The post-corpus also has one additional topic for biomass and biofuel use and production (post21). The EU's strengthened interest in the ETS policy instrument is also visible (pre19, post 22). Moreover, the pre-corpus has a topic for external climate support, like providing technology transfer and adaptation finance for developing countries (pre22), but these have been replaced in the post-corpus by internal security and risk considerations on guaranteeing security of supply through diversification (post20, post26).

As to the other three dimensions, energy security topics feature slightly less in the post-corpus, whilst market integration has more emphasis compared to the pre-corpus. Emphasis on research and innovation is similarly marginal in both corpora. For energy security, we see topics that pertain to establishing the Euratom Community framework and radioactivity monitoring and nuclear waste management in both corpora (pre1, post1). The model also shows a clear topic on natural gas before and after the Energy Union. The pre-corpus topic is related to documents on guaranteeing security of gas transmission with the EU's external partners, while the post-corpus topic has an emphasis on the role of gas in the internal energy market, with key words on prices and capacity (pre2, post2). Furthermore, the post-corpus is strikingly more focalised on the mandate of delivering an internal market than the pre-corpus. This is visible from topics dealing specifically with the ways the power system can be organized under a smarter system based and consumer-led Energy Union (post3, post7) and how market failures in such a system can be corrected through instruments such as cross-border capacity mechanisms (post6). Finally, both corpora display themes on research on moving to a competitive low-carbon economy. The post corpus exhibits the EU's 2016 reference scenarios, one of the Commission's key tools for climate analysis. Even if topics in the pre-corpus deal with the abatement costs in the transportation sector, the post27, post28 and post29 topics do even more so, with macroeconomic and technical analyses on decarbonisation scenarios.

6. Discussion

An LDA examination of policy topics does not reveal radical changes in the disposition of the Commission's energy policy priorities after the launch of the Energy Union. Rather, it appears that the Commission has reiterated and strengthened the focus on the energy efficiency and decarbonisation dimensions. Nonetheless, the topic structure does point to interesting incremental changes within climate and decarbonisation policy in the years leading up to the implementation phase of the Energy Union.

First, a critical discussion that our results allude to has to do with the Commission's ambition over RES and the related decarbonisation measures. While the commitment to decarbonise is clear from many topics, especially from the emphasis to assign binding emission reduction regulations on the member states, our findings point to a large degree of 'technology-neutrality' in the Commission's decarbonisation strategy (Fitch-Roy, Benson, & Mitchell, 2018). That biomass is the only standalone RES topic and renewables are otherwise tackled under an umbrella term 'renewable energy promotion and use' suggests that the Energy Union has a less prescriptive approach to RES policy development than the initial Energy Union communication leads one to believe. Promoting

Table 2. Topic labels in pre and post-corpus, categorised by Energy Union dimensions.

Energy Union dimensions	Pre-Corpus	Post-Corpus
Energy security, solidarity and trust	• Nuclear safety and radioactivity management (pre1) • Natural gas issues (pre2) • Electricity generation (pre3) • Technical security (pre4) • Operational regulations (pre5)	• Nuclear safety and radioactivity management (post1) • Gas and security of supply (post2)
A fully integrated European energy market	• Internal energy market (pre6) • Smart grid development (pre7) • Financing Projects of Common Interest (post5) • EU energy regulation networks and cooperation (post6) • Energy consumers and smart grid (post7)	• Internal energy market (post3) • Mainstreaming climate policy into EU structural funds (post4)
Energy efficiency contributing to moderation of demand	• Member state energy efficiency plans (pre8) • Energy efficiency strategy (pre9) • Energy efficiency directive in public buildings (pre10) • Nearly zero emissions buildings (pre11) • Vehicle emissions policy (pre12) • Emission reduction implementation in vehicles (pre13)	• Member state energy efficiency achievements (post8) • Member state strategy for energy renovations in buildings (post9) • Energy efficiency infrastructure (post10) • Energy efficiency and CHP (post11) • CHP and efficient heating and cooling systems (post12) • Energy labelling and eco-design for products (post13) • Household energy prices and costs (post14) • Emissions standards for light vehicles (post15) • Emissions MRV & ARV from maritime transport (post16)
Decarbonizing the economy	• Achievements of Kyoto objectives (pre14) • Member states' GHG inventories (pre15) • Renewable energy promotion and use (pre16) • Member state climate policy assessment (pre17) • Member state support and guidance for emissions reduction (pre18) • Improving the ETS (pre19) • Sustainable land-use (pre20) • Aviation regulation (pre21) • External climate support (pre22)	• Implementing Paris Agreement's GHG targets (post17) • Member state's GHG inventories (post18) • Consultation on Effort Sharing Decision (post19) • Renewable energy promotion and use (post20) • Biomass and biofuel use and production (post21) • Revision of the ETS (post22) • Auctioning of emissions allowances (post23) • Sustainable land-use (post24) • Aviation compliance to GHG reduction and Projects of Common Interest (post25) • Transport fuel quality (post26)
Research, innovation and competitiveness	• Future emissions reduction scenarios (pre23) • Roadmap vocabulary (pre24) • Modelling methodologies (pre25)	• Economic analysis of energy policies and technologies (post27) • Scenarios for transport energy use and emissions (post28) • Competitiveness of transport sector (post29)
Other	• Monitoring and verification (pre26) • Project language (pre27) • Energy measurement vocabulary (pre28) • Energy regulation and directives (pre29) • Common energy terminology (pre30)	• Implementing regulation on energy issues (post30)

Notes: See Appendix 2 for most associated words with labels.

a more technology-neutral approach is a way of granting member states different capacities and resources flexibility in how to approach their clean energy development at the national level. Nevertheless, at the same time, literature on clean energy transitions clearly argues that transforming different sectors towards sustainability requires deliberate steering from public policy, especially with technology-specific targets (Markard, 2018). Moreover, techno-neutrality runs a certain risk of leaving loopholes for RES policy development. Leaving room for interpretation on how to approach RES may encourage the development of less-polluting fossil fuels and unproven or contested technologies. For example, our findings indicate that RES use is largely discussed through biomass and biofuel production in the Energy Union. While it is a renewable energy, research has found that a widespread reliance on biomass and biofuels by the member states is not unproblematic in efforts to mitigate climate change (Soimakallio, Saikku, Valsta, & Pingoud, 2016).

However, it is interesting to note, parallel to techno-neutrality, that our findings also contain many topics on reporting mechanisms (the NEEAs and NREAPs). Indeed, the emergence of these standard and often mandatory reporting documents is not surprising, yet, they could suggest that the EC is prioritising soft governance mechanisms aimed at bringing RES and energy efficiency development goals up to their potential. Namely, it has been noted that the EC is actively using the reporting documents as policy tools to structure dialogue between the Commission and the member states (Ringel & Knodt, 2018). In this way, then, the topic structure suggests that even with a techno-neutrality approach, the EC is exercising soft power through measures of dialogue building and norm creation to promote RES development.

Second, our findings can also be reflected against discussions on potential policy convergence in the Energy Union (Szulecki et al., 2016). Interestingly, we find that energy security issues remain prevalent in the topic structure, even if there are fewer independent topics for energy security in the post-corpus. The topic model estimates that reducing dependence on oil and wider energy supply security are being increasingly dealt with under the energy efficiency and decarbonisation dimensions. For example, the focus on an energy-efficient transport sector in the Energy Union is communicated in terms of helping break oil dependence in the EU. Furthermore, our findings show that the EC's declarations about 'putting energy efficiency first' in its decarbonisation agenda has, to a large extent, trickled down to its policy document language. Although previous research has highlighted the efficiency-affordability debate as one of the major sticking points in the early discussions on the Energy Union, our results suggest that energy efficiency is not only a major topic in the documents but there are also new topics specifically on the renovation aspect of building efficiency improvement, which has been an area of heated debate. The energy efficiency paradigm also appears to have extended into addressing the affordability aspect of the concept (Cherp & Jewell, 2014) as there is a new element on providing low energy prices for consumers and households and considerations over energy poverty in the post corpus. Overall, these findings suggest that the preferences of the Western member state block on climate measures have been prioritized by the Commission to achieve policy convergence and gives ground to argue that the Energy Union is having a streamlining effect on climate-security as well as efficiency-affordability policy.

Third, we find that external climate support was replaced by internal security and security of supply considerations in the post-corpus. As foreign policy instruments on climate finance and adaptation have largely disappeared, at first glance, it appears that the ambitions to 'revitalise European energy and climate diplomacy' stated in the Energy Union's strategy have not been advanced in the policy language (EC, 2015, p. 6). While this could imply granting less policy priority to external energy and climate policy in the first phases of the Energy Union, it could also be a result of a process in which the external agenda is reframed in terms of enhancing energy security and competitiveness in the global energy markets. Schulze (2015) has found that external climate policy making is more successful and more widely legitimated by member states if multiple frames are used to promote it.

Finally, it is important to note that, while the model shows a distinct priority for decarbonisation measures, it did not generate any general topics for fossil fuels or specifically for coal. Apart from the EU ETS, which is a demand side-policy aiming to put a cap on carbon emissions and foster clean energy technologies, there is no thematic interest in the regime destabilisation side of energy transitions (Kivimaa & Kern, 2015). The model did not identify any themes on unlocking the carbon-intensive system with the so-called supply-side control policies on incumbent energy generation technology (like regulation on restricting coal or gas use) or considerations on the effects shifting away from fossil-based systems may have on incumbent industries or regional development in member states. It seems, then, that at policy document level, the Energy Union is not inclined towards actively disrupting the existing fossil fuel-based energy systems. This is critical, as a successful transitioning to clean energy is likely to require an orderly exit from incumbent technologies, especially coal (Markard, 2018). In addition, the topic model suggests that support for innovation in energy transition does not emerge as a priority: the topics falling under the 'research, innovation and competitiveness' dimension are few and mostly deal with transportation issues, with limited focus on how to achieve the outlined pathway to delivering significant emissions reductions by 2030. In summary, while the topic model analysis gives cautious support for viewing the Energy Union as an active driver of decarbonisation, our results point to some degree of scepticism regarding the transformational effect of this agenda.

7. Conclusions

This article has examined the European Energy Union's decarbonisation priorities by taking a big data approach to policy document analysis. The early stages of the Energy Union have sparked criticism over the project being an 'empty box' (covering everything and thus losing meaning), or a 'floating signifier' (where the project would be used to advance conflicting aims). However, we find that in policy language, the decarbonisation and energy efficiency dimensions are clearly major building blocks of the Energy Union, significantly more so than the other three dimensions outlined by the Commission. Hence, the Energy Union does not appear to be empty in meaning, but rather has an increasingly clear decarbonisation agenda.

Furthermore, our results further conceptual knowledge on the formation of the Energy Union. We have shown how the Commission is actively using its agenda-shaping power to promote decarbonisation objectives but that in doing so, it is opting for shallower policy prescriptions as opposed to assigning specific technological and policy solutions for RES. While this can be a sign of the EC wishing to guarantee participation of member states with conflicting agendas, it should also be viewed with caution given the risk of simultaneously encouraging the development of less-polluting fossil fuels. In addition, the Energy Union project has generated further policy convergence between climate, security and affordability. Interestingly, this has been done mainly by restructuring the European energy policy agenda to align it more with the preferences of the Western member states. Finally, and importantly, our results also suggest that the Commission is not paying close attention to phasing out incumbent fossil fuel generation technologies such as coal. Therefore, there appears to be a lack of policy interest in removing the existing high-carbon infrastructures, which is also a critical for a successful decarbonisation of the EU's energy system. As a result, caution remains over the transformational effects of the Energy Union's decarbonisation agenda.

Indeed, whether the Energy Union develops from a 'floating signifier' used to promote competing policy priorities into an active driver of decarbonisation will depend on the subsequent phases of the policy cycle, including successful implementation of the project and active climate action by member states, which our study and the topic modelling method cannot account for. Therefore, future research with more detailed qualitative approaches is needed, among others, on the decarbonisation agenda the Commissions is promoting through its soft-governance mechanisms and on how the aim of solidarity among member states is harnessed for the purpose of advancing climate aims. Tracing the (non-)development of the Energy Union's external climate and energy policy also appears to be a pivotal area for future research, especially given the current context from which we witness a simultaneous delocalisation of European industrial production to developing countries, to areas where pollution is bound to grow and where mechanisms such as adaptation finance and technology transfer would be increasingly needed. Overall, continuing to monitor the EC's policy language will be of particular importance, given the European elections in 2019 and the subsequent change of the President of the Commission, which will put the continuity of the Energy Union's decarbonisation policy under further test.

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Conflict of Interests

The authors declare no conflict of interests.

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Appendix 1

1. Topic interpretation

It is critical to consider the reliability and validity of topic modelling output in the interpretation process to guarantee the soundness of results (Grimmer & Stewart, 2013). While computational approaches are reliable in the sense that they will produce the same results each time, validity needs further consideration. As explained in section 4.3 in the manuscript, two authors interpreted the topics independently based on the 20 most probable terms of a topic as well as consulting the 10 most probable documents associated with each topic. Interpreting topic output with these two steps is an intrinsic part of the interpretation process. In addition, consulting the documents words as a validation step for semantic coherence. As two authors independently looked into both of these sources and gave a tentative label to each topic, the authors were able to compare and double-check their findings for semantic coherence. Cases of ambiguity (mostly having to do with the topic exhibiting two issue areas) were discussed among the researchers. Finally, they decided upon the final label to be given for each topic. In Table 1, we provide further evidence on the semantic validity of our results by illustrating the interpretation process. The examples show how we labelled i) topics that only exist in one of the corpora, ii) similar topics and iii) cases of ambiguity.

Table 1. Examples of topic interpretation procedure.

Example	Top 10 words	Extracts from most related documents	Topic label as assigned by authors
Topic in pre-corpus	climate, change, development, policy, action, support, carbon, research, management, sustainable	"The Global Climate Change Alliance (GCCA)…strives to support those poorer countries and regions most vulnerable to climate change by building the human, technical and financial capacity needed to mount—and surmount—the challenge." (*Integrated Climate Strategies to Climate Finance Effectiveness*) "Coordinated by the European Commission, the GCCA provides technical and financial support to developing countries to help them integrate efforts to tackle climate change into their policies and budgets." (*Adaptation Factsheet 2014*)	External climate support
Topic in post-corpus	option, options, costs, eu, cost, european, level, current, annual, national	"The European Commission today launches a public consultation on the preparation of a legislative proposal on the effort of Member States to reduce their greenhouse gas emissions to meet the European Union's emission reduction commitment in a 2030 perspective. It concerns the continuation in the period 2021-2030 of the current Decision 406/2009/EC on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020." (*Member States' Consultation Documents on ESD*)	Consultation on Effort Sharing Decision (ESD)
Same topic label in pre and post-corpus	*Pre-corpus:* nuclear, safety, data, protection, waste, risk, management, monitoring, activities, technical	*Pre-corpus:* "It is important to consider the challenge posed by radioactive waste since its management is, and will remain, a long-term issue. Even over the timescale for which surveillance of short-lived wastes is required national borders might change. This, together with potential cross-border impacts means that an international context for radioactive waste management becomes increasingly relevant with the passage of time." (*Sixth Situation Report on Radioactive Waste and Spent Fuel management In the European Union*)	*Pre-corpus:* Nuclear safety and radioactivity management
	Post-corpus: nuclear, safety, waste, management, storage, site, fuel, national, power, protection	*Post-corpus:* "Article 35 of the Euratom Treaty requires that each Member State shall establish the facilities necessary to carry out continuous monitoring of the levels of radioactivity in air, water and soil and to ensure compliance with the Basic Safety Standards1. Article 35 also gives the European Commission (EC) the right of access to such facilities in order that it may verify their operation and efficiency." (*Art. 35 Technical Report—LU 15-04*)	*Post-corpus: Nuclear safety and radioactivity management*

Table 1. (Cont.) Examples of topic interpretation procedure.

Example	Top 10 words	Extracts from most related documents	Topic label as assigned by authors
Same theme but different topic label in pre and post-corpus	*Pre-corpus:* energy, efficiency, electricity, consumption, sector, demand, european, industry, primary, generation	*Pre-corpus:* "Pursuant to Article 24(1) of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, each Member State must by 30 April of each year starting in 2013 report on the progress achieved towards national energy efficiency targets." (*Sweden's annual report pursuant to Article 24 (1) of Directive 2012/27/EU*)	*Pre-corpus:* Energy efficiency strategy
	Post-corpus: buildings, energy, building, renovation, performance, residential, construction, requirements, public, measures	*Post-corpus:* "The existing building stock is the sector providing the greatest potential for achieving energy savings, as buildings account for just over one third of all energy consumed. The Energy Efficiency Directive therefore lays down that Member States should establish a long-term strategy for mobilising investments in the renovation of the national building stock in order to increase the rate of building renovation." (*Slovenia's Long-Term Strategy for Mobilising Investments in the Energy Renovation of Buildings, 2015*)	*Post-corpus:* Member State strategy for energy renovations in buildings
Case of ambiguity whereby the topic contains two themes	united, aviation, france, kingdom, germany, air, operator, spain, european, italy	"Amending Regulation (EC) No 748/2009 on the list of aircraft operators which performed an aviation activity listed in Annex I to Directive 2003/87/EC on or after 1 January 2006 specifying the administering Member State for each aircraft operator." (*Commission Regulation (EU) 2018/336*) "The list of the projects of common interest (PCIs) by country – the (third) Union list of PCIs." (*Regulation (EU) No 347/2013*)	Aviation compliance to GHG reduction and Projects of Common Interest (PCIs)

Appendix 2

Table 2. Topic labels with 10 most probable words. Order of topics insignificant.

	Pre: Topic label with top 10 keywords		Post: Topic label with top 10 keywords
1	**Nuclear safety and radioactivity management** nuclear, safety, waste, management, storage, site, fuel, national, power, protection	1	**Nuclear safety and radioactivity monitoring** nuclear, safety, data, protection, waste, risk, management, monitoring, activities, technical
2	**Natural gas issues** gas, eu, european, commission, market, supply, infrastructure, security, europe, countries	2	**Gas and security of supply** gas, price, market, prices, storage, supply, eu, oil, capacity, natural
3	**Internal energy market** price, market, electricity, prices, total, gas, demand, generation, chp, power	3	**Internal energy market** capacity, market, generation, demand, price, power, cross, markets, electricity, border
4	**Operational regulations** law, oil, environment, act, gas, activities, economic, financial, authority, section	4	**EU energy regulation networks and cooperation** article, commission, directive, regulation, european, union, ec, energy, eu, council
5	**Smart grid development** smart, system, grid, network, data, market, information, management, systems, transmission	5	**Energy consumers and smart grid** electricity, energy, smart, consumers, system, distribution, network, grid, demand, market
6	**Member state energy efficiency plans** allocation, commission, directive, allowances, plan, national, installations, emissions, decision, total	6	**Member state energy efficiency achievements** energy efficiency, savings, measures, consumption, public, article, implementation, saving, measure
7	**Energy efficiency strategy** energy, efficiency, electricity, consumption, sector, demand, european, industry, primary, generation	7	**Member states strategy for energy renovations of buildings** heat, heating, cooling, potential, demand, electricity, district, chp, gas, efficiency
8	**Energy efficiency directive in public buildings** energy, savings, efficiency, measures, consumption, measure, public, sector, saving, buildings	8	**Energy efficiency infrastructure** energy, heating, system, consumption, buildings, heat, electricity, systems, primary
9	**Nearly zero emissions buildings** energy, buildings, building, performance, requirements, residential, heating, renewable, national, article	9	**Energy Efficiency and CHP** energy, heat, consumption, gross, electricity, plants, chp, final, data, generation
10	**Technical security** information, requirements, assessment, report, national, protection, safety, design, risk, response	10	**CHP and efficient heating and cooling systems** buildings, energy, building, renovation, performance, residential, construction, requirements, public, measures
11	**Vehicle emissions policy** emissions, vehicles, km, cars, average, vehicle, target, reduction, diesel, manufacturers	11	**Transport fuel quality** fuel, fuels, diesel, directive, oil, quality, report, biofuels, transport, content
12	**Emission reduction implementation in vehicles** fuel, vehicle, vehicles, emissions, transport, consumption, test, type, cars, road	12	**Emissions standards for light vehicles** vehicle, vehicles, emissions, cars, mass, fuel, reduction, data, average, km
13	**Aviation regulation** allowances, aviation, account, period, trading, operators, operator, volume, emissions, national	13	**Aviation compliance to GHG reduction and Projects of Common Interest** united, aviation, france, kingdom, germany, air, operator, spain, european, italy
14	**Achievements of Kyoto objectives** emissions, eu, climate, change, countries, measures, european, kyoto, greenhouse, emission	14	**Implementing Paris Agreement's GHG targets** eu, energy, emissions, policy, targets, policies, climate, sector, ghg, emission
15	**Member states' GHG inventories** emissions, gas, ghg, emission, report, greenhouse, data, inventory, reporting, carbon	15	**Member state's GHG inventories** reporting, emissions, data, ms, report, review, reported, eu, monitoring, national

Table 2. (Cont.) Topic labels with 10 most probable words. Order of topics insignificant.

	Pre: Topic label with top 10 keywords		Post: Topic label with top 10 keywords
16	**Member state support and guidance for emissions reduction** production, installations, heat, installation, united, allocation, product, emissions, operator, ets	16	**Consultation on Effort Sharing Decision** option, options, costs, eu, cost, european, level, current, annual, national
17	**Renewable energy promotion and use** energy, renewable, res, support, national, sources, electricity, scheme, plan, development	17	**Renewable energy promotion and use** renewable, energy, res, electricity, support, sources, production, wind, grid, biofuels
18	**Member state climate policy assessment** energy, measures, government, efficiency, tax, policy, ministry, national, sector, electricity	18	**Mainstreaming climate policy into EU structural funds** climate, change, action, support, programme, programmes, development, actions, management, specific
19	**Improving the ETS** eu, emissions, cost, option, ets, cost, options, market, impact, carbon	19	**Revision of the ETS** ets, carbon, eu, allowances, allocation, emissions, free, costs, installations, revenues
20	**Future emissions reduction scenarios** scenario, costs, cost, baseline, analysis, scenarios, potential, impact, model, reduction	20	**Auctioning of emissions allowances** volume, allowances, price, average, total, market, period, trading, month, successful
21	**Electricity generation** electricity, power, sources, plants, production, renewable, plant, mw, energy, capacity	21	**Biomass and biofuel use and production** production, biomass, emissions, eu, land, ghg, carbon, biofuels, energy, supply
22	**Sustainable land-use** biomass, heat, production, land, energy, heating, wood, waste, potential, fuel	22	**Sustainable land-use** land, mitigation, agricultural, emissions, policy, management, potential, agriculture, action, cap
23	**External climate support** climate, change, development, policy, action, support, carbon, research, management, sustainable	23	**Financing Projects of Common Interest** energy, project, projects, european, investment, development, financial, investments, finance, eu
24	**Energy regulation and directives** article, directive, commission, european, ec, union, regulation, accordance, referred, official	24	**Implementing regulation on energy issues** values, test, regulation, power, fuel, speed, input, european, type, consumption
25	**Energy measurement vocabulary** kwh, water, gwh, kg, plan, mw, power, total, temperature, air	25	**Energy labelling and eco-design for products** energy, products, total, product, air, water, space, efficiency, heat, heating
26	**Monitoring and verification** data, monitoring, verification, reporting, section, operator, report, guidance, activities, eu	26	**Household energy prices and costs** energy, data, eu, consumption, countries, households, share, country, european, sector
27	**Modelling methodologies** data, directive, model, policy, level report, sector, approach, factors, results	27	**Economic analysis of energy policies and technologies** cost, costs, scenario, model, scenarios, analysis, energy, impact, technology, results
28	**Roadmap vocabulary** eu, transport, ghg, carbon, ets, scenario, reference, policies, growth, energy	28	**Scenarios for transport energy use and emissions** energy, transport, electricity, gas emissions, oil, generation, res, total, gross
29	**Common energy terminology** energy, transport, gas, oil, gross, electricity, generation, nuclear, indicators, consumption	29	**Competitiveness of transport sector** eu, costs, market, evaluation, cost, impacts, study, impact, legislation, competitiveness
30	**Project language** project, projects, development, financial, funding, capacity, support, eur, financing, implementation	30	**Emissions monitoring, verification and accreditation from maritime transport** information, relevant, system, data, requirements, article, monitoring, operator, compliance

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Article

What Drives the Participation of Renewable Energy Cooperatives in European Energy Governance?

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Abstract
What determines the willingness of renewable energy cooperatives (RECs) to strengthen their involvement in politics at the different levels of governments (local/regional, national, transnational)? We address this research question by using data from an original survey distributed to RECs in Germany. The descriptive analysis shows that the RECs are less willing to participate in energy governance at the EU/transnational level than at the national and especially the subnational level. Our analytical findings, first, show that the odds of RECs to participate in governance processes in the future are greater for those RECs that are already involved in such processes. Put differently, we find that engagement in energy governance is affected by path-dependence. Second, participation in subnational governance processes is determined by dissatisfaction with policy decisions taken at that level: the more dissatisfied the respondents, the more likely they are to exert influence in the future. For the Energy Union to realise its aim of incorporating a broader range of stakeholders, the European Commission must highlight the opportunity structure it provides for participating in governance processes.

Keywords
energy cooperatives; Energy Union; Germany; governance; renewable energy; survey data

Issue
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1. Introduction

In 2015, the European Commission published its Communication on the Energy Union, which calls for a transformation of Europe's energy governance system (European Commission, 2015). In 2016, a package of accompanying policy measures ("Winter Package") was presented (see Ringel & Knodt, 2018). The Energy Union represents an ambitious project, which draws on the four pillars of EU energy policy: the functioning of the energy market, the security of supply, the promotion of energy efficiency and renewable energy, and the interconnection of energy networks (see, e.g., Tosun, Biesenbender, & Schulze, 2015). In addition, the Communication calls for speaking with one voice in international negotiations and assigns citizens an important role in the energy transition, that is a long-term structural change in energy systems to replace energy produced from non-renewable resources by renewable ones (see, e.g., Aklin & Urpelainen, 2018; Cherp, Jewell, & Goldthau, 2011; Fraune & Knodt, 2017, 2018; Unnerstall, 2017; Verbong & Loorbach, 2012). The European Commission's framework is remarkable, not least for its attempt to further strengthen the role citizens play in energy policy. The Communication that lays

out the framework strategy states that the European Commission's vision of an Energy Union is one "with citizens at its core, where citizens take ownership of the energy transition" (European Commission, 2015, p. 2).

There exist two basic ways of interpreting this role assigned to citizens in the context of the energy transition. First, citizens can play an active role in energy transition by joining local renewable energy projects, among which renewable energy cooperatives (RECs) represent a particularly prominent form (Kalkbrenner & Roosen, 2016; Moss, Becker, & Naumann, 2015; Yildiz et al., 2015). RECs are based on business models where citizens jointly own and participate in renewable energy projects. RECs are characterised by open membership, democratic member control, economic participation through direct ownership, independence, cooperation among other cooperatives, and concern for the community. Second, citizens can play a more passive role by (not) accepting the implementation of local-level renewable energy projects such as the creation of wind parks (Fraune & Knodt, 2017, 2018; Scherhaufer, Höltinger, Salak, Schauppenlehner, & Schmidt, 2017).

In this study, we are interested in RECs as organisations that consist of citizens who join them voluntarily (see, e.g., Radtke, 2014). The literature on the determinants of citizens' willingness to join a REC is insightful. Kalkbrenner and Roosen (2016), for example, stress the importance of social norms, trust, environmental concern and community identity as important factors affecting the citizens' willingness to participate in RECs. We do not aim to contribute to that perspective. Instead, and in line with the aims and scope of this special issue, we consider RECs as collective actors and investigate their willingness to exert political influence. Put differently, we adopt a governance-oriented approach to RECs and examine their (potential) role in a broader institutional setting.

What determines the willingness of RECs to strengthen their involvement in politics at the different levels of governments (local/regional, national, transnational)? This is the research question that guides our analysis. The answer to this question provides important insights concerning the Energy Union's goal to strengthen the citizens' ownership of the energy transition, since citizen-based RECs play an important role in the energy transition. The European Environment Agency (2017, p. 13), for example, recognises RECs as key actors in energy governance. In Germany, RECs account for about 55% of the community-based energy sector (Kahla, Holstenkamp, Müller, & Degenhart, 2017, p. 16), which makes them important actors in energy governance. In this context, we examine Germany-based RECs' willingness to participate in energy governance at the local/regional, national, and transnational levels. We use data from a survey of the executive boards of RECs in Germany, collected in 2016/2017, that produced complete responses from 174 RECs.

The remainder of this study unfolds as follows. First, we provide some background information on how the EU's energy governance has developed and to what extent citizens are now invited to participate in governance. Next, we turn to the European Federation of RECs (REScoop.eu) to show that an interest group representing RECs and their members has already been set up. We then develop a theoretical argument on the determinants of the willingness of RECs to exert political influence. The theory section is followed by the empirical analysis and a discussion of the findings. The final section then provides some concluding remarks and suggestions for future research.

Our empirical analysis reveals two important findings. First, a powerful predictor for RECs to exert influence in the future is their current involvement in governance processes. Second, dissatisfaction with policy decisions taken at the local level increases the odds of RECs to consider involvement in subnational governance processes. Concerning the other political levels, our analysis does not find that the level of dissatisfaction matters.

2. What Role to Play for Renewable Energy Cooperatives in the Energy Union?

In this study, we seek to offer an analysis of how RECs participate in European energy governance. We define energy governance as energy-related activities by state actors that is complemented by a multilevel and a multi-actor process (Bazilian, Nakhooda, & Van de Graaf, 2014, p. 219). In the case at hand, the multilevel system consists of state and non-state actors that are active at the local/regional, national, and transnational/European levels. The multi-actor component refers to the interaction between different types of state actors (e.g., federal governments and regional governments) as well as their interaction with non-state actors, such as non-governmental organisations (NGOs) or citizen-based organisations such as RECs.

The point of departure for this analysis is the Energy Union, which the European Commission launched in February 2015 and which seeks to establish a new form of energy governance in the EU. The idea of founding an Energy Union was introduced by Donald Tusk when he was still Prime Minister of Poland, which aligns with the country's continued concerns over disruptions in energy supply (see Marcinkiewicz & Tosun, 2015). The European Commission's (2015, p. 4) strategy for realising the Energy Union builds on the following five dimensions:

- Energy security, solidarity and trust;
- A fully integrated European energy market;
- Energy efficiency contributing to moderation of demand;
- Decarbonising the economy; and
- Research, innovation and competitiveness.

The mutual realisation of these five dimensions is expected to increase the EU's energy security, its sustainable development and competitiveness. The Communi-

cation is remarkable in the sense that it frequently mentions citizens; in fact, citizens are often highlighted as the beneficiaries of the Energy Union. However, the European Commission (2015, p. 2) also stresses that it expects citizens to "take ownership of the energy transition". Consequently, in its section on the governance of the Energy Union, the communication stipulates the need to establish arrangements that facilitate "an energy dialogue with stakeholders to inform policy-making and support active engagement in managing the energy transition" (European Commission, 2015, p. 18). In other words, the Commission invites citizen-based organisations to become involved in energy governance.

The Energy Union is a new umbrella that brings together the elements of EU energy policy into an integrated approach, as well as a continuing process since, when the concept was adopted, it was still an "empty box" (Szulecki, Fischer, Gullberg, & Sartor, 2016). A step towards the realisation of the Energy Union is the "Clean and Secure Energy for All Europeans"-Package or "Winter" Package published in November 2016, which also contains a proposal for the "Regulation on Governance of the Energy Union" (European Commission, 2016a, 2016b; for a discussion, see Ringel & Knodt, 2018; Szulecki et al., 2016). Another important instrument is the annual progress reports prepared by the European Commission. In the most recent report, the European Commission (2017, p. 1) stated, "[n]ow is the time to mobilise all of society—citizens, cities, rural areas, companies, academia, social partners—to take full ownership of the Energy Union, take it forward and engage in developing the solutions of the future".

Despite mentioning the importance of citizen-based organisations in realising the Energy Union's goals, the strategic documents produced by the European Commission to date abstain from specifying what role citizens are exactly expected to play in the emerging governance arrangements. The lack of definitional clarity might prove problematic, since individual citizens or citizen-based organisations may not feel addressed if the Commission does not extend an invitation for their involvement and engagement.

Additionally, participation of citizen-based organisations, such as RECs, in energy governance may be inhibited by transaction costs (see Coase, 1988; Dahlmann, 1979; North, 1992; Williamson, 1981). Building on the original notion of transaction costs as associated with the work of Coase (1988), Tosun, De Francesco and Peters (2018) argue that policies, despite representing one specific form of an institution, can fail to lower transaction costs if they are ambiguous. Therefore, not only the existence, but also the design of institutions matters for stimulating efficiency (see also Coase, 1988). Applying this argument to the case of the Energy Union, the Commission is unlikely to attain its goal of increasing the involvement of stakeholders in energy governance if it does not detail how participation is to be facilitated. In other words, if RECs must invest to learn about their opportunities for participation, they may lack the capacity and/or willingness to become involved once they have gathered all necessary information. Thus, by defining the formats as precisely as possible, the Commission will be in a position to reduce the transaction costs and better stimulate stakeholder involvement in energy governance.

Szulecki et al. (2016) interpret the vagueness in the conceptualisation of the Energy Union differently. To these authors, the lacking details provide an opportunity structure for the various actor groups to participate in the process and to shape the institutional design in a way that reflects their own preferences. This perspective is equally plausible; but when looking at the different stakeholder groups, including RECs, they may lack the capacity and/or power to make such strategic use of the situation and to push for the realisation of their respective preferences concerning the institutional design of the Energy Union.

3. European Federation of Renewable Energy Cooperatives

In this section, before turning to the presentation of our theoretical argument, we discuss the most pertinent type of transnational networks active in the field of EU energy governance. Set up in 2013, REScoop.eu is the European Federation of RECs, which currently comprises about 1,500 RECs. The organisation offers a platform to citizens who engage in energy cooperatives and strives to aggregate and articulate their interests towards EU policy-makers. REScoop.eu recognises full and associated members; both types of members are involved in energy governance processes.

The federation is governed by a board of directors, which is elected by the general assembly for a four-year term, with the members being eligible for re-election. The board takes decisions related to policy, strategy and planning, as well as controls the budgets and supervises the coordinator. The general assembly comprises all members, including both full members and associate members. Full members have voting rights and are either individual RECs or national or regional federations. Associate members do not have voting rights and are non-governmental organisations, associations, companies or individual citizens.

The organisational purpose of the federation is twofold: on the one hand, REScoop.eu provides guidance on best practices and seeks to stimulate learning processes among RECs; on the other, it formulates position documents with a view to impact policy-making. REScoop.eu also participates in the EU-funded Horizon 2020 project "Renewable Energy Cooperatives Mobilizing European Citizens to Invest in Sustainable Energy" (REScoop MECISE) as well as other Horizon 2020 projects (see Huybrechts, Creupelandt, & Vansintjan, 2018), which shows how strongly the organisation is rooted in the EU.

Table 1 gives an overview of REScoop.eu members, broken down into full and associate members. It is im-

portant to remember that many individual energy cooperatives are members of REScoop.eu through their national federation, that is, they are represented indirectly. Among the full members are national and regional federations of RECs and individual cooperatives. When examining the table, it becomes apparent that German RECs are well represented in the network through the German Cooperative and Raiffeisen Confederation (DGRV). According to the most recent survey (see Fischer & Wetzel, 2018), the number of RECs in Germany equalled 928 in 2015, whereas the DGRV (2017) represented 862 RECs by the end of 2017. Although both take into account new foundations since 2006 please note that the figures from Fischer and Wetzel (2018) and DGRV (2017) are not fully comparable due to different timescales and different accounting methods. We cannot, for instance, preclude that the DGRV (2017)—although only a negligible share—takes non-REC cooperatives into account. From correspondence with REScoop.eu (Creupelandt, 2018, personal communication), we conclude that all RECs represented by the DGRV are also represented in REScoop.eu. If we consider the number of RECs identified by Fischer and Wetzel (2018), we can still confirm that more than 90% of the German energy cooperatives are—at least indirectly—represented in this particular network. Both are impressive numbers and suggest that it is worth looking at RECs in Germany in detail (see also Klagge & Meister, 2018).

Another country that is well represented in the network is the United Kingdom, followed by energy cooperatives in the Netherlands, Belgium, Spain, Italy, and Switzerland. Croatia, Denmark, France, Greece, Ireland, and Portugal participate in the REScoop.eu by means of individual energy cooperatives. Turning to the three associate members, these are the EMES research network of university research centres and individual researchers on social enterprise in Belgium, ALIenergy (an energy agency) in the United Kingdom, and BBEn (a citizen energy alliance) in Germany.

In the following sections, we will concentrate on German RECs for the following three reasons. First, RECs exist in large numbers in Germany (Kahla et al., 2017). Second, RECs represent an "important building block in the energy transition in Germany" (Yildiz et al., 2015, p. 59). Third, as shown above, RECs in Germany are widely represented in transnational networks, which suggests that we can draw particularly valuable insights concerning the RECs' willingness to participate in EU energy governance.

4. Theoretical Considerations and Hypotheses

The research interest of this study concerns the conditions under which RECs become willing to engage in energy governance at the subnational, national and EU levels. We assume RECs—similar to other strategic actors—to be sensitive to the expected costs and benefits of becoming involved in governance arrangements. In most cases, RECs are managed by volunteers with limited capacity (see e.g., Herbes, Brummer, Rognli, Blazejewski, & Gericke, 2017; Müller et al., 2015; Radtke, 2014), which make considerations of costs and benefits particularly pertinent for explaining the (intended) behaviour of RECs. Consequently, RECs are likely to become involved in governance arrangements if the expected benefits exceed the expected costs. The benefits of participating in energy governance for RECs primarily consist of the possibility to influence policy decisions in such a way that renewable energy projects can be implemented more easily and under more favourable conditions. Since the Energy Union is currently under construction (see Ringel & Knodt, 2018), we are interested in the determinants of future involvement in energy governance rather

Table 1. Overview of REScoop.eu members, 2018.

	Full members		
	Federations	Individual	Associate members
Belgium	25	5	1
Croatia		1	
Denmark		1	
France		3	
Germany	850*	2	1
Greece		3	
Ireland		2	
Italy	20	4	
Netherlands	56	1	
Portugal		1	
Spain	17	5	
Switzerland	20		
United Kingdom	198	3	1

Notes: Own elaboration based on https://www.rescoop.eu/members (last access 6 October 2018). *Note the particularity for Germany that RECs are represented in REScoop.eu through their membership in the DGRV. According to the DGRV (2017), by the end of 2017, there existed 862 RECs in Germany. To avoid confusion, in the table we only report the figures retrieved from the website of REScoop.eu.

than current engagement. Further, our analysis examines the three levels at which RECs could become involved, namely the subnational, national and EU levels.

The current level of engagement is, however, an important factor for explaining future activities—as studies on organisational behaviour rooted in historical institutionalism also argue (see Thelen, 1999). We expect those RECs that are already active to be more likely to participate in governance arrangements in the future as well. This expectation is informed by the variation in the transaction costs (Coase, 1988), which comprise costs related to searching and processing information, bargaining, and monitoring and enforcement (Dahlman, 1979, p. 148). By reducing transaction costs, for example by creating appropriate institutions (North, 1992), decision-making can become more efficient (Williamson, 1981). The transaction costs should be low for RECs that already participate in governance at a given political level, but higher for RECs that do not participate in governance arrangements at the same political level. In other words, investing once in gathering information about the existence and functioning of governance arrangements generates "increasing returns" (Pierson, 2000), which explains why RECs that already participate in energy governance are also more likely to participate in it in the future. This reasoning paves the way for our first hypotheses:

> H1a: RECs that currently participate in governance arrangements at the subnational level are more likely to participate in such governance arrangements in the future.
> H1b: RECs that currently participate in governance arrangements at the national level are more likely to participate in such governance arrangements in the future.
> H1c: RECs that currently participate in governance arrangements at the EU level are more likely to participate in such governance arrangements in the future.

The first hypothesis focuses on the transaction costs associated with participating in governance arrangements but does not take into account the fact that RECs can choose between multiple venues for their engagement in EU energy policy, that is, the subnational, national and transnational/EU levels. To formulate hypotheses, we can think of RECs as advocacy organisations that strategically select one or more venues for participating in energy governance (see Holyoke, Brown, & Henig, 2012). The EU's multilevel system offers multiple points of access or opportunity structures (Princen & Keremans, 2008) to RECs that are willing to participate in energy governance. Some RECs should have the capacity (i.e., funding and personnel; Eising, 2007) to be active at the various levels of the EU political system (Eising, 2008), whereas RECs with limited capacity must choose in which institutional level they want to participate in governance activities, if any. While we need to take capacity into account when fitting our estimation models, this variable cannot explain which of the three levels available—subnational, national, transnational/EU—will be chosen by RECs.

A variable that has a greater potential for explaining the selection of a political venue is satisfaction. According to Hadjar and Beck (2010), political interest and participation is generated by dissatisfaction with policy decisions. Following this reasoning, we expect that RECs—which are generally limited in their resources—will select the political level with which they are unsatisfied for participating in governance processes. A similar argument is put forward by Pleines (2010, p. 241), who explains that civil society organisations from Central and Eastern Europe are heavily involved in governance processes at the EU level since they are dissatisfied with EU policies. Drawing from these considerations put forward in different literatures (interest group behaviour and political participation), we formulate the following hypotheses:

> H2a: RECs that are dissatisfied with policy decisions at the subnational level are more likely to participate in governance activities at that level in the future.
> H2b: RECs that are dissatisfied with policy decisions at the national level are more likely to participate in governance activities at that level in the future.
> H2c: RECs that are dissatisfied with policy decisions at the EU level are more likely to participate in governance activities at that level in the future.

5. Data and Methods

This analysis is based on an original dataset constructed by using data from an online survey administered between November 2016 and March 2017. Drawing from the website www.energiegenossenschaften-gruenden.de, we identified a total number of 762 RECs to form the population, which left us with a figure smaller than the 928 RECs identified by Fischer and Wetzel (2018). Of the 762 RECs, we could only find contact details in the form of email addresses for 616. In November 2016, we contacted the executive board members of these RECs via email and invited them to participate in the online survey. The RECs were contacted a second time in December 2016 and a third time in January 2017 to remind them of the survey and to re-extend our invitation. Of the 616 RECs to receive an email invitation, 174 management board representatives completed the online survey for their REC, which corresponds to a response rate of 28%. It is important to remember that the data collected reflects the perspective of the REC executive board members only and that asking the individual members could have produced different answers (Holstenkamp & Kahla, 2016). Since we are interested in strategic decisions made by RECs, approaching the executive board members appeared an adequate strategy. The

responses were treated anonymously according to the relevant German data protection laws.

Before fielding the online survey programmed in Lime Survey, it was pretested in September and October 2016 with 10 students and three selected representatives of two local RECs for checking the comprehensiveness, meaningfulness and length of the questions. While we did not receive any critical response regarding the length of the questionnaire, we changed the wording of some questions to make them more intuitive in light of the feedback we received. For instance, while we are interested in participation in governance processes, the pretest of the survey questionnaire revealed that "exerting influence" is the proxy for this construct, which is best understood by the respondents.

In what follows, we analyse the following questions as outcome variables, which comprise the response categories "yes", "no", "don't know" as well as "no response":

- Is your cooperative intending to exert influence at the community level in the future?
- Is your cooperative intending to exert influence at the regional level in the future?
- Is your cooperative intending to exert influence at the federal level in the future?
- Is your cooperative intending to exert influence at the European level in the future?
- Is your cooperative intending to exert influence at the transnational level in the future?

We deleted the latter two response categories ("don't know" and "no response") to construct a binary outcome variable that takes the value 1 if a level was mentioned and 0 if not mentioned. We combined the community level and the regional level to generate the outcome variable *Subnational Future* (1 if either or both were mentioned, 0 if not). The question on the federal level is the second outcome variable *National Future*. For the third outcome variable, *EU/transnational Future*, we combined the European and the transnational levels (1 if either or both were mentioned, 0 if not).

Table 2 presents the response patterns we obtained for the intention to participate at the various levels—subnational, national, and EU/transnational—in the future (outcome variables) and the current engagement (one of the focal explanatory variables, which is also binary). There are several observations in the table worth noting. The first one refers to the low share of respondents (12%), indicating that they currently exert influence at the EU/transnational level. Recalling Table 1 and the information provided in section 3 (that German RECs are automatically members of REScoop.eu), the response pattern suggests that most RECs are not aware of their potential to exert influence at the EU/transnational level. This mismatch between the membership in REScoop.eu and the RECs awareness of it can be explained by their indirect membership through the DGRV. If they exert influence, with most RECs (72%) it is at the subnational level, followed by the national level with 27%. Note that the respondents could indicate multiple political levels at which they exert influ-

Table 2. Overview of current and future influence by German RECs.

Variables	No (= 0) Absolute numbers Percentage	Yes (= 1) Absolute numbers Percentage	Descriptive statistics
Subnational Current	48 27.59%	126 72.41%	N = 174, Mean = 0.724, Standard Deviation = 0 .448
Subnational Future	25 14.37%	149 85.63%	N = 174, Mean = 0.856, Standard Deviation = 0.352
National Current	119 73.01%	44 26.99 %	N = 163, Mean = 0.270, Standard Deviation = 0.445
National Future	67 47.86%	73 52.14%	N = 140, Mean = 0.521, Standard Deviation = 0.501
EU/transnational Current	153 87.93%	21 12.07%	N = 174, Mean = 0.121, Standard Deviation = 0.327
EU/transnational Future	134 77.01%	40 22.99%	N = 174, Mean = 0.230, Standard Deviation = 0.422
Current	47 27.01%	127 72.99%	N = 174, Mean = 0.723, Standard Deviation = 0.445
Future	24 13.79%	150 86.21%	N = 174, Mean = 0.862, Standard Deviation = 0.346

Note: The numbers reported refer to the 174 RECs that completed the survey; incomplete and partly completed surveys were disregarded.

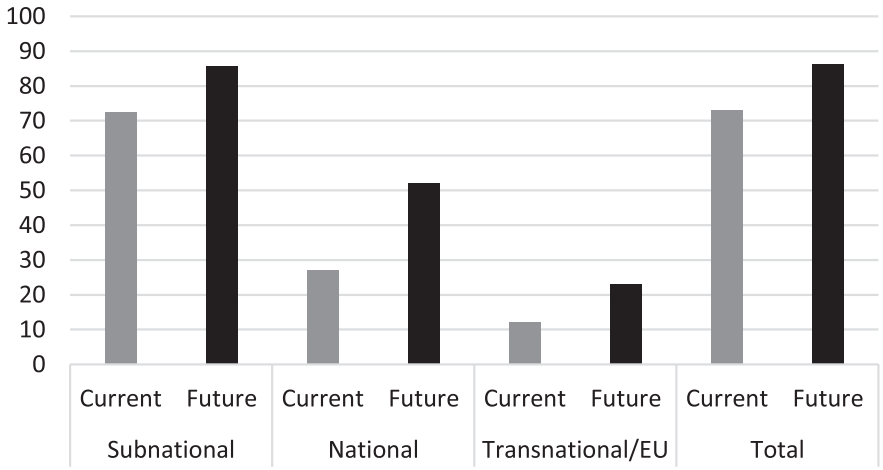

Figure 1. Bar graph of the current and future influence of RECs.

ence. Regarding future influence, it is again the subnational level where 86% of the RECs intend to become active, followed by the national level (52%) and then the EU/transnational level (23%). Figure 1 offers a visualisation of the numbers reported in table 2.

The second set of focal explanatory variables refers to the degree of dissatisfaction with renewable energy policy decisions at the subnational, national and EU levels. The response categories range from 4 (= very unsatisfied) to 1 (= very satisfied). We treated "don't know"-replies as missing data.

In addition to the two sets of focal explanatory variables, current influence and dissatisfaction with policy decisions taken at the various political levels, we include a number of control variables. As discussed in the theory section, the literature on interest group behaviour suggests that capacity plays an important role (see, e.g., Eising, 2007). Therefore, the RECs' willingness to participate in governance processes and exert influence should depend on their *Age* (in years; reference year = 2017), which is a rough indicator of how established and professional they are. *Membership* Size, in eight categories, 1 (smaller than 50) to 8 (greater than 1000), is equally important for assessing the capacity of RECs, since we expect RECs with a greater membership size to benefit from more personnel and to be in a better position to seek influence in the future. Likewise, the RECs' *Investment* volume (ranging from 1 = below 200.000 EUR to 4 = above 3 million EUR) is an indicator of their organisational capacity. Furthermore, we need to control for the self-understanding of the individual RECs, in the sense of whether they seek *Political Engagement* at all (1 = yes, 0 = no) and whether influencing political decisions is the most important goal (1 = yes, 0 = no) of the respective REC. Thus the control variables relate to capacity and *Political Ambition* of the RECs, which aligns with the literature on interest group advocacy in multilevel systems (Eising, 2008). Table 4 reports the summary statistics for the individual explanatory variables, excluding the first set of focal explanatory variables as they are already presented in Table 2. The wording of the questions used for the operationalisation of all variables can be found in Table A3 (Annex).

In the next section, we will estimate logistic regression models for the first two outcome variables. Since we cannot estimate conventional logistic regression models for future engagement at the EU level due to the markedly unequal distribution of the values, the chosen method is penalised maximum likelihood estimations as put forth by Firth (1993). Observing very few events of interest is not a problem per se, and, in many cases, estimating regular logistic regression models does not produce biased results. With the data at hand, however, the problem of rare events is paired with a small

Table 4. Descriptive statistics.

Variable	N	Mean	Std. Dev.	Min	Max
Subnational Dissatisfaction	171	2.611	.703	1	4
National Dissatisfaction	174	3.552	.650	1	4
EU Dissatisfaction	156	3.391	.658	1	4
Age	174	5.914	2.447	1	22
Membership	173	3.497	1.662	1	8
Investment	172	2.459	1.099	1	4
Political Engagement	174	.937	.244	0	1
Political Ambition	174	.086	.282	0	1

number of observations. Since estimates based on unconditional maximum likelihood functions tend to become inaccurate when confronted with a small number of cases, we need to implement the correction offered by Firth's estimator.

6. Presentation and Discussion of the Results

We now turn to the empirical testing of the hypotheses put forward in Section 4. Table 5 presents the findings of the logistic regressions (estimated according to Firth's approach for the third outcome variable). The table presents two models per outcome variable: one variable with the focal explanatory variables only (Basic) and a second one that includes the control variables (Full). The models differentiate between the subnational (Sub), national (Nat), and EU/transnational (EU) levels. For a better interpretation of the estimation results, odds ratios are reported. Odds ratios greater than 1 indicate that the odds for a given outcome are higher, whereas odds ratios smaller than 1 indicate that the odds are lower. As we can infer from the table, the odds of RECs to exert influence at the subnational level is 65 times higher for RECs that already exert influence at that level. For the national level, the odds are 37 and 50 times higher for RECs to exert influence at that level. Likewise, current exertion of influence at the EU level increases the odds for future engagement at that level by 74 and 71 times. Consequently, the empirical findings support hypotheses H1a–H1c. Regardless of the respective political level, the current engagement in governance arrangement is a strong predictor of future engagement.

Turning to the second set of explanatory variables, dissatisfaction with policy decisions taken at the subnational level increases the odds of RECs to seek influence in the future at the same political level, which supports H2a. Figure 2 presents the predicted probabilities for the RECs to answer that they intend to exert influence at the subnational level in the future and how the probability changes with the degree of satisfaction with subnational policy decisions. The estimates are based on the models Sub-Basic and Sub-Full in Table 5. While the probability that a REC will seek to exert influence at the subnational level in the future begins with .62 (Sub-Basic) and .70 (Sub-Full), respectively, it increases with growing dissatisfaction with the policy decisions taken at that level. The probabilities vary for the first three values of dissatisfaction for the two model specifications, but converge with values greater than 2. It should also be noted that, for the values smaller than 2, the 95% confidence inter-

Table 5. Results of the logistic regression models for the three outcomes variables.

	Sub-Basic	Sub-Full	Nat-Basic	Nat-Full	EU-Basic	EU-Full
Subnational Current	64.74	64.43				
	(54.46)***	(59.92)***				
National Current			36.98	49.76		
			(28.50)***	(41.80)***		
EU/transnational Current					74.15	71.12
					(64.79)***	(67.48)***
Subnational Dissatisfaction	3.72	3.49	1.14	1.46	1.46	1.62
	(1.94)**	(1.95)**	(0.37)	(0.54)	(0.52)	(0.65)
National Dissatisfaction	1.39	1.28	1.55	2.18	0.93	1.09
	(0.84)	(0.83)	(0.68)	(1.10)	(0.46)	(0.58)
EU Dissatisfaction	0.76	0.83	0.83	0.78	1.31	1.22
	(0.47)	(0.55)	(0.35)	(0.36)	(0.63)	(0.58)
Age		1.18		0.93		0.88
		(0.20)		(0.12)		(0.12)
Membership		0.93		0.73		0.74
		(0.25)		(0.14)*		(0.15)
Investment		0.85		2.30		1.50
		(0.32)		(0.74)***		(0.45)
Political Engagement		1.12		3.56		3.05
		(1.10)		(4.39)		(4.52)
Political Ambition		—		1.90		0.63
				(1.94)		(0.80)
Cases	154	140	123	121	154	151
AIC	76.97	82.01	129.94	129.09	109.59	103.62

Notes: The table reports odds ratios; the models for the EU are estimated with the Firth correction; in Model Sub-Full, the odds ratios for political ambition are omitted from the estimation routine because of this variable's dependence on other variables in the model. Table A6 in the Annex contains a fourth model that uses the total share of positive replies by REC executive board members regardless of the political level as an outcome variable. * $p < 0.10$, ** $p < 0.05$; *** $p < 0.01$.

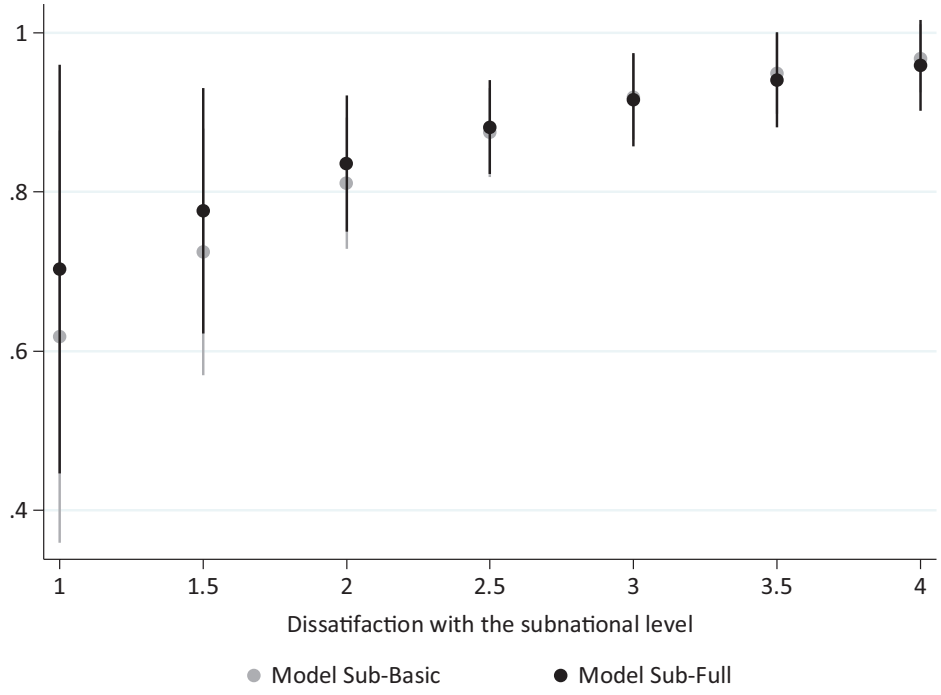

Figure 2. Predicted probabilities for future engagement at the subnational level with 95% confidence intervals for the models Sub-Basic and Sub-Full.

vals are also comparatively great, which can be explained by the smaller number of observations for these categories. Alternative specifications of the estimation models reported in Tables A7 and A8 (Annex) confirm the importance of dissatisfaction with the subnational level for the RECs' intentions of becoming active in governance arrangements in the future. For the other political levels, we do not find any empirical support in the models and therefore must reject hypotheses H2b–H2c.[1]

With regard to the control variables, it is worth noting that they do not produce significant odds ratios. Only in Model Nat-Full is the odds ratio significant at the 10%-level and smaller than 1, indicating that a greater membership size reduces the odds of exerting influence in the future at the national level. When inspecting the Akaike Information Criterion (AIC), we can also see that the control variables do not always improve the fit of the models. Since smaller AIC values indicate a better fit, we can note that Model Sub-Basic performs better than Model Sub-Full. For the second outcome variable, the improvement in the model fit is minimal, but for the third outcome variable the control variables indeed improve the model fit.

To summarise, we can conclude that the empirical findings support hypotheses H1a–1c and H2a. The empirical findings corroborate the importance of the current engagement in governance arrangements for future engagement as well as the mobilisation power of dissatisfaction with policy decisions taken at the subnational level for the odds of RECs to consider exerting influence in the future. We consider both findings relevant for the European Commission's intention of increasing the participation of stakeholders in energy governance in the context of the Energy Union. First, we observe a path-dependent process, which may lead to a selective participation of (German) RECs in EU energy governance. Second, it is dissatisfaction (at the subnational level) that mobilises RECs rather than satisfaction, which also suggests that (German) RECs will consider carefully whether to become involved in energy governance (at the subnational level).

7. Conclusions

With its commitment to form an Energy Union, the EU offers an opportunity structure for stakeholder engagement and a way to decentralise energy governance. The descriptive part of this analysis has shown that an important stakeholder group in Germany—RECs—is currently only marginally involved in energy governance, mostly at the subnational level. This suggests that the German RECs' willingness and/or capacity to become involved in energy governance at the EU/transnational level is limited. This finding is plausible, considering that most members of RECs are active on a voluntary basis and that becoming involved with energy governance, even at the local level, entails considerable effort and can easily overwhelm volunteers. Research has shown that the management duties of executive REC board members are increasing, which limits their capacity for other activities (see e.g., Herbes et al., 2017; Müller et al., 2015;

[1] Table A8 (Annex) reports models that contain even fewer variables to check the robustness of the findings for the focal explanatory variables. However, the model fit of the reduced models reported in Table A8 is worse and suggests that relevant variables are missing.

Radtke, 2014). From that perspective, it is hardly surprising that we could not observe a more marked commitment to participate in energy governance arrangements. However, we were able to observe that RECs are considering becoming (more) active in the future, which holds true both for RECs that are currently exerting influence in subnational governance arrangements and those that indicated (great) dissatisfaction with policy decisions taken at that level.

What are the broader implications of this finding for the European Commission's plea to bring citizens and stakeholders to the core of the Energy Union? Most importantly, the findings suggest that the participation of stakeholders in EU energy governance is being inhibited by barriers, which need to be addressed by the governance arrangements that are still being decided (see Ringel & Knodt, 2018). Compared to citizen-based groups such as RECs, business interests and energy suppliers are likely to be in a better position to seize the new opportunity structure that the European Commission offers with the Energy Union. It is therefore important to point out to organisations such as RECs that the Energy Union offers them an opportunity structure for participating in governance processes beyond the subnational and national levels.

On the other hand, it was encouraging to see that some German RECs are interested in participating in EU energy governance, even though the great majority of respondents indicated that they prefer to strengthen their activities and engagement at the (sub-)national level. The participation of RECs in energy governance can strengthen their role in attaining low-carbon energy transition (see Cherp, Vinichenko, Jewell, Suzuki, & Antal, 2017).

Despite the insights offered by this study, we also need to mention its limitations. First, our analysis concentrated on RECs in Germany only, which makes it difficult to draw conclusions for RECs based in other EU member states. A specific feature of RECs in Germany is that, for many years, RECs benefitted from comparatively generous feed-in tariffs and that their recent reduction resulted in significant frustration with policy-making (see Böhringer, Cuntz, Harhoff, & Asane-Otoo, 2017). A second limitation concerns the small sample size, which forced us to estimate models that contain relatively few explanatory variables. Third, we have cross-sectional data only and, considering the changes to renewable energy policy in Germany (most importantly, the reduction of the feed-in tariffs), it would have been useful to have had a dataset at our disposal that dated back to a year before 2014 when the previous regime was still in place.

Despite these limitations, we believe that this study makes a first, and important, contribution towards better understanding the Energy Union's potential for reaching out to a more diverse set of stakeholders and for determining which governance arrangements it can realistically stimulate.

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Conflict of Interests

The authors declare no conflict of interests.

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Annex

Table A3. Wording of the questions from the online survey (translated from German).

Variable	Wording of question in online survey	Coding
Outcome variables		
Subnational Future	Which political level is your cooperative intending to influence in the future? [community; regional]	Binary variable (yes = 1; no = 0)
National Future	Which political level is your cooperative intending to influence in the future? [federal]	Binary variable (yes = 1; no = 0)
EU/transnational Future	Which political level is your cooperative intending to influence in the future? [European; transnational]	Binary variable (yes = 1; no = 0)
Focal explanatory variables		
Subnational Current	Which political level is your cooperative currently influencing? [community; regional]	Binary variable (yes = 1; no = 0)
National Current	Which political level is your cooperative currently influencing? [federal]	Binary variable (yes = 1; no = 0)
EU/transnational Current	Which political level is your cooperative currently influencing? [European; transnational]	Binary variable (yes = 1; no = 0)
Subnational Dissatisfaction	How satisfied are you with energy policy on different political levels? [community; regional]	4 (= very unsatisfied) to 1 (= very satisfied); mean value of dissatisfaction with the community and regional level
National Dissatisfaction	How satisfied are you with energy policy on different political levels? [federal]	4 (= very unsatisfied) to 1 (= very satisfied)
EU Dissatisfaction	How satisfied are you with energy policy on different political levels? [EU]	4 (= very unsatisfied) to 1 (= very satisfied)
Control variables		
Age	When was your cooperative founded? Please state the year.	Reference year = 2017
Membership	How many members has your cooperative currently? Please state the quantity.	8 categories; 1 = smaller than 50 to 8 = greater than 1000
Political engagement	Does your cooperation follow political decisions regarding energy policy?	Binary variable (yes = 1; no = 0)
Political ambition	What of these before mentioned aims of your cooperative is the most important aim? [Political]	Binary variable (yes = 1; no = 0)
Investment	How much money has your cooperative invested in energy transformation projects so far? Please state the approximate volume in EUR.	4 categories; 1 = below 200.000 EUR to 4 = above 3 million EUR

Table A6. Results of the logistic regression models for the three outcomes variables and total level of future influence as a fourth outcome variable.

	Sub-Basic	Sub-Full	Nat-Basic	Nat-Full	EU-Basic	EU-Full	Tot-Basic	Tot-Full
Subnational Current	64.74 (54.46)***	64.43 (59.92)***						
National Current			36.98 (28.50)***	49.76 (41.80)***				
EU/transnational Current					74.15 (64.79)***	71.12 (67.48)***		
Current							58.42 (48.80)***	65.60 (60.66)***
Subnational Dissatisfaction	3.72 (1.94)**	3.49 (1.95)**	1.14 (0.37)	1.46 (0.54)	1.46 (0.52)	1.62 (0.65)	3.17 (1.60)**	3.42 (1.90)**
National Dissatisfaction	1.39 (0.84)	1.28 (0.83)	1.55 (0.68)	2.18 (1.10)	0.93 (0.46)	1.09 (0.58)	1.70 (1.05)	1.20 (0.79)
EU Dissatisfaction	0.76 (0.47)	0.83 (0.55)	0.83 (0.35)	0.78 (0.36)	1.31 (0.63)	1.22 (0.58)	0.64 (0.41)	0.88 (0.58)
Age		1.18 (0.20)		0.93 (0.12)		0.88 (0.12)		1.18 (0.19)
Membership		0.93 (0.25)		0.73 (0.14)*		0.74 (0.15)		0.92 (0.25)
Investment		0.85 (0.32)		2.30 (0.74)***		1.50 (0.45)		0.87 (0.33)
Political Engagement		1.12 (1.10)		3.56 (4.39)		3.05 (4.52)		1.08 (1.05)
Political Ambition		—		1.90 (1.94)		0.63 (0.80)		—
Cases	154	140	123	121	154	151	154	140
AIC	76.97	82.01	129.94	129.09	109.59	103.62	76.73	81.46

Notes: The table reports odds ratios; the models for the EU are estimated with the Firth correction; in Model Sub-Full and Model Tot-Full, the odds ratios for political ambition are omitted from the estimation routine because of this variable's dependence on other variables in the model. * $p < 0.10$, ** $p < 0.05$; *** $p < 0.01$.

Table A7. Results of the logistic regression models without the first set of focal explanatory variables.

	Sub-Basic	Sub-Full	Nat-Basic	Nat-Full	EU-Basic	EU-Full	Tot-Basic	Tot-Full
Subnational Dissatisfaction	2.65 (1.02)**	2.14 (0.89)*	1.59 (0.41)*	1.75 (0.51)*	1.70 (0.46)**	1.87 (0.57)**	2.51 (0.97)**	2.14 (0.89)*
National Dissatisfaction	1.20 (0.52)	1.36 (0.69)	1.59 (0.55)	1.88 (0.72)*	0.93 (0.35)	1.13 (0.45)	1.38 (0.61)	1.36 (0.69)
EU Dissatisfaction	1.37 (0.61)	1.25 (0.62)	1.05 (0.36)	1.09 (0.40)	1.38 (0.51)	1.23 (0.45)	1.21 (0.55)	1.25 (0.62)
Age		1.09 (0.12)		1.10 (0.10)		0.99 (0.08)		1.09 (0.12)
Membership		1.17 (0.22)		0.85 (0.13)		0.77 (0.12)		1.17 (0.22)
Investment		0.73 (0.22)		1.55 (0.37)*		1.49 (0.37)		0.73 (0.22)
Political Engagement		8.55 (7.17)**		4.07 (3.73)		6.77 (10.00)		8.55 (7.17)**
Political Ambition		—		3.57		1.83		—
			(2.79)		(1.29)			
Cases	154	140	129	127	154	151	154	140
AIC	120.97	115.04	179.32	176.82	161.70	149.82	117.97	115.04

Notes: The table reports odds ratios; the models for the EU are estimated with the Firth correction; in Model Sub-Full and Model Tot-Full, the odds ratios for political ambition are omitted from the estimation routine because of this variable's dependence on other variables in the model. * $p < 0.10$, ** $p < 0.05$; *** $p < 0.01$.

Table A8. Results of the logistic regression models without the first set of focal explanatory variables and a reduced set of variables for dissatisfaction.

	Sub-Basic	Sub-Full	Nat-Basic	Nat-Full	EU-Basic	EU-Full	Tot-Basic	Tot-Full
Subnational Dissatisfaction	2.80 (1.03)***	2.39 (0.93)**					2.51 (0.97)**	2.14 (0.89)*
National Dissatisfaction			1.97 (0.53)**	2.35 (0.68)***			1.38 (0.61)	1.36 (0.69)
EU Dissatisfaction					1.46 (0.44)	1.41 (0.42)	1.21 (0.55)	1.25 (0.62)
Age		1.08 (0.11)		1.11 (0.10)		0.99 (0.08)		1.09 (0.12)
Membership		1.22 (0.21)		0.95 (0.12)		0.86 (0.12)		1.17 (0.22)
Investment		0.64 (0.18)		1.37 (0.29)		1.21 (0.26)		0.73 (0.22)
Political Engagement		5.59 (4.18)**		5.98 (5.23)**		6.37 (9.30)		8.55 (7.17)**
Political Ambition		2.20 (2.49)		3.17 (2.25)		1.58 (1.09)		—
Cases	171	168	140	138	156	153	154	140
AIC	130.14	128.78	190.88	186.80	167.45	156.26	117.97	115.04

Notes: The table reports odds ratios; the models for the EU are estimated with the Firth correction; in Model Tot-Full, the odds ratios for political ambition are omitted from the estimation routine because of this variable's dependence on other variables in the model. * $p < 0.10$, ** $p < 0.05$; *** $p < 0.01$.

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Article

EU Agencies and the Energy Union: Providing Useful Information to the Commission?

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Abstract
The development of the energy policy of the European Union (EU) has been accompanied by organizational reforms of the EU's energy bureaucracy. Much attention has been paid to Commission President Juncker's reorganization of the European Commission, including how this has influenced the Energy Union initiative. The establishment of EU agencies has also expanded the EU administration and the capacity for developing new initiatives and coordinating implementation of EU legislation. However, recent research has not been sufficiently connected to policy studies on energy, climate and environment. This article analyses the extent to which two EU agencies—the Agency for the Cooperation of Energy Regulators, and the European Environmental Agency—augment the policymaking capacity of the Commission by providing information that aids its work. The article ends with a discussion of the potential implications of agencification.

Keywords
Agency for the Cooperation of Energy Regulators; energy policy; Energy Union; EU agencies; European Commission; European Environment Agency; expertise; information

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1. Introduction

The EU's energy policy has expanded, most recently with broad initiatives like the Energy Union as well as specific policy developments like the Clean Energy Package (European Commission , 2016). The organizational structures in place at the EU level have also evolved. Much attention has been paid to President Juncker's reorganization of the Commission to improve horizontal coordination, including how this has influenced the cross-cutting Energy Union initiative (Burgin, 2018). However, other changes have not merely re-structured, but also expanded the EU's administration: *agencification* refers to the establishment of EU agencies that are executive-administrative entities operating at varying distances from politics. Such agencies provide technical, scientific and managerial expertise, and have mushroomed over the last two decades. A growing literature has examined the emergence and impact of EU agencies in general (see e.g. Blauberger & Rittberger, 2015; Busuioc, Groenleer, & Trondal, 2012; Dehousse, 2008; Egeberg & Trondal, 2011, 2017; Groenleer, 2009; Kelemen & Tarrant, 2011; Tarrant & Kelemen, 2017; Wonka & Rittberger, 2010) and what this development means for the EU (Bickerton, Hodson, & Puetter, 2015; Genschel & Jachtenfuchs, 2015). However, this stream of research has not been sufficiently linked to policy studies, including energy, environment and climate policy.

EU agencies are positioned to make a difference by providing expertise that can underpin new legal initiatives as well as help to implement and monitor existing legislation. By facilitating EU-wide data collection, they provide a better basis for EU policy than aggregating national data—the latter might be coloured by national interests, or be incomparable due to differing sources and methods (Busuioc & Groenleer, 2014). EU agencies recruit technical experts (Egeberg, Gornitzka, & Trondal, 2017) who give advice and work together with the Commission in developing regulation (Blom, Suijlekom, Versluis, & Wirtz, 2014; Jevnaker, 2015; Rimkute, 2015). Although EU agencies have multiple principals (Dehousse, 2008), they have most contact with the Commission (Egeberg, Trondal, & Vestlund, 2015). The Commission may use the information it receives from EU agencies in several ways—to solve problems instrumentally, or to substantiate or legitimize policy choices (Rimkute & Haverland, 2015). EU agencies expand the capacities of the Commission by providing it with specialized information, as EU agencies are 'assumed to offer greater transparency, expert authority, flexibility, better informed decisions and better implementation' (Wolff & Schout, 2013, p. 306). EU agencies may become assets for the Commission, which in turn could gain further leverage vis-à-vis the other EU institutions. As such, agencification in the policy areas of energy and climate policy could strengthen the Commission's capacity for developing policies under the umbrella of the Energy Union.

Scientific, technical and political expertise is not unique: there are academics, consultants and specialist practitioners in abundance across Europe. What enables EU agencies not just to deliver specialized information, but also to provide the Commission with expertise that the latter finds relevant to its work? This article examines the conditions that must be met for the Commission to see information provided by EU agencies as useful. Taking an organizational perspective, we compare the role of organizational characteristics in facilitating the provision of information that the Commission regards as useful. Here we focus on two EU agencies in order to investigate the implications of agencification for the Energy Union: the Agency for the Cooperation of Energy Regulators (ACER) is involved in energy issues, whilst the European Environment Agency (EEA) deals with environment and climate issues. The following section outlines our analytical approach before we delve into our two case studies and compare the contributions of these agencies to the Commission's work. The analysis shows that information provided by these two agencies is found to be useful for the Commission, and we trace this back, among other things, to the similarities in organizational structure of the Commission on the one hand, and our two EU agencies on the other hand. The article ends with a discussion of the potential implications of agencification for EU policymaking.

2. Examining the Provision of Useful Information

The Commission today does not lack information: instead, it faces an overload of available information. The challenge is not to provide information as such, but to provide *relevant* information tailored to meet the needs of policymakers. Identifying the extent to which the Commission regards the input it receives from EU agencies as useful to its work is not a trivial matter. It concerns not only the assigned value of expert knowledge, but also the degree to which such information can be utilized by the Commission in its policymaking processes. As the Commission has experienced staff with extensive substantial and procedural knowledge, it presumably has less need for information that can be obtained in-house. However, the Commission is more likely to find additional information provided by EU agencies relevant or helpful if this complements the Commission's own expertise. An EU agency must take into account the needs of the Commission and supply relevant information that aids or complements the Commission's expertise. We measure such 'usefulness' by assessing the extent to which members of the Commission describe agency inputs as useful. Here we include statements on relevance, usefulness and interest, as well as descriptions of what is seen as the Commission's lack of in-house expertise, and mentions of the need for complementary expertise.

Here we consider factors that facilitate interaction between EU agencies and the Commission so that the latter recognizes the benefits of information provided by the former. Rather than considering factors that enable information provision by agencies per se, we seek to explain how agencies provide information that is deemed useful by the Commission itself. Drawing on organizational theory—which holds that organizational structure and demography affect organizational behaviour (Egeberg, 2012)—we argue that the ability of EU agencies to deliver information useful to the Commission depends on the organizational characteristics of these agencies as well as those of the Commission.

Firstly, the *organizational structure* of an EU agency may shape its ability to deliver relevant information. As we are interested not in organizational behaviour as such, but in organizational behaviour towards an environment, we draw on the concept of 'organizational congruence' (Kieser & Kubicek, 1992; Saerbeck, 2014): an organization is expected to be more successful if its organizational structure fits with its environment. For example, Klüver (2012) found that staff in EU interest groups with an organizational structure similar to that of the Commission were able to specialize and become experts in their field. In turn, this specialization enabled them to become part of a policy community that also included Commission officials. As networked specialists, they were adept at monitoring developments within the Commission, and could prepare for the provision of relevant information needed by the Commission (Klüver, 2012). Thus, organizational congruence facilitated net-

work building and monitoring, helping these experts to provide information that the Commission found useful and—perhaps as importantly—timely. Following Klüver, we argue that organizational congruence strengthens inter-organizational information exchange because of shared tasks and topics. The more similarity in organizational structure of an EU agency to that of the Commission, the more likely is information exchange to occur. We expect an EU agency whose internal organization resembles or even 'overlaps' that of the Commission to be more adept at delivering relevant information to the Commission. Here, we compare the horizontal and vertical specialization of the EU agency with that of the 'lead' Directorates-General (DGs) in a policy-area (i.e., the DG responsible for a given policy-area). This shared specialization enables an EU agency to work on similar tasks as the Commission, which is conducive to network building. In turn, this enables the agency to monitor developments in the Commission. The ability to pick up signals is vital for the agency to be able to deliver relevant information in a timely manner.

A second major organizational variable is *demography*. Personal networks enable EU agency staff to tune into not just the working mentality of their counterparts, but the political signals as well. Thereby, the EU agency can adjust its behaviour accordingly—in order to provide relevant and targeted information to the Commission. We expect the terms of recruitment and employment to shape the ability of an agency to deliver information that the Commission regards as relevant. The agency's demography is also related to the importance of networks. Previous research has found length of service of staff to be an important organizational characteristic for staff behaviour (Egeberg, 2012). We argue that the terms of employment in an agency define its ability to interact with the Commission DGs: Temporary employment weakens agency personnel's 'technical and scientific knowledge on the policy problem, administrative and procedural knowledge…as well normative and diplomatic knowledge' (Bauer, 2006, p. 30). Moreover, it hinders the establishment of personal networks with contact persons in the targeted division. Thus, contract length will be an important determinant for an EU agency's ability to deliver relevant and timely information to the Commission. Low staff rotation minimizes the risk for loss of institutional memory and helps to facilitate and strengthen personal ties, build trust and hence, a professional network with relevant persons within the DGs. Overall, the demography of the agency in question will facilitate the provision of information that the Commission regards as relevant.

We conducted 22 semi-structured interviews with individuals well positioned to participate in or closely observe the agencies, and particularly their contact and interaction with the Commission. Informants came from various levels within the two EU agencies as well as from the Commission, with interviews with high-level representatives and policy officers. We also interviewed close observers such as national agencies and interest groups[1]. Informants were queried about the nature of the relationship in general and the extent of interaction and cooperation between staff in the EU agency and the Commission, as well as about informal contacts. Moreover, we asked informants about the role of the organizational setup and demography of EU agencies for coordinating with the Commission. To measure complementary information, we asked informants to compare the in-house expertise of the EU agency with that of the relevant division in of the Commission. In addition, we asked Commission representatives whether, when and how they made use of information provided by ACER or EEA. Finally, we asked the interviewees whether other factors might affect the relationship between the Commission and EU agencies, in order to get better insights into this hitherto unexplored area. Documentary data were collected from official documents published by the selected EU agencies as well as from the Commission. We studied the organigrams of the selected agencies and the Commission in order to study the level of organizational congruence and to identify structural similarities between sender and recipient. Here, we compared the relevant Commission Directorate-General (DG) with the respective agency (e.g. ACER–DG Energy). We checked whether the same specialization principle had been applied for the division of labour. For the role of demography, we examined the length of postings within each agency.

3. ACER and EEA: How to Provide Information Actually Used by the Commission?

In this section, we consider the organization and demography of ACER and EEA, before assessing the extent to which they provide information that the Commission finds useful. This is followed by a comparative discussion.

3.1. The Agency for the Cooperation of Energy Regulators

ACER works together with the Commission in developing harmonized rules for cross-border electricity and gas networks ('network codes'), and in allocating EU funding to help build prioritized cross-border networks ('projects of common interest') (EU, 2009b, 2009c, 2013). ACER also collects data on wholesale energy markets across Europe in order to monitor for market abuse (EU, 2011).

3.1.1. Organizational Congruence

ACER has four operational departments: electricity, gas, market surveillance and conduct, and market in-

[1] Interviews were conducted between 2013 and 2015, each lasting 30–90 minutes. Interviews 1–10 concerned the EEA: number 1–3 and 10 were with Commission staff and number 4–9 with members of the EEA. Interviews 11–22 concerned ACER: number 14–17 and 22 were with agency staff; 11, 12 and 18–20 with Commission staff; number 13 was with an interest group representative, and number 21 with a national agency.

tegrity and transparency. The electricity and gas departments concentrate on network codes, retail markets and projects of common interest within their respective sectors, while the market monitoring departments keep a keen eye on financial transactions in wholesale electricity and gas markets. ACER activities are related to Directorate B (internal energy market) within the Commission's DG Energy, which is specialized by function: unit B1 'Networks & Regional Initiatives' deals with network construction, including projects of common interest; and unit B2 'Wholesale markets; electricity & gas' is involved in harmonizing network management (network codes). ACER and the Commission do not seem very congruent in terms of their internal organization. In ACER, the internal division of labour is partly by sector, partly by function, whereas the Commission has a 'purer' functional specialization. However, we noted an informal use of the sector principle for the Commission: Despite the absence of separate units for electricity and gas, there is an informal distribution of labour along sector lines within the Directorate B units. For electricity, for instance, it was in practice 'quite clear who was supposed to talk to whom' (Interview 11).

A high degree of specialization facilitated contact and network building between staff members in ACER and the Commission. Informants from both sides noted the low number of people that they needed to coordinate with within the other organization (Interviews 11, 12, 14, 16). This means that Commission staff can get well acquainted with the people working in ACER (Interviews 11, 12, 14, 16). Moreover, both the Commission and ACER were involved in tasks related to network-code development and projects of common interest. Joint involvement in processes fostered regular exchange at all levels. There were multiple contact points between ACER and the Commission regarding implementation of existing legislation or the preparation of new legislation, including on market design (Interviews 11, 12, 14, 16). Regarding market monitoring, staff in both organizations were involved in the process of preparing the implementation of legislation, and had extensive contact since they were working on similar issues. Following the completion of this process in December 2014, however, ACER was to continue to focus on the monitoring of financial energy markets, whereas the Commission would be less involved in this area (Interview 16). Overall, our interviewees indicated that involvement in the same processes was more important for inter-organizational contact than the formal specialization principle. In sum, then, the combination of high specialization of staff in both organizations and participation in the same processes facilitated networking, contact and exchange of information between the Commission and ACER.

3.1.2. Demography

ACER employs temporary agents (5-year contracts), contract agents (max. 3 years), and seconded national experts (2 years). There were routines for maintaining institutional memory despite staff turnover, with emphasis on documentation (e.g. writing manuals) (Interview 22). ACER consciously recruited personnel with substantial experience within the field (Interview 22). Most employees were already familiar with the issues at hand. Several informants in ACER noted that they had been in contact with the Commission prior to working for ACER. Thus, as regards networking, recruiting personnel already engaged within the field seems more important than length of employment. Hiring networked staff facilitated overall interaction between ACER and the Commission. Further contact was also facilitated by the low number of Commission staff involved in each specialized field, along with the joint involvement of the Commission and ACER in formal processes. Staff from the two organizations either already knew each other, or found it easy to become acquainted. Such personal networks aided the informal exchange of information between ACER and the Commission. While demographic changes (turnover) could pose a challenge, this was ameliorated by the extensive contact between ACER and the Commission due to their joint involvement in regulatory processes. However, we should mention that, as of our interview period, significant turnover had not yet really had the time to occur.

3.1.3. Discussion: ACER—Information Useful to the Commission?

As noted, organizational structure and demography facilitated contact and networking between ACER and the Commission. To what extent did this lead the Commission to see input from ACER as useful? Informants from the Commission explained that they had in-house expertise on 'internal market issues' themselves, mentioning network codes and projects of common interest. As regards market monitoring, however, they noted ACER's expertise and their own lack of such expertise—a point even highlighted in the preamble of the relevant EU legislation (EU, 2011). It was emphasized that market monitoring and oversight over individual transactions was not the type of activity that the Commission should conduct (Interview 12). The Commission relied more on information from ACER on market monitoring, and less so on network management and construction. Although acknowledging the Commission's own expertise, informants acknowledged the greater expertise within ACER at the level of detail (Interviews 11, 12, 13). ACER staff generally had more expertise than the Commission on the technically detailed content of the electricity network codes, for example (Interview 13). Commission staff confirmed this, adding that it would have been more difficult for them to work on the details (like network codes) for the internal energy market without the deeper technical insights provided by ACER (Interview 11). Given the technicalities in question, discussing these issues would have been more difficult for the Commission (Interview 11). When going through member-state comments in comi-

tology on network codes, the Commission would consult with ACER (Interview 11). Not only did this lessen the Commission's workload, the Commission also made strategic use of ACER's expertise to garner support for its own comitology proposals. The Commission invited ACER to comitology meetings as an expert to explain sections in a given network code to (sceptical) member-state representatives (Interview 19).

The Commission viewed ACER as a 'service provider' that supplied the Commission with information on market developments within the electricity and gas sectors. ACER outputs, like the annual market monitoring report, were highlighted as useful, although the Commission also thought that these could have been more closely targeted. A Commission informant noted that this information was very detailed and needed a clearer narrative in order for the overall picture to emerge from all the details (Interview 12). ACER was referred to as a 'daughter company' that served as a major tool for implementation (Interview 11). The high specialization of ACER's work, which complemented that of the Commission, contributed to making input from ACER very useful to the Commission.

While ACER's in-depth expertise was in demand, some informants pointed out that its internal decision-making process reduced the extent to which the Commission could rely on ACER. Representatives of all 28 EU national energy regulators sit on the board of ACER, and hold a prominent position within the agency. As a result, content was watered out to make it politically acceptable to all. As ACER output could be heavily coloured by national interests, the Commission saw the need to take a more active role in re-writing draft network codes, for better harmonization (Interview 13). ACER's internal decision-making processes were seen as spurring greater involvement of the Commission in developing legislation (e.g. network codes), where the Commission made changes to what had been received from ACER. A stronger role for the ACER director vis-à-vis the board might have fostered stronger input from ACER that could be included in final comitology drafts.

In general, however, ACER was praised for its in-depth information, and the Commission relied on ACER for the provision of technical expertise. The organizational structure, which was more congruent in practice than on paper, ensured relevance and the creation of networks. The role of demography—recruitment and tenure—was less important to the creation of networks. All in all, the Commission saw ACER as a provider of useful information.

3.2. The European Environment Agency

The EEA is urged to 'provide sound, independent information on the environment…for those involved in developing, adopting, implementing and evaluating environmental policy' (EEA, 2018a) so that it may formulate and implement environmentally sustainable policies (EU 2009a, Art. 1, para. 2a).

3.2.1. Organizational Congruence

EEA is organized along functional lines, similar to the Commission's DG Environment and DG Climate Action, with which the EEA collaborates. Closer examination of the tasks of the EEA as compared with to the topics discussed within DG Environment and DG Climate reveals considerable overlapping. While, for example, the EEA unit 'climate change, energy and transport' studies climate-change impacts and mitigation processes (EEA, 2018b), DG Climate Action evaluates the effectiveness of European and international climate policies, develops an international carbon market and is responsible for the European Emission Trading System (European Commission, 2018a). Directorate 'C' of DG Environment is chiefly responsible for matters concerning the marine environment and the quality of water and air (European Commission, 2018b); this is paralleled by the EEA unit 'natural capital and ecosystems' that focuses on, *inter alia*, biodiversity, water and marine environment (EEA, 2018b). That said, the EEA was heavily involved in assisting the organizational setup of DG Climate Action (Interview 2), which might have led to the similar setup of the latter.

Although the EEA complements the organizational structure of its parent DGs (DG Environment and DG Climate), interviews revealed that exchange between this EU agency and the Commission has been stimulated mainly by the actions of top-management officials. Recognizing the advantages of cooperation, they took action to ensure that EEA staff-members were invited to inter-service consultations of the Commission and to ensure synchronization of work programmes (Interviews 1, 4, 5, 6; see also Groenleer, 2009; Martens, 2010). Moreover, cooperation between the Commission and EEA emanated from evolving practice and not from organizational congruence. In the first years of its existence, the EEA operated from within DG Environment. Moreover, most of its staff were former Commission employees (Interview 2). Although Commission staff would sporadically consult the organigram of the EEA to identify relevant counterparts (Interview 1), they tended to build on existing relationships. These relationships had been established at previous events, via colleagues, or facilitated by the EEA liaison office in Brussels (Interviews 3, 4, 5, 6, 8). In sum, already-established personal relationships fostered the exchange of information rather than organizational congruence.

3.2.2. Demography

Although the overall number of permanent EEA staff has increased over the years, roughly 40% of EEA staff in 2011 consisted of contract agents and seconded national experts (Interview 6; COWI, 2013). Many professional staff leave after one to eight years. In practice, the EEA found informal ways to extend contracts (Interview 7), but informal channels of communication to the EU institutions might be lost due to staff rotation. Rebuilding such chan-

nels for intra- and inter-organizational relationships takes time and resources (Interview 7). Studies also reveal a 'certain delay in filling the established posts' of the EEA (COWI, 2013). Thus, the EEA risked losing valuable expertise, because of employees leaving before they had a chance to train their replacements properly—and that involves expertise vital to the EEA, to ensure the quality of their products and their ability to act, as our respondents pointed out (Interview 1, 4, 7, 9). To avoid loss of expertise and networks, the EEA focused on continuously expanding its data-storage systems and developing smart recruitment strategies. Thus, many EEA staff members had previously worked on environmental issues in other institutions on various levels (Interview 6). They were more likely to be already acquainted with members of the Commission, which has further facilitated initial contact and mutual trust. In sum, although the EEA found ways to circumvent the challenges of temporary staff employment, it still struggled not only with loss of institutional memory and expertise, but also with the loss of personal networks.

3.2.3. Discussion: EEA—Information Useful to the Commission?

The founding regulation urges the EEA to avoid activities 'duplicating the existing activities of other institutions and bodies' (EU 2009a, art. 3). This recommendation was followed up through an agreement between the Director-General of DG Environment and the Executive Secretary of the EEA, stating that both organizations should complement rather than duplicate each other's work (Interview 1). Organizational congruence might have had positive effects on the frequency of information exchange between the EEA and the Commission's DGs. As we have seen, however, this cannot in itself have been sufficient to foster information exchange, as the top management in these organizations saw the need for routines that could ensure that this would happen. That goes contrary to our initial assumption. By contrast, demography seems to have facilitated contact and networking between EEA and the Commission, thereby confirming our assumption on that point.

To what extent did the Commission define EEA inputs as useful? Interviewees mentioned regular exchanges on technical as well as policy-related contents and issue-framing, between members of the EEA and members of the Commission operating on all levels (Interview 1, 3, 4; Saerbeck, 2014). Moreover, members of the Commission considered information provided by the EEA as helpful (Interview 1, 3, 4, 8):'[i]n many respects, the agency may be regarded as an advisory body to the Commission' (Khuchua, 2009, p. 91). The Commission itself also referred to the EEA as one of its most important partners (Interview 3; Egeberg & Trondal, 2011). Approximately 70% of Commission staff at the administrative level working on issues related to the environment and climate reporting using information provided by the EEA when formulating policies (COWI, 2013; Saerbeck, 2014). As one informant from the Commission put it, 'we do not rely on the EEA entirely, of course, for information…but the information from the agency is hugely valuable' (Interview 1). These findings relate to the limited capacities of the Commission: as one Commission informant pointed out concerning cooperation with the EEA: 'the actual development stage of the policy…normally only one or less than one person is working for one policy area. Those individuals will cultivate relationships with EEA counterparts' (Interview 10). The same informant added that it was 'necessary to have scientific information that is provable and scientifically…and legally sound, and the EEA with its vast range of information…is very useful indeed'; further, that the 'credibility of the agency's reporting is generally higher' (Interview 10). Commission members regarded EEA information as not only useful, but even essential to their work.

3.3. Comparing Agencies: Aiding the Commission

What factors made it possible for the two EU agencies to provide information that the Commission considered useful? First, we found that organizational congruence strengthened the usefulness of information provided by the agencies. Specifically, highly specialized work on similar topics fostered contact with the Commission, because this meant that rather small groups of people were working on the same issues across the agency and the Commission (as with DG Energy and ACER). However, agency–Commission contact was also facilitated by formal arrangements like management-planned dialogue (EEA) and joint involvement in the same regulatory procedures (ACER). The organizational similarities between agency and Commission were not complete, but the organization of work triggered contact and facilitated networking between the agencies and the Commission. However, in the absence of joint involvement in formal processes, additional steps might be required to ensure contact. Second, that agency staff had pre-existing networks with the Commission was important for the latter in terms of judging whether the information provided by the agencies was useful. Demography was important for the EEA, but not for ACER, where recruitment and tenure played less of a role for contact and networking with the Commission, due to the highly specialized nature of the tasks involved. There was a small number of people in ACER and DG Energy working on the same issues, and, due to joint involvement, they would meet regularly anyway. In contrast, demography was important for the Commission's perception of information from the EEA as useful: some EEA staff members had previously worked for the Commission, and this positioned them with strategic networks to the Commission that they could use to highlight the usefulness of their agency's information to Commission members. Nevertheless, for the EEA, rapid turnover remained a challenge, so the agency sometimes sought to bend the rules in order to extend contracts.

We found that the Commission was more likely to consider and act on information provided by EU agencies if they considered it to be useful. For example, the EEA was actively involved in the preparation and drafting of a Commission proposal because the agency provided expertise that complemented the needs of the Commission DGs and because the proposal was written 'in a way policymakers can understand and are able to draw their own conclusions' (Interview 5, see also Interview 18). ACER was also credited by the Commission with providing additional expertise, especially at the level of technical detail. ACER's ability to expand on and discuss the details of energy-sector practices was seen by the Commission as crucial to its work on rule harmonization (network codes), and to the development of an internal energy market in Europe. Both ACER and the EEA were characterized as supporting the Commission's work by providing relevant information that the Commission found useful. This is also indicated by the terminology that the Commission used to describe EEA ('advisory body') and ACER ('service-provider') in relation to the Commission.

In general, it cannot be assumed that the Commission will automatically consider information provided by EU agencies as useful, even though agency expertise is a key rationale behind agencification. The mere presence of expert information from EU agencies is not always sufficient. To some extent, the differences in the type of expertise held by the agencies as compared to that of the Commission could even be a challenge. Differing perspectives did not always result in a well-targeted input from ACER to the Commission. It was also noted that the input format—formal, relatively technical reports—was not always tailored to the Commission as an 'audience', which would have preferred a more political narrative in ACER's technical reports (Interview 12). On the other hand, the EEA ensured not only that additional expertise would be supplied, but also that it would be delivered in a format appropriate to the Commission's needs. The EEA has learned to provide targeted information—even developing formal routines for this. Summing up, we find that both the EEA and ACER have gradually accumulated experience in how to deliver their inputs to the Commission.

4. Conclusions: EU Agencies as Assets, but not without Pitfalls

What does agencification entail for EU energy and climate policy—and more broadly, for the development of an Energy Union? EU agencies are positioned to offer technical information with a European perspective, and as such represent a valuable source of relevant information that the Commission can apply in developing new policies or preparing legislation for implementation. Being required to work with various actors operating at different levels, EU agencies are often better informed about, for instance, European energy and environmental issues than other actors. For example, we found that the EEA was seen as a highly legitimate entity that provided impartial expertise in a way that helped policymakers to grasp the deep complexity and uncertainty of the issues at hand. As one member of the EEA stated: 'our strength comes from the fact that we as EEA are seen as independent actors who do not pursue their own interests or lobbying in the broadest sense, and who cooperate very closely with their network' (Interview 8).

Being able to draw on expert knowledge has become central to policymakers in legitimizing their decisions because it lends authority to policy positions, helping to substantiate specific preferences in case of political contestation (Boswell, 2008). According to Riley and Brophy-Baermann, 'it isn´t so much the possession of expert knowledge but the reaction to—respect for—that knowledge that gives an agency power' (2006, p. 99). Generally, agencification signals independent expertise. In deliberative settings, access to agency expertise should give the Commission added leverage. The Commission may strategically exploit information provided by EU agencies to strengthen its position in the policy-making process (e.g., Groenleer, 2009). Put differently, 'the more technical and complicated the matter becomes, the less politicians and lawyers will dare contest the Agency's opinion' (van Ooik, 2005, p. 141)—and thus, that of the Commission.

Our findings do not necessarily mean Commission dominance, however. Scholars have argued that the rise of EU agencies has come at the expense of the Commission. Bickerton et al. (2015) see EU agencies as a compromise whereby EU integration is not accompanied with new competences to the Commission, and that EU agencies become empowered instead of there being further expansion of the Commission. Even if EU agencies were to become the 'extended arm' of the Commission, member states have their own public administrations. Rather than giving the Commission an information advantage, EU agencies might reduce the Commission's information *dis*advantage vis-à-vis member states.

We found that both ACER and EEA offered in-depth expertise that aided the Commission, enabling it to develop detailed, specific energy, climate and environmental policies. By being able to draw on expert information organized at the EU level, which entails more consistent data collection and analysis, the Commission is better positioned not only to make policy changes at the level of goals and instruments, but also to go into greater detail by developing changes at the level of instrument settings (Hall, 1993). This is a major advantage to the Commission, enabling it to bring EU agencies as technical experts to its negotiations with the member states.

However, agency expertise may be strategically presented as more independent than it actually is. The autonomy of agencies is often seen as important for their provision of independent expertise. However, the level of formal autonomy varies across EU agencies (Wonka & Rittberger, 2010). Low agency autonomy is often seen as being in conflict with independent expertise, because it allows agencies less leeway to adjust how they conduct

their work (Wonka & Rittberger, 2010). ACER and EEA have low levels of formal autonomy (see Wonka & Rittberger, 2010; own calculations)[2]. With low autonomy (formally or in practice), commitment is likely to be less credible, and the agency more likely to be responsive to the interests of one or more of its principals. Indeed, both EEA and ACER have sought to improve targeting of the information that they provided to the Commission. Although this could facilitate the delivery of information considered useful by the Commission, an agency's distance from politics might be less than officially recognized and its expertise less independent.

Commission reliance on EU agencies is not without pitfalls. As the relations between a Commission DG and an EU agency mimic domestic ministry–agency relations, challenges familiar from the study of principal–agent relations arise. A major risk is shirking by the agent—in this case a EU agency—also known as 'agency drift': EU agencies may develop an institutional self-interest and exploit the information asymmetry vis-à-vis the principal to pursue other goals than those it was established by the same principal to achieve (Elgie, 2002). In recent years, EU agencies have successively expanded their competencies and reinterpreted their role (Egeberg, Martens, & Trondal, 2012; Maggetti, 2009). There are indications that EU agencies sometimes follow their own agenda even as they aid the Commission. We found that ACER and the EEA held their own views on several topics. ACER both anticipated what might interest the Commission (e.g., as regards market monitoring reports), but also held its own views (according to Interview 11). Moreover, ACER was beginning to draw out the more political messages from their technical analyses, as could be observed in the subsequent launch of a forward-looking strategy paper on the internal energy market (ACER, 2014). This development occurred even though ACER was heavily regulated and faced resource constraints, which should have limited its capacity to launch political initiatives. Our interviewees made similar statements on a more active role concerning the EEA. Our findings indicate that agencies have become more than mere generators of information: they play roles of tremendous significance, perhaps beyond what policymakers originally foresaw.

Thus, information from EU agencies may help the Commission to build an Energy Union, but EU agencies might seek to pull it in another direction than that envisaged by the Commission. Over time, EU agencies taking action could shape the kinds of issues that are debated, how issues are framed, and the attention paid to various issues. Future research should examine whether EU agencies with higher autonomy contribute in ways similar to the two agencies studied here, or are more prone to drift. The study of the political role of EU agencies is an emerging field for research, where EU agencies could be re-conceptualized as strategic actors, as attention-seeking policy advocates who actively participate in (indirect) policymaking while employing their own agendas. Concerning the Commission side, scholars should explore to what extent it relies on agency input relative to other sources of information such as expert groups, consultants and public consultations. In sum, more research is needed on how EU agencies operate in practice, as well as on the development of the relationship between EU agencies and the Commission, which, as noted by Trondal and Peters (2013) together comprise an important part of the EU administrative space.

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The authors declare no conflict of interests.

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[2] Ranging between 0 and 1 (0 indicates low independence), EEA's independence score is 0.21 (Wonka & Rittberger, 2010). Using the same method, we calculated the score for ACER (0.16).

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Article

Constitutionalization and Entrepreneurship: Explaining Increased EU Steering of Renewables Support Schemes

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Abstract
This article sheds light on two under-researched issue areas: the energy policy-shaping role of the Court of Justice of the European Union (CJEU) and how constitutionalization of EU state aid law gives the European Commission (Commission) increased leverage over EU policy development. EU state aid governance is embedded in the Treaty of the Functioning of the EU's prohibition of state aid. The CJEU and the Commissions' Directorate-General for Competition (DG Comp) have played important roles in the emergence of stronger EU steering of renewable energy support schemes after 2014. For many years, powerful member states, most notably Germany, stopped the adoption of EU rules requiring more market streamlining and European harmonization of renewables support. This primarily played out in regular EU decision-making (co-decision) related to adoption and revision of the Renewable Energy Directive. A radical shift occurred in 2014 when the Commission introduced new guidelines on state aid for environmental protection and energy, giving the Commission increased authority over development of renewables support schemes across Europe. These guidelines called for renewables investments to become more exposed to energy market pricing and introduced auctioning as the main allocation mechanism. Support schemes for renewable energy were included for the first time in the EU state aid guidelines for environmental protection in 2001. Back then, member states had ample leeway to design support schemes as they pleased. The 2014 version of the guidelines includes far more detailed requirements. While the first CJEU ruling on renewables state aid hindered the Commission to intervene, new CJEU rulings after 2008 enabled the Commission to draft more restrictive guidelines. This article concludes that constitutionalization, combined with the policy entrepreneurship of Commission officials, explains the shift in EU steering in 2014. This indicates that constitutionalization and Commission entrepreneurship should be assessed in conjunction. Constitutionalization may be particularly important in the state aid area due to the superior competence of the Commission.

Keywords
constitutionalization; Court of Justice of the European Union; European Commission; judicialization; policy entrepreneurship; renewable energy policy; state aid

Issue
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1. Introduction

Susanne K. Schmidt (2018) and Dieter Grimm (2015, 2017) argue that over time, the Treaty of the Functioning of the EU (hereinafter 'Treaty')[1] has acquired the role of the EU's de facto constitution. Due to this development, case law from the Court of Justice of the European Union (hereinafter 'CJEU' or 'Court')[2] has acquired constitutional status. This gives the Court more influence over EU policy development than many EU scholars rec-

[1] This Treaty has changed name several times over the years and the 2009 Lisbon Treaty introduced the term referred here. I will refer to it as 'the Treaty' irrespective of time period.
[2] In 2009 the Treaty of Lisbon introduced the term 'Court of Justice of the European Union'. Formerly it had been named 'Court of Justice of the European Community', commonly referred to as the 'European Court of Justice' in the literature (see Saurugger & Terpan, 2017, pp. 2–3).

ognize. Schmidt (2018) finds that EU policymaking has become highly constrained by case law in the sense that the Council of the European Union (hereinafter 'Council') and the European Parliament (hereinafter 'Parliament') often adapt their decisions to harmonize with case law (Schmidt, 2018, p. 3). In this article, we explore how and to what extent constitutionalization may enable the European Commission (hereinafter 'Commission') to make important policy decisions on its own without ordinary democratic procedures.

State aid is an especially interesting issue area to explore when it comes to the relationship between CJEU case law and the Commission. Several authors argue that the Commission has increasingly used state aid rules as its last resort to steer national developments (Blauberger, 2009; Smith, 1998). EU state aid rules are inherently political; they involve choosing between competing political objectives, and the decision outcomes constrain the powers of national governments (Büthe, 2016, p. 38; Kassim & Lyons, 2013). It is the prerogative of the college of Commissioners to adopt state aid guidelines (Büthe, 2016; Commission, 2014). Such guidelines must draw on the Treaty and CJEU case law, and must present principles for assessment of compatibility of aid (Banet, in press). The guidelines are not legally binding on member states, but they are binding on the Commission. Member states may challenge the guidelines, but this may entail long delays and hold back renewables investments while litigation goes on. Hence, the exact wording of the state aid guidelines may be of crucial importance for development of national practices in the areas they cover. Still, few scientists have attempted to explain revisions of EU state aid guidelines (for one of the exceptions, see Flåm, 2009).

This article presents a longitudinal study of how CJEU case law has influenced EU renewables policy development from the 1970s up to 2014. It pays particular attention to how constitutionalization has constrained and enabled the Commission to perform entrepreneurship and thus 'induce authoritative political decisions that would not otherwise occur' (Moravcsik, 1999, p. 271). Until quite recently, feed-in schemes dominated in the EU. These offered beneficiaries a fixed price for electricity for 15 to 20 years, independent of market price fluctations, often ensuring different renewables technologies different levels of support (Cointe & Nadaï, 2018). To the surprise of many, the 2014 state aid guidelines steered the countries towards shifting to competitive auctioning combined with feed-in premium (a support on top of the spot market electricity price; Fitch-Roy, Benson, & Woodman, 2019).

Hence, this article asks: *How and to what extent have constitutionalization and Commission entrepreneurship shaped the 2014 shift in EU steering of national renewables support schemes?*

While EU renewables policy development follows ordinary legislative procedure (formerly called co-decision), the Commission has the upper hand in revising state aid guidelines. In the ordinary procedure, the Commission presents a draft, the Council and the Parliament put forward amendments and, finally, the Parliament and the Council jointly adopt a decision. The Commission's Directorate-General for Energy (DG Ener) drafts renewables policy proposals, while the Directorate-General for Competition (DG Comp) drafts state aid guidelines[3]. Governance scholars have recently stepped up their efforts to make sense of the radical expansion of renewable energy within the EU. Hence, we now know far more about the politics and dynamics of EU renewables policy than a few years back (e.g., Boasson & Wettestad, 2013; Bürgin, 2015; Cointe & Nadaï, 2018; Solorio & Jörgens, 2017). However, we still lack a good understanding of the 2014 shift towards stronger EU steering of national support schemes. This shift did *not* result from changes in the EU renewables policy proper, but rather from the introduction of new guidelines on state aid for environmental protection and energy. Some authors have explored how the 2014 shift in the EU state aid steering influenced renewable energy decision-making at the member state level, but this article is the first (to my knowledge) that aims to explain the 2014 shift (Leiren & Reimer, 2018; Tews, 2015).

As a general rule, the Treaty prohibits state aid, and the state aid guidelines are intended to help clarify when renewables support qualifies as state aid and under which conditions it can still be accepted (Banet, in press). The state aid guidelines clarify these conditions. In order to fall under the Treaty's definition of state aid, renewables aid must be: 1) granted by a member state or through state resources; 2) distort or threaten to distort competition; 3) selectively favour certain undertakings; and 4) affect trade between member states (Community Guidelines, 2008, Article 7.1). Renewables aid that fulfils these criteria can only be accepted if it promotes EU climate and energy policy objectives and interests (Community Guidelines, Article 1).

The 2014 guidelines differ radically from how renewables support was dealth with in prior guidelines and renewables directives. They prescribe that aid be 'granted in a competitive bidding process on the basis of clear, transparent and non-discriminatory criteria' (Community Guidelines, Article 3.3.2.). Indeed, all new aid schemes are required to grant aid as a premium in addition to the electricity market price. The bidding process may be limited to specific technologies if certain conditions are met: if there is a 'need to achieve diversification'; if the installed electricity capacity is very small; if the number of projects is limited; or if competitive bidding could lead to higher support levels. Such exemptions may only be made if they do not distort the electricity market or if the energy markets are so poorly designed that market-based support schemes would not work. The Commission argues that during 2020–2030 established renewable energy sources will become grid-

[3] The names of these DGs vary during the period covered by this paper. For simplicity I will refer to them consistently as 'DG Comp' and 'DG Ener'.

competitive and subsidies should be phased out in a degressive way (Community Guidelines, 2014 Article 3.2.4). The 2014 guidelines accept electricity certificate markets (also called renewables portfolio standards) as an alternative to auctioning and feed-in premium.

We will now discuss how constitutionalization and Commission entrepreneurship may help us assess and understand this outcome.

2. Constitutionalization and Commission Entrepreneurship

In the early 1960s, the CJEU declared EU law 'to be directly applicable in the Member States to the effect that individuals could derive rights from it and claim them before the national courts' and decided that the Treaty should enjoying 'primacy over national law' (Grimm, 2015 p. 466; see also Schmidt, 2018, p. 1). Based on this jurisprudence the Treaty started to serve as a constitution: when the treaties are applied in accordance with the binding interpretations of the CJEU, European integration that is not endorsed by the member states may occur (Grimm, 2015, p. 469, 2017, p. 5).

The CJEU has influenced the behaviour of EU policymakers, which in turn has influenced EU policy on many issues (Martinsen, 2015, p. 1622; Saurugger & Terpan, 2017, p. 3; Stone Sweet, 2010, p. 7). For many years, scholars understood this development as 'judicial activism' or 'judicialization', referring 'to a process through which judges and courts act as policymakers, complementing, substituting or competing with political actors' (Terpan & Saurugger, 2018, p. 1). This research tradition primarily explores the CJEU judges' motivations and rulings. In contrast, the emerging 'constitutionalization' literature aims at increasing our understanding of how the CJEU influences European integration and EU policy development in the long run (Grimm, 2015; Schmidt, 2018; Weiler, 1991).

Because EU politics is 'too fragmented to respond to and correct the court', the CJEU judges have ample opportunity to influence EU policy development (Grimm, 2019, p. 9; Martinsen, 2015, p. 12). Susanne K. Schmidt (2018, pp. 3, 8–9) argues that ambiguous and unclear formulations in the Treaty and in EU secondary law (such as directives and regulations) generate legal uncertainty. This leads private actors to litigate issues for the Court, resulting in rulings that again advance the impact of EU law. To create more legal certainty, EU policymakers may subsequently codify CJEU case law into secondary EU law (by, for example, incorporating them into directives or regulations). In issue areas characterized by constitutionalization, the leeway that member states have 'ultimately depends on the extent to which the Court rules that the Treaty applies to the national situation' (Schmidt, 2018, pp. 10–11).

Schmidt (2018, p. 7) argues that constitutionalization will play out in path-dependent ways and over long periods. The constitutional nature of case law, policymakers' inherent tendency to develop ambiguous compromises, and the CJEU's tradition of responding to all cases that are brought before it will eventually create a path-dependent development whereby CJEU's rulings will end up determining policy development in certain areas. The initial rulings will be particularly important.

Based on this background, we expect to find that the 2014 shift in the EU steering of national renewables support schemes can be explained by:

- *Neither the EU Treaty nor the EU renewables policy proper providing legal certainty about renewables support schemes, causing the CJEU to be challenged to resolve the issue*.
- *Initial CJEU rulings on national renewables support schemes creating precedence for later decisions, leading to a gradual case law development that eventually brought about the 2014 shift*.

In this article, we are particularly interested in exploring whether and how constitutionalization within the state aid area may strengthen the ability of the Commission to perform successful entrepreneurship. While Schmidt underlines that the Commission has a key role due to its privileged access to and knowledge about the Court, she concludes that we know little about how the Commission may exploit the constitutionalization logic to strengthen its impact (Schmidt, 2018 p. 35). On the other hand, several studies of EU state aid policy (Blauberger, 2009; Smith, 1998) conclude that the Commission has enhanced its autonomy in state aid cases by repeatedly performing entrepreneurship, exploiting CJEU rulings to gain progressively more power over this issue area.

Policy entrepreneurship 'is an effort to wield political power' and to 'induce authoritative political decisions that would not otherwise occur.' (Moravcsik, 1999, p. 271). It is performed by actors who seek to 'punch above [their] weight' (Green, 2017, p. 1473). By contrast, actors who merely 'do their job' and do what is 'appropriate' cannot be considered entrepreneurs (Boasson & Huitema, 2017, p. 1351). Commission officials can perform different types of entrepreneurship. First, they may perform *cultural-institutional* entrepreneurship, in the sense that they consciously frame their ideas and proposals to make them appear as attractive as possible (Boasson, 2015, p. 68). If this is the case, we will see that Commission officials have actively framed their favoured support scheme designs as superior, and have worked methodically to ensure that these understandings be included in the state aid guidelines.

In addition, the Commission may perform *structural entrepreneurship*; that is, acts aimed at enhancing influence by altering the distribution of authority and information (see Boasson, 2015, p. 70). Networking and the strategic use of decision-making procedures are particularly important in this respect. Concerning the former, we expect Commission officials to have had much informal contact with Commission officials in

other directorates-general as well as with key societal actors such as electricity utilities and renewables industry actors. Commission officials will use these networks to persuade others and ensure coordinated behaviour (Fligstein & McAdam, 2012).

When it comes to the strategic use of decision-making procedures, Commission officials will aim to exploit open policy windows and perform venue shopping. Exploitation of policy windows relates to timing: the ability to launch a proposal at the exact moment in time when it is most likely to be adopted. Kingdon (1984/2011, p. 165) regarded a policy window as 'an opportunity for advocates of proposals to push their pet solutions, or to push attention to their special problems.' Subsequent studies have shown that the existence of policy windows enhances entrepreneurial activities and sometimes also entrepreneurial success (see review in Boasson & Hutema, 2017, p. 1354). Entrepreneurs can also enhance their influence by ensuring that their 'pet issue' comes up for decision in the decision-making venue where it is expected to achieve their preferred outcome. For instance, we expect Commission officials to strategically assess whether their favoured solutions are more likely to be accepted in the revision of state aid guidelines or in the revision of the EU renewables policy proper (Kingdon, 1984/2011).

On this background, we expect to find that the 2014 shift in the EU steering of national renewables support schemes can be explained by:

- *Commission officials working strategically to frame feed-in premiums combined with auctioning as the most appropriate support scheme design.*
- *Commission officials exploiting policy windows as well as performing venue shopping and networking to achieve their preferred outcome.*

Let us now move on to present the longitudinal qualitative case study. The main method is process tracing; systematic within-case analysis aimed at identifying associations between cause and outcome. Four main sources have been combined: 1) reviews of existing literature on EU renewables and state aid policies (political science as well as juridical literature). Existing literature, including my own study of EU renewables directives, has been especially important for descriptions of the oldest phases of development; 2) systematic assessments of Commission working documents, state aid guidelines from 2001, 2008 and 2014, inputs to two public consultation processes between 2012 and 2014, and relevant Court judgements and advocate general opinions; 3) semi-structured interviews with 10 individuals from DG Comp, DG Ener and DG Legal Service (cabinet members as well as lower-ranking civil servants) and representatives from electricity and renewables energy industry associations. Due to the sensitive nature of the issue, all interviewees are anonymized and no interviews were recorded. All interviews where transcribed immediately after being conducted (see list of interviewees). Interview information has primarily been used to specify details in the chronological order and to specify relationships between various actors. Information from the different interviewees has been systematically compared.

3. Renewables Support: From Rare and National to Common and EU Steered

3.1. 1970–1999: The Commission Promotes an EU-Wide Market-Based Scheme and Challenges German Feed-In

During most of this period, the EU's authority within the realm of state aid was contested, and renewable energy was primarily a national policy issue (Boasson & Wettestad, 2013; Büthe, 2016, p. 39). After the oil shocks in the early 1970s, three different domestic renewables strategies gradually emerged. First, Germany, Denmark and, eventually, Spain embarked on technology-specific schemes, with no exposure to market forces (Boasson & Wettestad, 2013, pp. 82–83). They launched feed-in schemes, relying on fixed support levels for rather long time periods and guaranteed grid access. These schemes led to the emergence of small-scale domestic renewable energy industries. The second group of countries—Finland, the Netherlands, Sweden and the UK—offered R&D support and some other measures, but did not develop feed-in schemes. In these countries, the traditional utilities initiated a few renewable energy plants but no new renewables industries emerged. The third and largest group of European countries hardly promoted renewables.

In 1988 the Commission considered harmonizing renewables support, but this came to nothing (Rusche, 2015, p. 25, p. 81–82). The first renewables schemes were notified to the Commission in 1990; DG Comp found that both the British and the German schemes constituted state aid, but swiftly approved both. A little later, DG Comp endorsed schemes in the Netherlands, Sweden, Finland and Denmark.

Germany subsequently changed its scheme and the German Utilities Association lodged a complaint with the Commission over application of the state aid rules (Jacobsson & Lauber, 2006). In response, DG Comp sent a letter to the German government expressing doubt about the continued compatibility with state aid rules and proposing amendments that would bring German law in line with the rules, leading to a reduction in feed-in rates (CJEU, 2000, Articles 19–21). In 1998 Germany introduced a revised scheme but, despite consultations with DG Comp, did not follow up any of the proposals from the Commission (CJEU, 2000, Articles 34–38). Instead, Germnay decided that the distribution system operators (DSOs) could pass on their additional economic burden from buying electricity from renewables to the transmission system operators (TSOs). Although CG Comp complained about this to Germany, it refrained from asking Germany to notify because it expected a

new renewables directive to introduce harmonised renewables rules.

At this stage, the electricity supplier PreussenElektra AG refused to pay Schleswag (distribution system operator) the extra costs incurred in buying renewables electricity required by the German feed-in law (Kuhn, 2001; Rusche, 2015, p. 38). The issue was brought before a German court, which eventually asked the CJEU to clarify whether PreussenElektra was right when it argued that the German scheme fell under the Treaty's definition of state aid (CJEU, 2000, 2001). In the two years that passed before the CJEU reached a judgement, a major political controversy emerged in Brussels over EU steering of renewables aid in a new renewables directive (CJEU, 2000, Article 38).

DG Ener argued that national support schemes were no longer compatible with state aid rules. It suggested creating a market-based pan-European 'renewable energy credit' scheme, and began drafting a directive that would lead to this development (Boasson & Wettestad, 2013, pp. 84, 87; Rusche, 2015, p. 30). While the largest European electricity utilities supported the idea, the renewable energy industry mobilized against it (Boasson & Wettestad, 2013, pp. 84–85). Both industries had ties to Commission officials who supported their opposing views.

While the German government protested vigorously against the Commission's initiative, the Netherlands, Sweden and the UK were more positive. At the domestic level, the market idea got off to a rather bad start; the British quota system failed to yield much production and the Dutch government abandoned its voluntary certificate scheme soon after its introduction (Boasson & Wettestad, 2013, pp. 85–86). In the end, the EU energy ministers allowed the Commission to develop a renewables directive on the condition that it did not aim to steer the national support schemes. In parallel, DG Comp began more actively reviewing member states' state aid practices in a range of issue areas (Büthe, 2016, pp. 56–58).

By the late 1990s the Court had largely confirmed that the Treaty gave the Commission substantial authority over state aid, but it was unclear which and how many renewables schemes fell under the Treaty's definition of state aid (Büthe, 2016, pp. 56–58). The Commission had gained authority to require recipients of unlawful aid to repay aid, but many years would pass before it became clear whether it could apply this authority to renewables schemes.

3.2. 2000–2004: The CJEU Constrains Commission Steering and Member States Block Harmonization

The Commissions' understanding of how and to what extent it could influence national renewables support was fundamentally challenged during this period. In the midst of the heated discussion about the renewables directive, the advocate general of the CJEU in 2000 concluded that the changes that Germany had introduced to its feed-in law in 1998 were not sufficient to trigger the need for a new notification and, most importantly, that the scheme did *not* constitute state aid (CJEU, 2000, Article 19; Kuhn, 2001). Since neither PreussenElektra nor Schleswag was publicly owned, the money never actually passed through the state or through state resources, and thus the CJEU did not regard the German scheme as state aid (Rusche, 2015, p. 83). This decision came as a great surprise to DG Ener, DG Comp and DG Legal Service (the latter defended the view of the Commission in court; Interviewees 5, 6 and 8).

Already before the CJEU had made its decision, Germany changed its system again, introducing technology-specific support levels guaranteed for 20 years (CJEU, 2000, Articles 34–38; Cointe & Nadaï, 2018, pp. 6, 61). Gemany did not notify the revised scheme to the Commission, nor did France when it adopted a similar scheme, although the French government repaid utilities with state resources (CJEU, 2013; Rusche, 2015).

Many struggled to interpret the precedence created by *PreussenElektra*: did the ruling imply that neither the Commission nor the CJEU could overrule national renewables support schemes, or was the German case so special that it did not really create precedence (see Kuhn, 2001, p. 364; Rusche, 2015, p. 85)? Interviewees with knowledge of this period, regard *PreussenElektra* as highly significant. One (Interviewee 6) states: 'It is amazing how much this influenced the understanding of state aid.' DG Comp officials were confused, leading their decisions in the immediate aftermath of the judgment to lack consistency (Rushe, 2015, p. 86). In any event, the Court's decision legitimized a swift diffusion of feed-in schemes among EU member states (Cointe & Nadaï, 2018, p. 63).

In 2000, DG Ener published a draft renewables directive, suggesting a deadline for EU wide harmonization of support schemes. The Parliament rejected the deadline, and eventually the Energy Council accepted the draft with notable exemptions. The renewable directive adopted in September 2001 made no reference to market streamlining or harmonization (European Parliament and Council 2001/77/EC). The same year, DG Comp launched the first state aid guidelines that included renewable energy. The guidelines did not promote market streamlining or harmonization (Community Guidelines, 2001). They distinguished between how investment support and operational support could be calculated, but introduced no clear limitations on how much a renewables plant could receive over its lifetime. Calculations of investment support should be based on the 'extra costs' compared to conventional plants. It was made clear that operating aid would 'usually be allowable' and two design options were presented: a) the 'extra cost' approach: provide aid 'to compensate for the difference between the production cost of renewable energy and the market price' or b) the application of 'market mechanisms such as green certificates or tenders' (Community Guidelines, Articles E.3.3.2 and E.3.3.3.).

In the following years, the countries that first adopted feed-in schemes stayed on their original path and many others copied them, making feed-in the most common way to promote renewables (Boasson & Wettestad, 2013, pp. 86–87). A few countries opted for green certificate schemes; for instance, Sweden adopted a scheme that immediately boosted renewables investment. Still, by 2005 the scientific literature as well as most DG Ener documents concluded that feed-in schemes were more effective and less costly than electricity (green) certificates (Cointe & Nadaï, 2018, p. 72).

3.3. 2005–2009: Conflicts over the Revised Renewables Directive, Little Attention Paid to Key CJEU Ruling

When climate change climbed to the top of the EU agenda as the union prepared for the global climate summit in Copenhagen in 2009, conflicts over renewables support resurfaced (Boasson & Wettestad, 2013, pp. 87–94). By now, a significant renewables industry had emerged that had exceptionally strong ties to parts of DG Ener and the Parliament. The renewables promoters were united in their skepticism towards market streamlining and EU harmonization.

By this stage, only seven EU member states had green certificate schemes, whereas 18 had feed-in schemes (Commission, 2008a). While many in DG Ener were pleased with the diffusion of feed-in schemes, other Commission officials started to float the idea of a pan-European certificate scheme (Boasson & Wettestad, 2013, pp. 87–94). They envisaged a scheme where aid would be granted to the least costly renewables projects, market forces would determine the support levels, and governments would no longer be able to favour specific technologies. The renewables industry, as well as German and Spanish ministries, criticized the idea. The tone of the discussion was harsh; actors accused each other of fraud, lack of credibility and of being reactionary.

DG Ener officials opposed to the market approach ensured that the draft directive was 'leaked' in December 2007 (Boasson & Wettestad, 2013, p. 91). This happened only weeks before the Commission was to launch the draft. Even though the renewables community had little time to lobby against the draft, it largely succeeded. One month later, in January, the Commission issued a new and rather inconsistent draft directive, opening up for certificate trading but not for creating a pan-European scheme (Commission, 2008b). At the same time, DG Comp launched revised state aid guidelines. The 2008 guidelines were quite similar to the 2001 version and were not aligned with the draft directive. They did, however, give more weight to incentivizing lower support levels (Community Guidelines, 2008, Article 1.3.5). An interviewee (5) from DG Ener thinks that the state aid revision was not strongly coordinated with the renewables directive revision, while an interviewee from DG Legal Service (5) states: 'When they suggested developing a directive at the same time, it would be too blatant if they simultaneously included it in the guidelines. This was due to political considerations.' A DG Comp interviewee states 'nobody cared about state aid guidelines in 2008. It is only more recently that it has attracted a lot of interest.'

At around the same time, the Court radically changed its interpretation of the Treaty. First, the CJEU advocate general issued an opinion in January 2008 in the *Essent Netwerk Noord BV* case, which dealt with state aid in the electricity sector in general. Here, the advocate general argued that *PreussenElektra* was very special; in this case the feed-in costs were not transferred through state resources, and no public entities or private entities created by the government were involved, but this was rare. Hence, it had little general value for how state aid rules should be understood (CJEU, 2008; Rusche, 2015, pp. 103–104). The Court upheld this view in July (Mortensen, 2008). According to interviewees (5, 6), DG Comp had long wanted to challenge *PreussenElektra*, and the *Essent Netwerk Noord BV* paved the way for such efforts.

The renewables directive revision was hotly debated throughout 2008. By now, an increasing number of voices raised the concern that many feed-in schemes overcompensated renewables (Cointe & Nadaï, 2018, p. 90). A Commission interviewee (8) even states: 'We had a lot of people we had never seen before coming to us in black limousines. We understood back then that something was wrong.' This did not influence the political deliberations. A joint compromise proposal from the UK, Poland and Germany in June 2008 was a major breakthrough for the strategy of the renewables actors (Boasson & Wettestad, 2013, p. 92). The proposal ensured member states control over their national support schemes. In the end, the Council and the Parliament adopted a directive that required member states to continue to offer state aid to renewables, but they did not give the Commission new authority.

By the end of 2009, the EU had adopted a directive that contained binding national renewables targets, but no constraints on national renewables support designs. A new CJEU ruling enabled the DG Comp to start applying its state aid powers on renewables support, but it seems like few actors noticed this significant shift in CJEU case law.

3.4. 2010–2016: DG COMP Rises to the Occasion

By 2010 it became clear that the economic crisis constrained many member states' ability to offer renewables support, while the renewables costs had reduced dramatically. This made many reconsider their views on renewables support schemes (Cointe & Nadaï, 2018, pp. 89–90). Hence, the debate shifted from a trench war to a more nuanced, though still sometimes heated, exchange of knowledge and ideas (Cointe & Nadaï, 2018, pp. 94, 945).

Introduction of a significant share of intermittent renewables changed the price-setting mechanisms in Eu-

ropean electricity markets, largely to the disadvantage of the large utilities. Around 2012 it became clear that the industry faced severe economic challenges. The situation was particularly dire in Germany, where the wholesale power price was reduced by more than 50 per cent from 2011 to 2016 (Newbery, Pollitt, Ritz, & Strielkowski, 2017, pp. 7–8). Over the years, Germany had added several compensation mechanisms to its support scheme, rendering the *PreussenElektra* ruling outdated. Hence, the German Association of Energy Consumers lodged a complaint with the Commission, arguing that the scheme constituted state aid (CJEU, 2016). In parallel, the CJEU considered whether the French feed-in scheme constituted state aid, and in 2013 ruled that it did (CJEU, 2013). This signified a shift in case law, and late in 2013 DG Comp initiated a formal investigation procedure with respect to the German scheme (CJEU, 2016, p. 13).

By this stage, DG Comp was in the midst of a major 'modernization' of all state aid practices, aimed at ensuring economic efficiency as well as legal certainty (Fitch-Roy et al., 2019). It asked stakeholders to complete a questionnaire concerning revision of the state aid guidelines relating to renewables. In their replies to this questionnaire, the renewables industry called for minor alterations to ensure a more effective implementation of the 2009 renewables directive, while the electricity industry largely said it was fine with existing practices (Commission, 2016). Assessment of the inputs indicate that few expected major changes in the new guidelines. However, as one interviewee states: 'The member states had committed to the [renewables] targets, but it had consequences that few had expected. When the financial crisis came in addition, it was like a perfect storm.' (Interviewee 4). DG Comp exploited this situation, and in 2013 it issued draft guidelines for consultation which suggested radically ramping up EU steering towards competitive tendering combined with feed-in premiums. One Commission interviewee (8) who used to promoted certificate schemes stated: 'We lost that in 2008....I was okay with tendering. It was simply another way to ensure competition and cost-efficiency'. Another (3) highlights how auctioning fits the thinking of the Commission in general and that the possibility for bidding processes had opened up in many areas of state aid.

As very few EU countries applied feed-in premium combined with competitive auctions at this stage, the Commission's proposal came as a great surprise, and aroused significant protests (Fitch-Roy et al., 2019). Note that while new CJEU rulings enabled the Commission to develop this proposal, the CJEU said little about how support schemes should be designed; it merely specified that most schemes constituted state aid. The draft received considerable attention and many inputs. The seven largest utilities and the business association Eurelectric supported the new approach (Commission, 2016). The renewables industry was more critical, arguing that the proposal conflicted with the renewables directive. Many interviewees, however, argue that the conflict over more or less market steering was not as prominent as before. DG Comp hailed the new UK and Dutch schemes as good models for national support schemes (Interviews; Commission, 2014).

Many member states, however, voiced skepticism. For instance, France, Germany, Poland, Sweden and the UK all argued that the proposal was too restrictive and called for more leeway. An interviewee that participated in consultation meetings (3) refer to considerable member state resistance. A letter from France, Germany, the UK, and Italy in December 2013 confirms this (Change Partnership, 2014). The member states wanted leeway to continue with technology-specific feed-in to the extent they saw fit, and to avoid having to open up their schemes to other countries. The final 2014 guidelines were quite similar to the draft proposal, but included significant exemptions from the feed-in premium and auctioning requirement, allowing for more widespread use of technology-specific feed-in than the 2013 proposal (Community Guidelines, 2014; see Tews, 2015, p. 276).

Germany changed its scheme towards feed-in premiums combined with auctioning already before the Commission concluded in 2014 that the scheme constituted state aid (CJEU, 2016, p. 16)[4]. One interviewee (6) argues that Germany would never have adjusted its scheme had it not been for Commission pressure, describing the meetings between DG Competition and Germany as 'really heated, really harsh' and 'they did all they could in this case'. Another interviewee (5) expresses doubt as to whether the German government was really that unhappy with the changes, commenting that 'the revision was in a way modelled on the German situation.'

Interviewees (2, 6, 8 and 9) indicate considerable disagreements between the DGs over the new approach, and internal coordination seems to have been limited. Nonetheless, the college of Commissioners adopted the guidelines in April 2014. According to several interviewees, the Commissioners cast formal votes, which is a rare event. Let us now turn to assess how and to what extent constitutionalization and Commission entrepreneurship shaped the 2014 shift.

4. Assessment and Conclusions

The new 2014 guidelines increased the Commission's steering of national renewable energy schemes, even though the guidelines are not binding on member states in strictly judicial terms. The guidelines asked the member states to adopt a support scheme design that was not widely used in the EU at the time. It does not seem likely that the member states would have endorsed this shift in the strength and direction of EU steering if it had been up for decision in an ordinary legislative procedure.

Let us first discuss how and to what extent constitutionalization contributed to this development. First, do we find that neither the EU Treaty nor the EU renew-

[4] The CJEU confirmed this decision in 2016 (CJEU, 2016).

ables policy proper produced legal certainty about renewables support schemes, and because of this the CJEU was repeatedly challenged to resolve the issue? Yes, we do. This first happened with *PreussenElektra*, 10 years after the first schemes gained Commission endorsement. The CJEU took on the case because a German court had referred it, but the original court case was initiated by German electricity actors. This ruling had the opposite effect of what the German electricity industry had hoped for: it constrained, rather than enabled, the Commission to steer national support scheme development. Not until 2008 did the CJEU reach a decision that undermined *PreussenElektra*.

Second, did the initial CJEU ruling, *PreussenElektra*, create precedence for later decisions, leading to a gradual case law development that eventually brought about the 2014 shift? In one respect, we will have to answer in the negative; for a long time *PreussenElektra* hindered the Commission in interfering in national renewables scheme development. In contrast to the constitutionalization expectation, this ruling neither inspired EU renewable energy proper, nor was it challenged by this secondary legislation. However, the CJEU's *Essent Netwerk Noord BV* ruling in 2008 did opened up for path-dependent developments more in line with constitutionalization arguments. This judgement created precedence, and after this we see case law development that eventually contributed to the 2014 shift. This illustrates that CJEU rulings that undermine Commission steering are less likely to cause path dependence, primarily because such rulings hinder the Commission in making decisions that can be contested and in turn lead to new CJEU rulings. First when the CJEU breaks with a decision that constrains the Commission that path-dependent developments can be triggered. However, we will need to bring in Commission entrepreneurship to understand why the shift occurred in 2014 and why the Commission choose to favour feed-in premium combined with auctioning.

First, did Commission officials work strategically over time to frame feed-in premiums combined with auctioning as the most appropriate support scheme design? If we go back further than 2012, we need to reject this expectation. For several decades, DG Comp as well as officials from other DGs promoted a pan-European electricity (green) certificate scheme. The Commission first started to promote competitive bidding in combination with feed-in premiums in 2012. This was an adjustment to the political realities; after all, this design option was less different from the dominant feed-in scheme than a pan-European certificate scheme. Moreover, we have identified significant disagreements within the Commission, with centrally placed officials continuously defending the national feed-in approach. First during 2012 and 2013, DG Comp officials began to actively frame auctioning combined with feed-in premium as superior.

Second, did Commission officials exploit policy windows, and perform venue shopping as well as networking in order to achieve their preferred outcome? From the mid 1990s onwards, the Commission did try to exploit some policy windows, but performed little venue shopping and networking. From 2008 onwards, however, we can largely confirm this expectation. DG Comp officials skillfully exploited the policy window that opened around 2012. This window was created by the juxtaposition of the financial crisis, reduced technology prices, unforeseen electricity market distortions caused by increasing renewables shares, the electricity industry's mounting economic challenges and the initiation of the modernization process for of all types of EU state aid. As the debate over renewables support had become less riproaring and the ideological differences had lost importance, it also became easier for the college of Commissioners to endorse the shift.

Moreover, while Commission officials in 2008/2009 experienced that its draft renewables directive was completely rewritten by member states, DG Comp officials operated in a venue where the college of Commissioners rather than the member states had formal powers. This shift of venue did *not* result from a planned strategic move by a unified group of Commission officials from different DGs. Rather, we see that DG Ener and DG Comp officials primarily tried to influence the processes they led, i.e., where they held strong formal positions. As DG Comp had more authority to steer the state aid guidelines revision than what DG Ener had to steer the renewables directive revision, it is maybe not surprising that DG Comp was much more successful. The DG Ener officials who initially promoted a pan-European certificate scheme remained rather passive in the state aid guidelines revision. Indeed, we do not identify much contact between DG Comp and DG Ener officials. True, the electricity utilities and renewables industry had each developed contact with different officials in the Commission, but it does not seem as if either of these networks were important in the state aid guidelines revision process. Rather, as late as 2012 both groups seem largely unaware of the intentions of DG Comp. Entrepreneurship from DG Comp officials was crucial to the 2014 shift, but these actors came rather late to the game and do not appear to have collaborated much with actors outside the Commission. Hence, the expectation is confirmed with respect to policy windows, only partly confirmed with respect to venue shopping and largely refuted with respect to networking; the latter was not important.

We can conclude that the constitutionalization perspective increases our understanding of the 2014 outcome; CJEU case law development eventually enabled the Commission to steer through state aid guidelines, and hence constitutionalization contributed to withdrawing policy options from 'majoritarian decision-making at the European and national levels' (Schmidt, 2018, p. 2). Indeed, we find that the leeway available to member states ultimately depended on the extent to which the Court ruled that the Treaty applied to the national support schemes (Schmidt, 2018, pp. 10–11). The important

shift in EU steering did not result from decision-making relating to EU's renewables policy proper, but was related to the Commission's drafting of state aid guidelines, a process where the Commission had the upper hand. However, this did not happen due to slow-moving irreversible path-dependent developments, as Susanne Schmit (2018) suggests. Rather, the entrepreneurship of Commission officials was crucial. Had it not been for the skilled exploitation of a policy window and the shift of decision-making venue, the Court's rulings would probably not have had that significant ramifications. The case presented in this article also indicates that constitutionalization may be more important than the literature on EU state aid policy suggests (Blauerger, 2009; Büthe, 2016). The 2008 CJEU ruling created a necessary basis for the shift, but the outcome would probably have been different if DG Comp officials, and eventually the college of Commissioners, had not risen to the occasion in the period 2012–2014. Note that the 2014 guidelines contain some exemptions to the main rules regarding feed-in premiums and auctioning. These seem largely to result from member state and renewables industry pressures and not from the factors highlighted in this article.

This article indicates that it is important to assess constitutionalization and Commission entrepreneurship in conjunction, and that constitutionalization may be particularly important in the state aid area due to the superior competence of the Commission.

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Conflict of Interests

The author declares no conflict of interests.

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About the Author

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Annex I: List of Interviewees

Interviewee 1: Representative from Wind Europe, the European business association for wind energy industry.
Interviewee 2: Representative from the European Commission, DG Energy.
Interviewee 3: Representative from the EFTA Surveillance Agency.
Interviewee 4: Representative from Eurelectric, the European business association for the electricity industry.
Interviewee 5: Representative from the European Commission, DG Legal Service.
Interviewee 6: Representative from the European Commission, DG Competition (cabinet level).
Interviewee 7: Representative from Eurosolar, the European business association for the solar energy industry.
Interviewee 8: Representative from the European Commission, DG Climate Action (cabinet level).
Interviewee 9: Representative from the European Commission, DG Competition (low level).
Interviewee 10: Representative from EREF, the federation of national renewable energy associations in EU member states.

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Article

Policy Instrument Supply and Demand: How the Renewable Electricity Auction Took over the World

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Abstract
The selection and design of renewable electricity support instruments is an important part of European Union (EU) energy policy and central to the governance of the Energy Union. In 2014, the European Commission published updated guidelines for state aid that are driving the EU-wide implementation of auctions for allocating revenue support to commercial scale renewable electricity generation. This article argues that the RES auction's rapid ascent towards dominance is explained by a coincidence of an activist interpretation of EU state aid law creating demand for knowledge about the instrument and the emergence of a ready source of supply from a burgeoning community of a RES auction specialists and experts. Knowledge gained through EU-wide implementation of auctions further adds to supply of auctions expertise among the community. The implications of positive feedback between instrument demand and the growing supply of knowledge about an instrument reinforces the importance of critical engagement between policymakers and policy experts.

Keywords
auctions; European Union; governance instruments; instrument constituencies; renewable energy; state aid

Issue
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1. Introduction

Renewable energy expansion remains a public policy goal across the European Union (EU) and global leadership in renewables is a primary goal of the Clean Energy Package of legislation, placing it at the heart of the Energy Union (Szulecki, Fischer, Gullberg, & Sartor, 2016). Member States have taken various approaches to promoting renewables, resulting in multiple national policy instruments. The diversity of instruments used means that public financial support for renewable electricity generation has occupied academic enquiry for many years (del Río & Cerdá, 2014; del Río & Gual, 2004; Woodman & Mitchell, 2011). While the 1990s and 2000s saw scholars debating the relative merits of instruments such as feed-in tariffs (FIT) and tradable quotas (Mitchell, Bauknecht, & Connor, 2006), attention has recently shifted to the 'renewable electricity auction' or renewable electricity support (RES) auction for achieving policy objectives. Global experience of using auctions has been mixed, with some encouraging examples as well as others in which the instrument appears poorly matched to policy goals. Of interest here is how and why such auctions have rapidly assumed a prominent position in the EU in preference to other instruments.

Our guiding question is consequently 'how did the auction instrument become central to EU renewable electricity governance, given the implementation challenges'? We draw on established and emerging theories of instrument choice, emphasising the importance of the multi-level nature of instrument *demand* and the concept of the 'instrument constituency' for promoting *sup-*

ply. We then discuss the relative importance and interrelation between these two factors and propose theoretical refinements for future research.

We show that the auctions boom reflects changes in the global and European policymaking context, including the increased political salience of RES support costs and important changes to what Howlett (2009) calls the 'governance mode'. Most importantly, we observe the significance of the EU's state-aid modernisation programme (SAM) in pushing the logic of pan-European competition within RES policy making. We also chart the emergence of a self-reinforcing community of auction advocates fitting the description of an 'instrument constituency' within an emerging literature (Béland, Howlett, & Mukherjee, 2017; Simons & Voß, 2017a, 2017b; Sturdy, 2017; Voß & Simons, 2014). This community, we argue, plays a pivotal role in the 'innovation journey' traversed by RES auctions.

1.1. Auctions and Renewable Energy Governance

The auction, the solicitation and ranking of bids, has structured economic relationships since antiquity (Krishna, 2010). The concept has been applied in a wide range of public policy areas, including the allocation of rights to natural resources, oil reserves and radio frequency spectra (Binmore & Klemperer, 2002; Klemperer, 2004). The application of auctions as a renewable electricity governance instrument is distinct from the instruments conventionally considered 'support mechanisms' such as FIT or tradable quotas. Renewable electricity auctions tend to be characterised by two primary features. Firstly, access to financial support is allocated to prospective electricity producers at discrete intervals in which limited support is available. This contrasts with other support instruments such as FIT or tradable green certificates (TGC), which are, broadly, open to eligible applicants at all times until the scheme is revised, for example to account for target fulfilment. Secondly, the value of the support, usually representing a price-supplement per unit of production, is determined through ranking of applicants' price *bids*, with the volume of support, measured in overall cost or generation capacity, filled from lowest price to highest. This differs from both FIT, which offer a known fixed-price, and to TGC, the value of which may fluctuate throughout the tenure of support (del Río, 2017; Fitch-Roy, 2016).

Thus, RES auctions, rather than acting as a support instrument, perform an allocative function that can enhance policymakers' ability to control the volume of new renewable electricity projects, while applying a degree of competitive pressure on bidders to offer their true costs. In other words, the financial support awarded through an auction is structured independently from the allocation. In practice, the most common 'awards' offered to auction winners are a fixed per-unit price for production, a very similar offer to that available through a feed-in tariff (Szulecki, 2017) or a sliding premium system or 'contracts for difference' in which payments are calculated with reference to a market index (Fitch-Roy, 2016).

Accumulated analyses of auction performance and subsequent refinement mean that RES auction designers have a wealth of material to guide their decisions. Much of the material observes (and proposes measures to correct) bidding strategies and behaviour that may lead to sub-optimal outcomes, such as the infamous 'winner's curse' in which *ex ante* bids overestimate the contract value or underestimate bidders' costs, often making the project undeliverable (Klemperer, 2004; Thaler, 1988).

Despite disappointing rates of project completion for RES auctions held in the 1990s, often attributed to inadequate penalties for bidders making offers too low to allow projects to proceed, (Agnolucci, 2007; del Río & Linares, 2014; Mitchell, 1995), the RES auction has rapidly become the predominant renewable policy instrument for supporting large-scale renewable electricity generation globally. In 2005, six countries used auctions to support renewables, by 2016 it exceeded 70 (International Renewable Energy Agency [IRENA], 2017). In the EU, a 2014 update to European Commission guidelines for interpreting state-aid law means that competitive instruments such as auctions are strongly preferred for all schemes requiring state-aid notification, effectively making auctions the default choice for member states wishing to support large-scale renewable electricity deployment (European Commission, 2014).

Contemporary accounts of the recent boom in auctions present them as a functional substitute for their immediate predecessor instruments, especially the feed-in tariff, albeit with performance enhancements (del Río, 2017; Gephart, Klessmann, & Wigand, 2017; Toke, 2015). Observers tend to assume that the RES auction forms part of a 'natural', obvious progression in the evolution of RES support policy and that policymakers with the correct analysis, will (or at least should) tend towards their use (International Energy Agency [IEA] & IRENA, 2017).

Prior to the recent boom in use, auctions were generally considered inferior to FIT, both in their effectiveness at generating renewables growth and driving innovation, as well as in their cost effectiveness (Butler & Neuhoff, 2008). Economic theory invoked in support of RES auctions (del Río & Linares, 2014) is also ambiguous. Martin Weitzman's seminal (1974) essay suggests that quantity-control instruments (such as auctions) should, under conditions of uncertainty, offer welfare benefits over price instruments (such as feed in tariffs) where supply curves are flat relative to demand. The actual shape of these curves for renewable electricity, however, is highly variable and strongly dependent on local resources and supply-chain conditions, not indicating a generalised application of auctions (Held, 2010). Transaction-cost economics paints a similarly ambiguous picture about the universal suitability of RES auctions as governance instruments (Finon & Perez, 2007; Kitzing, Mitchell, & Morthorst, 2012). Nevertheless, the European Commission's 2014 guidelines for state-aid amount

to an immediate, mandatory, and EU-wide application of auctions to the support of large-scale renewable electricity projects, to the initial alarm of many stakeholders (European Commission, 2013).

This article is primarily inspired by our observation that the RES auction was rehabilitated within mainstream European policymaking remarkably quickly. The generally accepted explanation of its rapid uptake rests on the auction's supposed ability to simultaneously enable static efficiency (i.e., improve cost-effectiveness) and increase market integration, while controlling the volume of deployment and total support payments (IRENA, 2017). With a few notable recent cases of faster-than-anticipated deployment of renewables and associated support costs under feed-in systems (Inderberg, Tews, & Turner, 2018; Mir-Artigues, Cerdá, & del Río, 2018) and continuing reductions in contract prices achieved at auction (Mora et al., 2017), this explanation is *prima facie* credible. However, this accepted 'functionalist' explanation of the rise of renewable electricity auctions, we argue, cannot fully account for the auction's rapid ascent to becoming the main RES instrument in the EU.

RES support instruments encompass a huge range of diversity and the objectives set for the instrument (explicit or implicit) also vary widely between locations and over time, going far beyond the basic "cost efficiency" rationale (del Río & Linares, 2014; Winkler, Magosch, & Ragwitz, 2018). Often, the fundamental renewable energy policy goals remain to (continue to) deploy renewable electricity within a wider transformation towards a low-carbon economy. We hold that the EU-wide introduction of the auction is a significant, complex and somewhat surprising change to goal realisation, thereby requiring better explanation. Given the propensity for EU climate and energy governance choices to shape policy elsewhere (and vice-versa) through mechanisms such as international policy diffusion or transfer, the rise of the EU RES auction has global significance (Inderberg, Bailey, & Harmer, 2017; Meckling, 2011). This article contributes to a clearer understanding of the mechanisms involved in such propagation.

The inspiration for this documentary study arises from two of the authors' participation as researchers in the AURES project, funded under the European Commission's Horizon 2020 programme to develop and disseminate expertise in RES auction design between January 2014 and December 2017. The authors were simultaneously working to create knowledge useful to policy practitioners seeking to solve problems related to the design of RES auctions and subsequently reflecting on that experience to pose more general questions such as that addressed in this paper. In this regard, the study draws on a research strategy loosely aligned with a tradition of participatory action research in public policy and organisations (Heatwole, Keller, & Wamsley, 1976; Whyte, 1991).

Participation in the project did not result in direct or indirect observation of other project participants as research subjects (Johnson & Reynolds, 2012). It did, however, trigger and inform the subsequent documentary analysis which provides the empirical data on which this study is based. All elements of the account are supported by (we hope compelling) documentary evidence, although we acknowledge that the experience of the authors inevitably brings a certain degree of interpretation in the selection and presentation of data. We have made every effort, however, to ensure that the account is "clear enough to be proven wrong" (Sabatier, 2007, p. 5) and invite other authors to do exactly that.

The remainder of this article is structured as follows: section 2 describes our analytical framework, distinguishing between demand for and supply of knowledge about governance instruments; section 3 deploys the framework to present an account of the rise of the RES auction in the EU; section 4 discusses the implications of the account and concludes.

2. Conceptualising Demand for And Supply of New Governance Instruments

As set out in the introduction, this paper starts from the assertion that a purely functional explanation of the ascent of the RES auction cannot account for the rapidity or scope of the policy change observed. In search of a more satisfactory explanation, this section develops an analytical framework that considers firstly the 'demand' for instrument change, which may take the form of exogenous economic or political developments. We briefly discuss some of the constraints on instrument selection that limit responsiveness to demand. Secondly we draw on recent work highlighting the significance of instrument 'supply'. That is, the networks of knowledge and expertise required to firstly select and secondly implement changes to instruments.

In the first instance, we reject the idea that governance instruments, the means by which "governments shape behaviour in pursuit of its policies" (Hood & Margetts, 2007, p. xiii), are neutral tools that policymakers may simply pick up and 'use' to solve particular policy problems. Lascoumes and Le Gales (2007, p. 2) state that public policy instrument choice is often considered part of a "rationality of methods" with no inherent meaning. This rational "functionalist orientation" is attractive since it assumes that rationality is, or normatively should be, the basis of instrument choice (for example, Hepburn, 2006). But instrument choice is not a straightforward à la carte selection. Instead, it is greatly influenced by, and has influence on, contextual, historical and sociological factors. Instruments themselves firstly represent a condensed and particular form of knowledge about how to govern social processes and, secondly, induce specific effects outside the objectives set for them that "structure public policy according to their own logic" (Lascoumes & Le Gales, 2007, p. 3; Simons & Voß, 2017b).

Literature addressing the choice of policy instrument reflects two broad branches. The first helps to understand the demand for types of instrument in particular

contexts and particular times while the second addresses the supply of instruments available to meet that demand. We anticipate that supply and demand processes are dynamic and interactive, with changes on the supply-side influencing demand for an instrument as well as *vice-versa*.

2.1. Demand for New Instruments

In addition to the practical, administrative constraints that influence instrument choice (can it and will it achieve its material aims?), the multi-level, nested nature of policy goals and actions sharply constrains the types of instrument that may be implemented in a particular context (Howlett, 2009). The ultimate choice of policy target and the tools used to reach them reflect not simply the aims of the policy area, but also wider policymaking and political contexts. New instrument adoption is not simply putting a 'new nib on an old pen'. As tools of governance, instruments must be coherent with the current "governance mode" or fairly stable sets of "favoured ideas and instruments" as well as with the objectives and preferences of the intermediate level "policy regime" in which public policy choices are determined (Howlett, 2009, p. 76). Consequently, change within these higher levels of abstraction, such as the fundamental governance arrangements of the economy or the broad policy objectives or logics, may create demand for change at the instrument level. This demand for new or updated instruments may not directly reflect the immediate goals, preferences and norms or "on-the-ground micro-requirement" of the policy targets that require specific tool calibrations (Howlett, 2009, p. 75).

Considering instrument choice as a governance process that takes place across multiple levels of abstraction highlights particular challenges for instrument choice in the EU. If we consider that EU governance takes the form of a multi-level "system of continuous negotiation" among various interdependent territorial levels, achieving coherence between levels, between policies and instruments becomes more complex again (Hooghe & Marks, 2001; Marks, 1993, p. 392). Changes in the policymaking regime or governance mode at the European level may conflict with those at the national level, potentially (but not necessarily) further constraining national instrument choices (Jordan, Wurzel, Zito, & Bruckner, 2003).

2.2. Supply of New Instruments

Recent theoretical developments have brought the supply-side of policy change into sharper focus. The notion that the policy subsystem is structured into identifiable actor groups engaged in complex interactions, collaborating and competing to define problems while searching for and legitimising solutions has a long heritage (Haas, 1992; Kingdon, 2010; Sabatier & Jenkins-Smith, 1993). More recent policy analysis is showing the importance of specialist 'instrument constituencies' in creating and sustaining a 'supply-push' for particular instrumental forms of governance (Simons & Voß, 2017b).

Instrument constituencies help to understand how particular models of governance 'take on a life of their own'. As a particular governance instrument develops, knowledge of its functional particularities grows, attendant business opportunities emerge and political agendas are shaped such that a constituency of specialist actors "come to live through and for the development of a specific governance instrument" (Simons & Voß, 2017b, p. 2). It is posited that instruments take on a 'social life' within the instrument constituency, lived through practices such as: "scientific theory building, data production and publishing, political issue framing, agenda setting, coalition building, business development, marketing and lobbying, management of innovation networks, professional organisation" (Voß & Simons, 2014, p. 737).

Among propositions made in the nascent literature on instrument communities is an expectation that they are fundamentally future-facing structures in which actors "align their agency towards the development, retention, and expansion of the instrument" (Simons & Voß, 2017b, p. 6). Members of the instrument constituency may work simultaneously on specific implementations and the generic, conceptual articulation and refinement of the instrument to encourage its take-up and implementation elsewhere. The instrument constituency is central to a cycle of mutual reinforcement between implementation and an ever-more refined conceptual understanding of the instrument held in the model used to support further implementations (Simons & Voß, 2017b; Voß & Simons, 2014).

While the instrument constituency concept remains relatively new, there are early indications of its usefulness in explaining instrument choices in multiple policy fields (see Simons & Voß, 2017a). Of particular relevance to this article are the insights afforded by the instrument constituency into the expansionary 'innovation journey' of EU climate and energy policy instruments such as the EU Emissions Trading System (Voß, 2007; Voß & Simons, 2014). The implication here is that not only will the supply of specialist knowledge grow in response to demand, but that the level of demand will, in turn, be influenced by growing supply.

3. A Brief History of a Policy Boom

Following the generally unsatisfactory performance of auctions to realise new projects in Ireland, the UK and France in the 1990s, a decade-long hiatus occurred in their use for allocating RES support (Agnolucci, 2007; del Río & Linares, 2014; Mitchell, 1995). In the last decade, however, a new wave of RES auctions began, largely focussed on developing nations (Azuela et al., 2014; IRENA, 2017; Winkler et al., 2018). In countries such as Brazil, South Africa, China and India, policymakers faced with surging demand for new electricity capacity began to hold periodic tenders in which renewable electricity

projects could receive power purchase agreement (PPA) contracts (Baker, Newell, & Phillips, 2014; IRENA, 2013).

The use of RES auctions in developing nations is based in the logic of state procurement (Lucas, del Río, & Youba Sokona, 2017). State procurement of renewable capacity leads to auction usage for two reasons. Firstly, the use of auctions in other areas of electricity policy has been a widespread procurement tool, often for outsourcing electricity production by public distribution companies to private producers. The extension into RES procurement was uncontroversial (Maurer & Barroso, 2011). Secondly, RES auctions, as 'competitive' instruments, are highly compatible with multilateral organisations' strict guidelines for procurement supported with donor capital (Ravallion, 2016), itself an artefact of the neoliberal preferences of many global institutions (Newell & Phillips, 2016; Ockwell et al., 2017). This complementarity means that auctions are a common requirement for developing nations in implementing renewable electricity procurement programmes reliant on this support (Eberhard & Naude, 2016).

African and South American countries, including Zambia, Ethiopia, Argentina and Uganda, utilise RES auction policies, often supported by multilateral finance. These cases are held by policymakers, academics and others as examples of successful RES auctions and used to recommend greater application of auctions for energy policy (Eberhard & Naude, 2016; International Finance Corporation [IFC], 2017; Lucas et al., 2017; Maurer & Barroso, 2011). These early experiences of RES procurement through auctions, although far from universally positive (Azuela et al., 2014), led to the enumeration of RES auction 'best practices'. Multilateral developmental organisations, such as the World Bank (WB) and IFC, began formalising and deploying these lessons in many countries (Maurer & Barroso, 2011).

Alongside the collation and dissemination of RES auction knowledge by development organisations themselves, key players in the energy scene such as the IEA and IRENA began to build competence in auction design and implementation (IRENA, 2013). They were supported by a network of consultancies and research institutes in Europe, mainly in Germany and Denmark. This group is well regarded for its track record of expertise in analysing and designing renewable electricity policy support instruments on behalf of international donor organisations plus national and European policymakers through programmes such as Horizon 2020 (de Jager & Rathmann, 2008; GTZ, 2009; Ragwitz et al., 2007). By 2013, international RES auction experience was being distilled into firm advice for policy as this expert group found new clients in the development sector willing to fund reports for recipient countries, such as South Africa (Ecofys, 2013).

Before 2014, very few EU member states had experimented with RES auctions (del Río & Linares, 2014). Experience of auctioning support for multiple, privately developed projects, in the UK, Ireland and France, was characterised by poor project completion (del Río & Linares, 2014). However, the combination of administratively set FIT and falling equipment pricing led to surging growth in installation, escalating policy costs, the over-rewarding of producers and associated budgetary challenges. Consequently, RES support in feed-in tariff countries such as Germany and Spain became politically salient (Geels, Sovacool, Schwanen, & Sorrell, 2017; Mir-Artigues, Cerdá, & del Río, 2015). Nevertheless, by 2014 few EU member states (the UK being a notable exception, see Fitch-Roy & Woodman, 2016) had identified RES auctions as a viable candidate for primary large-scale RES instrument.

In 2014, the European Commission published revised guidelines against for evaluating RES instrument compliance with state-aid rules. The energy and environmental aid guidelines (EEAG), the Commission's official interpretation of the prohibition of state-aid under article 107(1) of the TFEU, require that, from 2017, member states offering support to renewable generators (except micro projects or novel technologies), are required to use "instruments, such as auctioning or competitive bidding process[es]". The reasoning for the blanket requirement is the prediction of lower costs and internal market compatibility (European Commission, 2014). Although EEAG is not the only factor creating demand for new auctions schemes in Europe (Leiren & Reimer, 2018), it was a significant driver of auction adoption.

Adoption of the EEAG reflects broader trends in EU state aid law. Since 2001, Commission guidelines have acknowledged concerns about balancing environmental protection and compatibility of member state policy towards renewable energy with the single market. In 2001, a dispute involving the utility company, Preussen Elektra, over the legality of German FIT under EU competition law, was resolved by the ECJ, the court finding that, since revenues were not drawn from state resources, FIT did not constitute state aid (Kuhn, 2001). This legal precedent contributed to rapid growth in the use of the FIT across Europe. From a RES perspective, state-aid rules and renewable energy policy have since been kept broadly separate, despite ongoing monitoring and assessment of national renewable aid scheme compliance.

However, since 2005 a 'quiet revolution' in EU state-aid law has seen the expanded application of economic, rather than purely legal, principles for determining the Commission's interpretation of the Treaty's state-aid prohibition (Hancher, 2005, p. 431). This process of expansion towards the use of state-aid law in pursuit of broader public policy goals has been guided by a programme of State Aid Modernisation (SAM; Verouden, 2015). Here, the EEAG marks a clear shift towards state aid as "a regulatory and policy making tool rather than a mere monitoring and law enforcement tool" (Jansen, 2016, p. 597; Koenig, 2014). Not only are the legal principles of state aid compliance for RES support laid out, but the economic rationale and policy design in the form of auctions is also specified (Salerno, Douguet, & Rious, 2018).

This expansion of the Commission's interpretation of EU Treaty article 107 to include policy objectives other

than strict legal compliance has significantly strengthened European Commission competence. It also reflects a distinct internal shift of power over RES policy within the European Commission from the Energy Directorate General (DG Energy, formerly DG TREN) to DG Competition, something that had been sought for some time. For example, attempts by DG Competition in 2008 to ensure that DG TREN's proposals for the Renewable Energy Directive included an EU-wide tradable quota scheme resulted in a well-documented failure (Jacobsson et al., 2009; Nilsson, Nilsson, & Ericsson, 2009).

Following the EEAG in 2014, RES auction design and implementation swept across Europe, with 13 Member States implementing RES auctions by 2018 and a further five with firm plans in place (Council of European Energy Regulators [CEER], 2018), creating strong demand for analysis and practical advice, largely met by the RES community of support specialists and supranational organisations such as CEER. To assist national governments, advocacy organisations with an EU climate and energy policy remit commissioned reports detailing key challenges of using RES auctions in Europe (Agora Energiewende, 2014). The European Commission concurrently engaged a consortium of RES support experts through its Horizon 2020 programme to undertake a three-year knowledge creation and dissemination project to increase understanding of RES auctions and contribute to the EU policy process (Kitzing et al., 2016; Mora et al., 2017).

Despite some high-profile successes, EU experience does not show a universal trend of auctions outperforming other financial support mechanisms to renewable electricity generators (Winkler et al., 2018). Indeed, there have been some notable failures of auctions to fulfil objectives formerly met with FIT (del Río, 2017). In particular, preventing participants from bidding at prices below the cost of realisation (and therefore not delivering), and fostering technology, participant and geographical diversity have all proved challenging. In addition, pursuing multiple policy goals, beyond lowest cost contracts, has presented challenges. Less mature technologies and smaller, community-based participants have proved especially difficult to target (Stratmann, 2017). Price reductions achieved with auctions are neither universal nor necessarily persistent, often resulting in slowing RES deployment (Huebler, Radov, & Wieshammer, 2017; Winkler et al., 2018). It is, however, 'early days' and administrators' understanding of auction effectiveness is building. Widespread application of the instrument is credited with reducing technology prices and expanding renewable electricity installations (IRENA, 2017). The expertise for such learning is provided by researchers integrated with the network of specialists identified above as being involved in consolidating knowledge from developing countries as well as renewable energy support instruments more generally.

With the RES auction established in Europe, new international horizons are emerging. The auctioning idea, refined in Germany and other member states after the EEAG, is being widely promoted across various international fora and between EU members, such as France and Germany (Ragwitz & Anatolitis, 2017). In hosting the 2017 G20 summit, for example, Germany convened a series of climate and energy-focussed activities supported with analysis from actors such as IRENA and the IEA as well as the network of research and consultancy organisations (Ecofys, 2016). The resultant *communiqué* presents auctions as an uncontroversial instrument choice, stating that:

> [Renewable energy] policy instruments have evolved and in some cases consolidated around standard models. An example is the evolution of renewable electricity support schemes in a number of countries from portfolio standards and feed-in-tariffs to auctions. (IEA & IRENA, 2017, p. 32)

New regions such as South East Asia have been identified as ripe for the auction treatment, with the same cohort advising donor organisations such as USAID and policymakers in Asia (Ecofys, 2017; Tongsopit et al., 2017). Auctions are also promoted across the EU's Energy Community neighbourhood (Wigand & Amazo, 2017).

4. Discussion and Conclusions

This article aimed to explain how RES auctions became central to EU renewable energy governance so rapidly. The narrative shows four key stages in RES auctions innovation. First, auctions were used as a procurement tool in developing countries where donor organisations and development banks were central to establishing a supply of expertise in how to use auctions to allocate RES contracts. Second, RES auctions fulfil DG Competition's preference for a competitive, potentially pan-European support policy. The rise of state-aid policy as the main driver of EU RES policy marks a distinct shift in governance mode, a crucial factor in creating demand for new instruments (Howlett, 2009). EU state-aid modernisation, combined with examples of budgetary difficulties with FIT, allowed DG Competition to not only enforce state-aid compliance but to effectively mandate the type of instrument member states could use. Thirdly, the 2014 EEAG created a laboratory of member state cases for fine-tuning RES auctions. Implementation has provided important data about how best to overcome challenges, enhancing the supply of auctions expertise held by a growing instrument constituency. Finally, the lessons learned first in developing countries, and in Europe, are being reflected in new regions, setting up an additional wave of international propagation.

A community of auction experts has accompanied the RES auction on its journey. Academic institutions and consultancies have helped develop, collate, interpret and conceptualise RES auctions. Much of the intellectual effort builds on collaboration established in earlier research programmes. But, whether this community

constitutes the hypothesised 'instrument constituency' depends on whether its activities have been expansionary in that actors have sought, consciously or otherwise, greater implementation of RES auctions as an end rather that a means to an end. We argue that this has occurred. Consultants with demonstrable design expertise gained in developing countries found their skills in high demand across Europe due to the EEAG. The European Commission, by funding further research by the same group bought legitimacy that 'it could be done' while honing the instrument for further expansion. International organisations such as IRENA and national governments, once auctions were the 'only game in town', fed this process by procuring further analysis. We do not assert that these actors actively sought to promote auctions at the expense of alternatives. Between 2007 and 2014, renewable energy policy costs were salient in Europe, and talk of auctions was 'in the air'. We also acknowledge that some contemporary research in transitions and economics suggests that quantity-control instruments such as auctions may become more prevalent as renewable energy markets mature (Kitzing, Fitch-Roy, Islam, & Mitchell, 2019).

However, we argue above that demand-side economic and political factors do not fully explain the rapidity with which the RES auction has displaced earlier instruments, often leading to diminished performance against goals (Winkler et al., 2018). While it is clear that there was demand for change, our account strongly suggests that those demand signals were amplified through mutual reinforcement between policymakers and analysts making the most of the competitive advantage afforded by their auctions expertise. Positive feedback between auction experts seeking new markets and new on-the-ground problem-solving experience enhanced this expertise, accelerating refinement and innovation in auction conceptualisation and design.

The spread of auctions suggests a degree of international convergence in RES governance, either through diffusion or by policy transfer (Dolowitz & Marsh, 1996). The agency implied here in propagating RES auctions firstly between developing nations and the EU and secondly outwards to Europe's near neighbours suggests that the instrument constituency contributes to policy transfer, rather than policy diffusion, a more structural phenomenon (Marsh & Sharman, 2009).

The observed trajectory of RES auctions described shows a distinct parallel to Voβ and Simons' (2014) account of the Emission Trading System instrument constituency in which the EU was a key staging post in the governance innovation journey. The lessons learned through the EU ETS continue to inform the design of trading systems around the world (Inderberg et al., 2017). In much the same way, RES auctions were of peripheral interest until the scale of innovation and demand for instrument knowledge that can occur in an EU-wide implementation was realised. Viewing instrument choices through the lens proposed here may offer insights for analysts and policymakers. That instrument choice is initially shaped by changes to governance principles resulting from developments outside the policy area and thereafter by positive feedback within an instrument constituency provides policymakers with important knowledge. While demand-side pressures such as the growing tendency to use state-aid as a policy tool is ongoing and inevitable, the active role of policymakers on the supply-side of instrument innovation demands greater reflection. As Voβ and Simons' (2014) acknowledge, the self-fulfilling nature of instrument innovation reinforces the need for scrutiny of instrument choice, recognising that not all policy innovations are created equal. Apparent consensus around an instrument may reflect the state of supply of specialist instrument knowledge as well as the instrument's functional properties.

Finally, the importance and relevance of the concept of the instrument constituency may vary between policy areas and between different policymaking contexts. The degree of EU competence and therefore Europe-wide policy research coordination may be a critical factor. A comparative research agenda can help clarify these issues. Also, while there is growing recognition of how instrument constituencies complement theories of policy making such as the multiple streams approach (Fitch-Roy, Benson, & Mitchell, 2018; Mukherjee & Howlett, 2015) and advocacy coalition framework (Weible, 2017), similar engagement with new institutionalist research, discursive institutionalism in particular (Fitch-Roy, Fairbrass and Benson, 2019), could offer benefits to both fields.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

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

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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

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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.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

The EU Emissions Trading System and Renewable Energy Policies: Friends or Foes in the European Policy Mix?

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Abstract
The EU's energy transition has advanced rapidly over the last decade, with important implications for the policy landscape. Scholars have characterized the Emissions Trading System (ETS) and the Renewable Energy Directive as the most important policies for reducing greenhouse gas emissions in the electricity sector. However, since the early 2010s, non-governmental and industrial actors have debated whether renewable energy (RE) support and targets are compatible with the ETS. This article systematically assesses the policy preferences of five groups of non-governmental actors with respect to the role of the ETS versus RE policies in three policy processes. For most groups, preferences remain stable across the policy processes. In the electricity industry group, preferences vary from one policy process to another. During the ETS-reform, this group of actors argues that the ETS should be the main climate policy, whereas, in the Clean Energy Package-process, almost half of the utilities endorse continued RE support. This represents a shift in their line of reasoning and policy position: from asserting that RE policies 'destroy' the ETS, towards a position which recognizes the value of having both the ETS and RE policies as complementary instruments in the policy mix. The findings point to increasing support for RE policies, which is important for policy makers and scholars involved in designing and implementing the EU's decarbonization policies.

Keywords
emissions trading system; energy policy; energy transition; European Union; policy mix; renewables

Issue
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1. Introduction

The need for deep reductions in global Greenhouse Gas (GHG) emissions is urgent and tremendous (IPCC, 2018). Confronted with recent evidence from climate scientists, the European Commission (hereafter: Commission) has called for accelerating decarbonization endeavors in the EU, targeting climate-neutrality by 2050 (Commission, 2018a). This has major implications for decarbonization policies in the EU. Given the key role of the electricity sector for reducing GHG emissions, this article takes a closer look at two policies that have been characterized as 'the key policy' for decarbonizing the electricity sector by different types of actors: the Emissions Trading System (ETS) and the Renewable Energy Directive (RED).

Renewable energy (RE) policies and the ETS are both policies whose ultimate objective is to reduce GHG emissions. However, these two policies follow different logics: the former provides financial support and market advantages for specific low-carbon technologies, whereas the latter leaves it to market-mechanisms to decide where emission reductions should take place and through which technologies they should occur. Since they co-exist in the European electricity sector, it is important to study how they work in relation to each other. Scholars have pointed to the need for analyzing policy instruments in their mix and encourage researchers to take a policy-mix perspective (Flanagan, Uyarra, & Laranja, 2011; Rogge & Reichardt, 2016).

Since the adoption of the EU's 2020 Climate and Energy Package, there has been much debate regarding what the EU's policy mix should look like. Scholars have argued that this discussion can be described as a conflict between different logics in climate policy, i.e.

whether to pursue a 'technology-neutrality approach' or a 'technology development approach' (Boasson & Wettestad, 2013; Fitch-Roy, 2017). These two opposing perspectives are reflected in different strands of literature. Economists have argued that carbon pricing is superior to other policies in terms of cost-efficiency (Fischer & Newell, 2008) and that this instrument should be able to work alone without other measures in the policy mix (Böhringer & Rosendahl, 2010). On the other hand, innovation scholars argue that in order to successfully combat climate change, innovation in all its forms will be indispensable (Fagerberg, 2017). This includes not only technological innovation but also new modes of consumption and of organizing social systems. Hence, it is increasingly recognized that we need a multiplicity of instruments to foster transitions (Rogge, Kern, & Howlett, 2017). One important insight from this literature is the value of creating niches in order to help the uptake of new and more sustainable technologies. Even though this might be costly in the beginning, it might trigger rapid cost reductions as has been experienced with wind and solar power. The literature on 'strategic niche management' (Kemp, Schot, & Hoogma, 1998) elaborates on the elements of successful niche building and identifies market protection as one key factor together with networking and learning. The EU's RE directive from 2009 contains several of these elements through its binding RE targets on member state (MS) level, RE action plans, and enabling RE support schemes.

Despite the salient debate on the relationship between the ETS and RE policies, the policy processes around these two types of policies have not been sufficiently explored in the literature, with Boasson and Wettestad (2013) and Fitch-Roy (2017) being noteworthy exceptions. This article examines the policy preferences of five groups of non-state actors with respect to the role of the ETS versus RE policies in recent policy processes. It systematically assesses the positions of industry, electricity producers, traders, RE associations, and environmental NGOs (E-NGOs) across three distinct policy processes through an extensive review of consultation responses combined with a limited number of in-depth interviews. It seeks to understand the different strategies taken by these groups of actors and asks:

> RQ: Why do different actors hold substantially different policy preferences towards the ETS and RE support—and are preferences consistent across policy processes?

A particular look at the policy preferences of these actors is highly relevant for analyzing the unfolding transition in the electricity sector, given that many of them are intimately involved in—and affected by—the actual changes. Previous studies have shown how the positions of particular groups of actors have influenced policy outcomes through successful lobbying strategies (Gullberg, 2013; Ydersbond, 2014). Since the energy transition is an ongoing process, it is valuable to capture the policy preferences at different stages in order to analyze how the transition affects the involved actors and vice versa. Moreover, assessing policy preferences helps to identify main battle lines in the policy process and informs on feasibility for future policy outcomes. In light of ambitious climate targets and the need for climate action, the analysis provides useful insights for policymakers and scholars about policy mix designs in advancing transitions.

For most actors, I find that preferences remain stable across the policy processes. Industry associations favor a weak ETS and elimination of RE policies. E-NGOs and RE associations argue that both policies can and should coexist in the policy mix. For the electricity industry, preferences vary between processes. During the ETS-reform, this group advocated that the ETS should be the main climate policy, whereas, in the policy process around the Clean Energy Package (CEP), almost half of the actors in my sample argue that we still need RE support. In other words, the policy preferences with respect to these two policies are apparently inconsistent across policy processes. I suggest that the main explanation for this can be found in organizational factors that have resulted in a shift in business strategy. Confronted with changing legal frameworks, alarming climate science, consumer demands, and higher climate risks, these companies have responded by increasingly investing in RE. They have established RE departments and spelled out strategies for increasing RE deployment. However, along with augmented RE portfolios, they recognize that the ETS might not be sufficient to enable RE investments and, hence, shift their preference in favor of continued RE policies.

The article is structured as follows: Section 2 gives a brief introduction of the ETS and RE policy in the EU with a focus on recent developments. Section 3 introduces the theoretical perspectives from the policy mix literature and key expectations based on assumptions from rational choice institutionalism. Section 4 explains the methods applied, followed by the results in section 5. Section 6 concludes.

2. Theoretical Framework

2.1. Policy Mixes and Their Characteristics

Various strands of literature have explored important aspects of policy mixes from different angles (Edmondson, Kern, & Rogge, 2018). In addition to the traditional study of policy strategies and instruments, recent contributions have highlighted the role of the policy process in policy mixes (Flanagan et al., 2011). Rogge and Reichardt (2016) thus propose treating the policy process as a distinct building block when analyzing policy mixes. They argue that policy processes cover all stages of the policy cycle, including "problem identification, agenda setting, policy formulation, legitimization and adoption, implementation, evaluation or assessment, policy adaptation, succession and termination" (p. 1625).

The public policy literature has focused on assessing how different policies, including their policy strategies and policy instruments, affect each other in a policy mix. This has been termed *policy interaction*. Different frameworks have been developed to assess the success of policy mixes (Del Río, 2014; Howlett & Rayner, 2007; Rogge & Reichardt, 2016). These contributions suggest various assessment criteria for evaluating interactions and identify *consistency* and *coherence* as key characteristics[1]. Consistency refers to how well the elements in the mix work together with respect to achieving the policy objectives. It incorporates both the absence of conflict as well as synergistic effects. Coherence describes how well the policy processes of different fields are aligned. It can also refer to the capacity of institutions and policymakers to implement specific outcomes, which is less relevant for this article.

Policy interaction in policy mixes takes place on several levels. (Flanagan et al., 2011; Rogge & Reichardt, 2016). There can be interaction between policy elements, i.e. between instruments, between strategies and instruments or between different policy strategies within the same (or overlapping) policy fields. Another type of interaction is between policy processes, in which negotiations or lobby activities in one process influence the events in parallel processes. One example of this is what Boasson and Wettestad (2013, p. 37) term 'bargained interaction', which summarizes the observation made by Liberal Intergovernmentalism that policymakers may initiate policy linkages in bargaining situations in order to enhance their impact during the policy processes (Moravcsik, 1998).

For the study of policy interactions between the ETS and RE policies at the instrument level, economists have performed econometric analyses to quantify these effects. Within neoclassical economics, it is a widely held tenet that RE subsidy schemes have "no effect on total carbon emissions at all if the electricity industry is also subject to a cap-and-trade system" (Jarke & Perino, 2017, p. 103). Studies based on theoretical economic modeling find that such a policy mix can even lead to increased emissions (Böhringer & Rosendahl, 2010). Moreover, the combination of these policies will increase mitigation costs (Fankhauser, Hepburn, & Park, 2010). In order words, the policies are inconsistent. As a result, economists have recommended to modify the policy design of the trading scheme so that such negative effects can be reduced (e.g., Goulder, 2013).

The general perception of the economists contrasts with the insights derived from innovation studies. Innovation scholars have emphasized the need to help new and immature technologies. They established the concept of a 'technological regime' to explain why it is so difficult for new actors and technologies to compete with established actors (Nelson & Winter, 1977). The regime consists not only of technologies but the whole system built around it. This is why innovation scholars have emphasized the role of niches in protecting and nurturing new and sustainable technologies (Kemp et al., 1998; Smith & Raven, 2012). Insights from this literature identify three processes as crucial for niche development: learning, network building, and the articulation of expectations (Geels, 2011). Hence, the task of niche management is not only to provide financial support but also to help new technologies overcome the barriers to entering the market. Since new players meet numerous obstacles when competing with established technologies in the market, support for sustainability transitions must be more than simply financial support as new technologies will require institutional and social change (Kemp, 2011, p. 16). Innovation scholars have therefore argued that green energy technologies require specific support policies (Kemp, 2011, p. 16) and that carbon pricing "should be seen as a supplement to innovation policy, not an alternative" (Fagerberg, 2017, p. 3). The RED (2009/28/EC) is a typical example of niche protection, in which the new technologies are shielded from market exposure. In addition to national support schemes, it provides producers of renewable electricity certain advantages (priority dispatch and free grid connection). However, the innovation literature also argues that support to niche technologies becomes superfluous as market penetration increases (Hellsmark & Söderholm, 2017; Rogers, 1996). Therefore, policymakers and researchers should closely monitor the situation to identify the point at which RE producers are able to invest in new power plants without support.

2.2. Analyzing Policy Preferences

Building on recent policy mix literature (Lindberg, Markard, & Andersen, 2018; Rogge & Reichardt, 2016), this article includes the policy process into the policy mix analysis and takes a particular look at the policy preferences of key non-governmental actors. Policy preferences are conceptualized as the positions taken, and expressed publicly, by actors regarding specific policy problems. Scharpf (2000) uses the notion 'actor orientation' for actor preferences and perceptions, and suggests treating these orientations as a theoretically distinct category. Different theoretical approaches depart in their views on what shapes policy preferences. Sociological and historical institutionalism stresses how policy preferences are socially constructed and shaped by institutional norms and practices (Berger & Luckmann, 1966; March & Olsen, 1989).

> Policy preferences are neither clear nor stable. They develop over time. They are shaped not only by forces exogenous to politics and decision making but also by

[1] Del Rio (2014) uses the terms *conflicts*, *complementarities*, and *synergies*, put points out that there is no consensus on these definitions in the literature on interaction (p. 273). Del Rio also distinguishes between assessment criteria for the policy mix and instrument interaction, although this paper does not engage with this discussion.

> the processes of politics themselves. (March & Olsen, 1989, p. 146)

The literature on institutional theory distinguishes between institutional pressure (external drivers) and organizational factors (internal drivers) for preference and strategy formation. The former includes market external drivers (customer/investor demands and competitive pressure) and non-market external drivers (regulatory framework, media and civil society pressure) whereas the latter are organizational level (firm characteristics like type and size, internal communication and organizational inertia) and individual-level psychological drivers among leaders and individuals within the organization (Delmas & Toffel, 2008). They have shown that institutional pressure will affect organizations differently, depending on their organizational characteristics such as ownership structure, trust, and identity. As a result, scholars have recognized that institutional factors alone cannot explain the differences between firms regarding their business and marketing strategy (e.g., Delmas & Burbano, 2011).

Another possibility for a change in publicly expressed preferences is that the change does not represent real action, but a shift in how the actors present themselves as a part of their market strategies, also called 'selective disclosure' or 'greenwashing'[2]. Many of the drivers for such activity overlap with those listed above (Delmas & Burbano, 2011).

Rational choice theory, on the other hand, assumes that actors have stable preferences directed at optimizing their self-interest and exogenous preference formation (Hall & Taylor, 1996; Scharpf, 2000). Typically, rational choice institutionalists start out by assessing the preferences of actors in order to explain the emergence of institutions, whereas historical institutionalists focus on how institutions influence individuals' behavior (Thelen, 1999, p. 397). In a strong rational choice perspective, preferences are unrelated to the environment in which they are generated. Although many economists accept that this is a weak assumption, they acknowledge that it enables preferences to be incorporated into econometric models (Guillen-Royo, 2007). Sharp argues that the methodological advantage of the rational choice approach for political scientists is that it enables the formulation of working hypotheses based on findings in existing literature. Assuming that key preferences remain stable allows us to set up initial expectations about the population in the sample. This procedure simplifies the identification of the outliers, which subsequently serves as the research puzzle (Scharpf, 2000; Thelen, 1999).

Drawing on the assumptions set out in rational choice theory, I expect actor preferences to be stable across policy processes which take place in parallel and over a limited time period. I also expect policy preferences to align with the positions of the same types of actors that are documented in the literature. As a result, my expectation is that industry and electricity producers will have a strong preference for the ETS and mobilize arguments from the literature on economics, i.e. arguing that the ETS and RE support is inconsistent and should not co-exist in the policy mix. I expect that RE industry and E-NGOs will favor a broad set of policies that should co-exist with the ETS and give priority to measures which promote technology development, as encouraged by the innovations studies literature.

2.3. Analytical Framework

The article structurally assesses and compares the policy preferences of key non-governmental actors in three policy processes. Figure 1 illustrates that there is policy interaction on all levels of these distinct processes, i.e. between policy strategies, between instruments, between strategies and instruments, and between policy preferences. The scope of this study is the policy preferences for the ETS and RE policies and the interaction of preferences. My operationalization of policy interaction is two-fold: First, I assess whether actors perceive policies as consistent and coherent, second, I assess whether actors' preferences are consistent across the respective policy processes.

The three policy processes are listed in Table 1 and include the ETS reform, the process preceding the adoption of the 2030 Energy and Climate Framework and the Clean Energy Package for all Europeans, for which I assess consultation responses for the Renewable Energy and Electricity Market Directive.

The reason why I include the policy process on the Electricity Market Directive in C) is because this directive is highly important for future RE deployment. Along with increasing shares of RE in the electricity market, market designs and regulations need to be adjusted. Issues such as system operation, trading rules, and grid development have major implications for RE, and many of the changes in the recast directive address these issues. As a result, most actors express their positions on RE versus the ETS in the associated consultation responses.

3. EU Climate and RE Policy

Multiple climate policies have co-existed in the EU since the early 2000s. The ETS and RE policies developed in parallel during the 1990s, leading to distinct directives which regulate the ETS and RE deployment. The directives have co-existed since the implementation of the ETS in 2005. The EU has repeatedly referred to the ETS as being the cornerstone or flagship of its climate policy (Wettestad & Jevnaker, 2016). However, scholars have argued that it is RE policies which have been key for driving the en-

[2] Selective disclosure is defined by Marquis, Toffel, and Zhou (2016) as a strategy to gain or maintain legitimacy by disproportionately revealing beneficial performance indicators to obscure their less impressive overall performance. This is similar to the concept of greenwashing, which has been described as disinformation disseminated by an organization so as to present an environmentally responsible image (Vos, 2009).

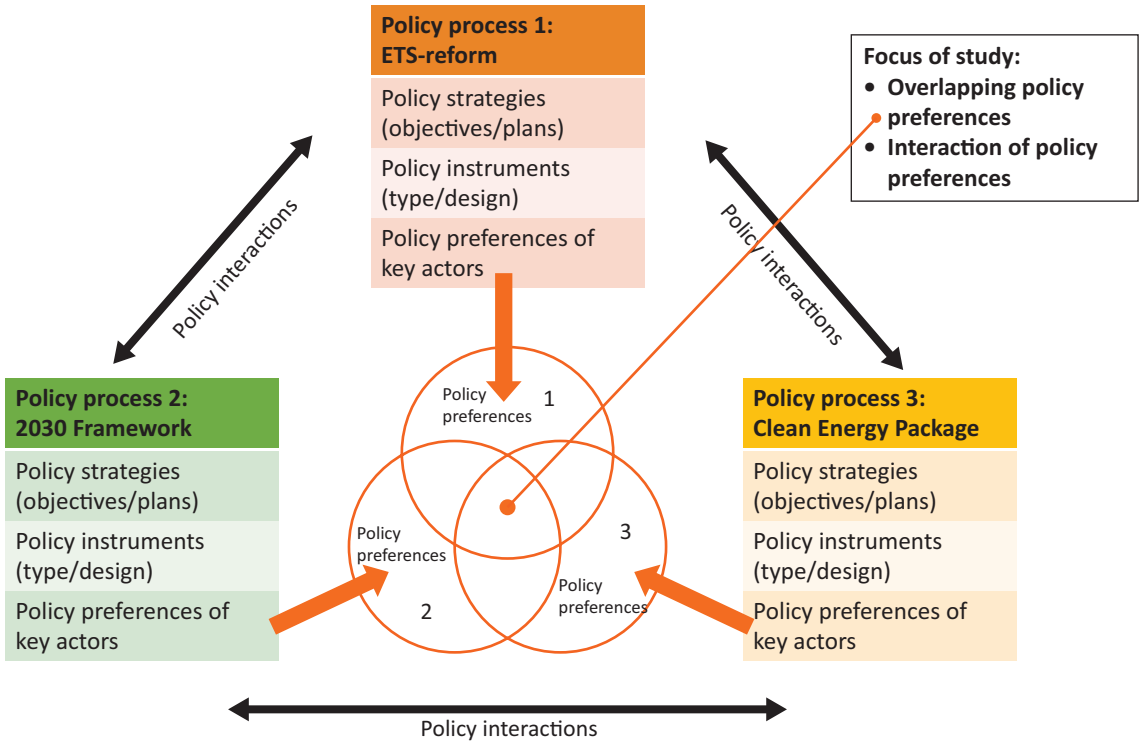

Figure 1. Analytical framework.

Table 1. Policy processes assessed in the article.

	1: ETS reform	**2: 2030 Energy and Climate Framework**	**3: Clean Energy Package:** RED Electricity Market Directive (EMD)
When	2012–2017	2013–2014	2015–2018
Key policy strategies and instruments	Reduce GHG emissions in sectors covered by the scheme (industry and electricity production) Emissions reduction targets: 43% by 2030 (to 2005) 21% by 2020 (to 2005)	Targets for 2030: 40% GHG emissions reduction 27% RE 27% (at least) increase in energy efficiency	RED: Facilitate and enable RE deployment Binding national RE targets National Renewable Energy Action Plans (NREAPs) EMD: Ensure affordable, reliable and sustainable electricity production in the EU Establish internal market for electricity; promote/facilitate cross-border trade

ergy transition so far (Cointe & Nadaï, 2018). The following sub-sections provide brief overviews of the development of the ETS and RE policies until 2018.

3.1. EU-ETS: The Climate Policy Flagship

Climate policy in the EU gained momentum after the signing of the Kyoto Protocol (KP) in 1997. Following failed attempts to introduce a carbon tax in the early 1990s, the EU tried to prevent a KP based on flexible mechanisms (Boasson & Wettestad, 2013). Still, this ended up being a key feature of the KP, above all due to the US, who made their acceptance of the KP conditional upon the inclusion of emissions trading. The Commission revisited the idea of emission trading and presented its first proposal for an ETS in 2001 (Commission, 2001). In 2003, the directive establishing the ETS (2003/87/EC) was adopted. For a review of this process, see Meckling (2011). The ETS was organized into different consecutive periods (phases) that would allow for a regular revision of the system. As of 2018, it covers energy-intensive industries and large electricity and heat producers in 31 countries.

Phase I (2005–2007) was a test phase to prepare for phase II (2008–2012). In these first phases, almost all allowances were allocated to the industry for free (minimum 95% in phase I, decreasing to 90% in phase II). The economic crisis in 2008–2009 resulted in decreasing emissions, causing a large surplus in emissions allowances. This was carried over into phase III (2013–2020), in which 58% of allowances are auctioned. Even though this was a substantial increase compared to phase II, the issue of free allocation (to industries fac-

ing a high risk of carbon leakage or electricity producers in east-European countries) is contested, as shown in Section 5.1.

The large surplus and plunging CO_2 price spurred the reform process of the ETS, which led to substantial changes in the policy. The reforms started with backloading of in total 900 million allowances in the period 2014–2016 and the adoption of a Market Stability Reserve (MSR) in 2015 (European Parliament and Council, 2015). This ensures that backloaded allowances are transferred to the reserve, instead of being auctioned in the market in 2019–2020, as initially agreed. The purpose of the MSR is to manage the number of allowances in circulation at any given time. In 2018, a revised ETS directive was adopted (Directive (EU) 2018/410) which doubles the intake of allowances into the MSR, prescribes permanent cancellation of surplus allowances in 2023[3], and strengthens the linear reduction factor from the current 1.74% to 2.2%. For parts of the industry that are less exposed to carbon leakage, free allocations will be phased out by 2030 (Commission, 2018b). In their account of the reform process until 2015, Wettestad and Jevnaker (2016) characterized the ETS reform as 'rather successful'. Early summer 2018, the CO_2 price climbed from sustained low levels of around €4–6 to €20 (Montelnews, 2018).

3.2. RE Policy: Targets and Technology Development

The EU started discussions about promoting RE deployment already in the late 1980s (Boasson & Wettestad, 2013). The first RED (2001/77/EC) was adopted in 2001 (Fouquet & Johansson, 2008). Most importantly, it set out a joint RE target (minimum 12% by 2010) and indicative targets for renewable *electricity* (amounting to 21% of gross electricity consumption). A recast RED (2009/28/EC) was adopted in 2009 after strong negotiations (Skjærseth, Eikeland, Gulbrandsen, & Jevnaker, 2016). Main policy elements was a 20% target for the EU, binding national targets for all 28 MSs and National RE Action Plans. This provided the Commission with considerable possibilities to control and redirect national policies. The RED (2009/28/EC) also made important provisions on the design of support measures, grid rules, and administrative procedures in relation to RE.

In 2015, the Commission started the work with the 'Clean Energy Package for all Europeans', including a recast RED for the period 2021–2030. Adopted in 2018, it sets out a joint 32% target for 2030, but no binding targets on MS level. It allows continued financial support for RE and makes important restrictions on their design[4]. The rules regulating dispatch and grid access are moved to the Electricity Market Directive.

In addition to the RED, the EU regulates renewable energy support through the *Guidelines on State Aid for Environmental Protection and Energy* (SAG). In the guidelines for the period 2014–2020, the Commission states its strategy to phase out renewable energy subsidies between 2020 and 2030 (Commission, 2014). The official strategy of the Commission, the European Council, and the European Parliament is to let the energy market be the main tool to "allow for the integration and development of larger volumes of electricity produced from renewable sources" (Commission, 2016).

3.3. Policy Interaction

The EU's energy and climate policy since 2010 has been characterized by the question of whether there should be one single policy (the ETS) with one single target (for GHG reduction), or whether this should be combined with distinct policies and targets for RE and energy efficiency. The arguments used in the policy processes coincide largely with contrasting theoretical positions described above. Fitch-Roy (2017) argues that the overlap of the 2030 Energy and Climate Framework and the ETS-reform resulted in a weak RE target, for two reasons. First, many actors invested considerable resources into the ETS-process, limiting their capacity to engage wholeheartedly in the 2030 debate (p. 249). Second, for some actors, it became logically inconsistent to support RE targets while making the case that the ETS should be the primary driver of climate and energy policy (p. 260). The latter is an example of how policy preferences within distinct policy processes interact. Interestingly, this interaction between policy preferences is not observed in the policy processes preceding the ETS and RE directives adopted in 2009. Boasson and Wettestad (2013) found that all major European electricity producers strongly favored a market-based instrument within the RE directive[5], but that they didn't use the negative interaction between the RE policies and the ETS as an argument against the RED.

4. Methods

Key interest actors and organizations were identified by means of an expert group consisting of seven experts, who were asked to rank the most influential actors in EU electricity policy. The ranking was based on a preselection which was made based on which actors had submitted a consultation response to the consultations in the CEP-process. The experts were researchers or industry actors working on or within the field. A few actors were removed from the sample because they had not been active in the policy process on the ETS, which

[3] "From 2023 allowances held in the reserve above the total number of allowances auctioned during the previous year should no longer be valid" (recital 23, Directive (EU) 2018/410).

[4] "Support schemes…shall incentivize integration of RE sources in the electricity market in a market-based and market-responsive way, avoiding unnecessary distortions of electricity markets…and ensure that RE producers are responding to market price signals" (Renewable Energy Directive (2018) Art 4.1–2).

[5] With the exception of Iberdrola.

attracted a much larger audience than the electricity sector. In the end, I chose to add three utilities to the sample because they were mentioned as being influential by the interviewees. After sorting the actors according to the type of actor, I removed actors who were not part of an appropriate group. I ended up with a list of 30 actors and five groups of actors Table 2. Please note that I use the current names of actors who changed their name during the period (Ørsted, WindEurope, and SolarPowerEurope).

To capture the policy preferences in different policy processes, I assessed their consultation responses to the Commission. A list of the consultations assessed for each policy process is included in the Annex.

To identify and compare the policy preferences, I created a coding scheme. I arrived at three main coding dimensions and several sub-dimensions (Table 3). The coding questions were developed bottom-up from the data and were based on insights in the literature in order to identify the main distinctions between actors. The first coding dimension (D1) captures the policy mix preference and assesses the actors' preferences regarding the ETS as a main climate policy (SD1.1) and RE support (SD1.2). The second dimension (D2) assesses the preference for reforming the ETS, and dimension three (D3) assesses what I call 'Renewable Energy Ambition'. The SD1.1 is assessed twice, initially in the ETS consultations and subsequently in the CEP-consultations. Values for SD1.2 and D3 are derived from the CEP, whereas D2 is based on ETS consultation documents.

The coding of consultation documents was carried out in Nvivo and Excel. Each consultation document was coded with specific values for the respective dimension on a scale from 1 to 4. See Table C in the annex for an explanation of each (sub-)dimension and the corresponding lead questions. In the end, the values from the subdimensions were added together to arrive at one single actor value for each main dimension.

In order to explore different explanations for my findings, I carried out seven semi-structured interviews with some of the actors in the sample. The interviews were carried out in the period November 2017–January 2019. The list of interviews can be found in the annex (Table A). One obvious limitation of the study is that it does not include the positions of governments and EU institutions. Therefore, the article does not embark on the task of explaining the policy outcomes that resulted from the policy processes assessed. A larger number of interviews would be needed to explore the drivers behind the policy preferences in greater detail.

5. Results

For most groups of actors, policy preferences remain stable across the policy processes that were assessed in this article. This is true for industry associations, renewable associations, E-NGOs and electricity traders. These groups have what I call consistent policy preferences. This is only partly the case for the electricity industry, where many actors express inconsistent preferences from one policy process to another. As postulated by rational choice institutionalism (Section 2.2) these deviant actors are the most interesting finding of the assessment. Section 5.2 thus focuses on presenting and explaining this finding.

Table 2. Key non-state actors in EU electricity policy.

Environmental NGOs	CAN, Greenpeace, WWF, E3G
Renewable associations	BEE, EREF, WindEurope, SolarPowerEurope
Electricity producers and their associations	EDF, Enel, Iberdrola, RWE, Statkraft, Total, Vattenfall, Fortum, E.on, Ørsted, CEZ, CEDEC, Eurelectric, Foratom, Euroheat and power
Traders	Europex, EFET
Industry associations	BusinessEurope, CEFIC, IFIEC, Euracoal, Eurochambers

Table 3. Coding dimensions for capturing policy preferences in the consultation processes.

Main dimension	**Sub-dimensions**
D1) Instrument Mix for the Energy Transition	SD1.1 The role of the ETS SD1.2 RE support
D2) ETS Ambition	SD2.1 Removal of allowances surplus and tightening of the LRF SD2.2 Free allocation of CO_2 allowances post2020
D3) Renewable Energy Ambition	SD3.1 RE deployment SD3.2 RE potential SD3.3 RE targets SD3.4 RE leads to increased system costs

5.1. Policy Preferences

Figures 2–4 and Table 4 show the findings of the analysis. The E-NGOs and the RE associations hold largely the same positions across the three policy processes. As a result, these two groups of actors are merged into a 'policy preference group A'. Their preferences are characterized by very high RE ambitions, a univocal call for high and binding targets for RE and GHG emissions reduction and a strong preference for continued RE support. As for the ETS, they call for a strengthening of the scheme through rapid and thorough ETS reform. Moreover, they do not believe that there is a need for free allocation of allowances to any actors. Regarding the relationship between ETS and RE policies, they explicitly argue that the ETS must be complemented by additional policies:

> WWF warns strongly against a carbon market 'orthodoxy' where the Commission would perpetuate the notion that the EU ETS can deliver all the needed emission reductions in a timely manner on its own. No single policy instrument can be left alone to achieve this complex and multi-faceted task since it cannot correct all the relevant market failures....In particular, the EU ETS must be framed as having its rightful place in an optimal mix of policy instruments in the pre and post 2020 context. (WWF, ETS 2015, 6.2)

> ETS alone has not been and will never be capable of ensuring meaningful reductions of greenhouse gas emissions. (Solar Power Europe, ETS 2015, 6.4)

These arguments contrast the positions of industry associations, traders and almost the entire electricity industry in the ETS process. These three groups insist that the ETS should be the 'key', 'main', or 'only' climate policy of the EU. Many actors highlight the detrimental effect of RE policies on the ETS and the inefficiency of the current policy mix. Most of the electricity industry and the traders (merged into 'policy preference group B' in Figure 2) advocate a strengthening of the ETS, with some variation as to how much and how rapid this should happen. The industry group (C) and RWE do not see a need to reform the ETS. They argue that the ETS is functioning and delivering its objective, i.e. GHG emission reductions in the sectors covered by the scheme. TOTAL stands out from all groups with inconsistent preferences in their ETS-submissions in 2013 and 2015 about whether the ETS should be the main tool, combined with a preference for not strengthening the scheme.

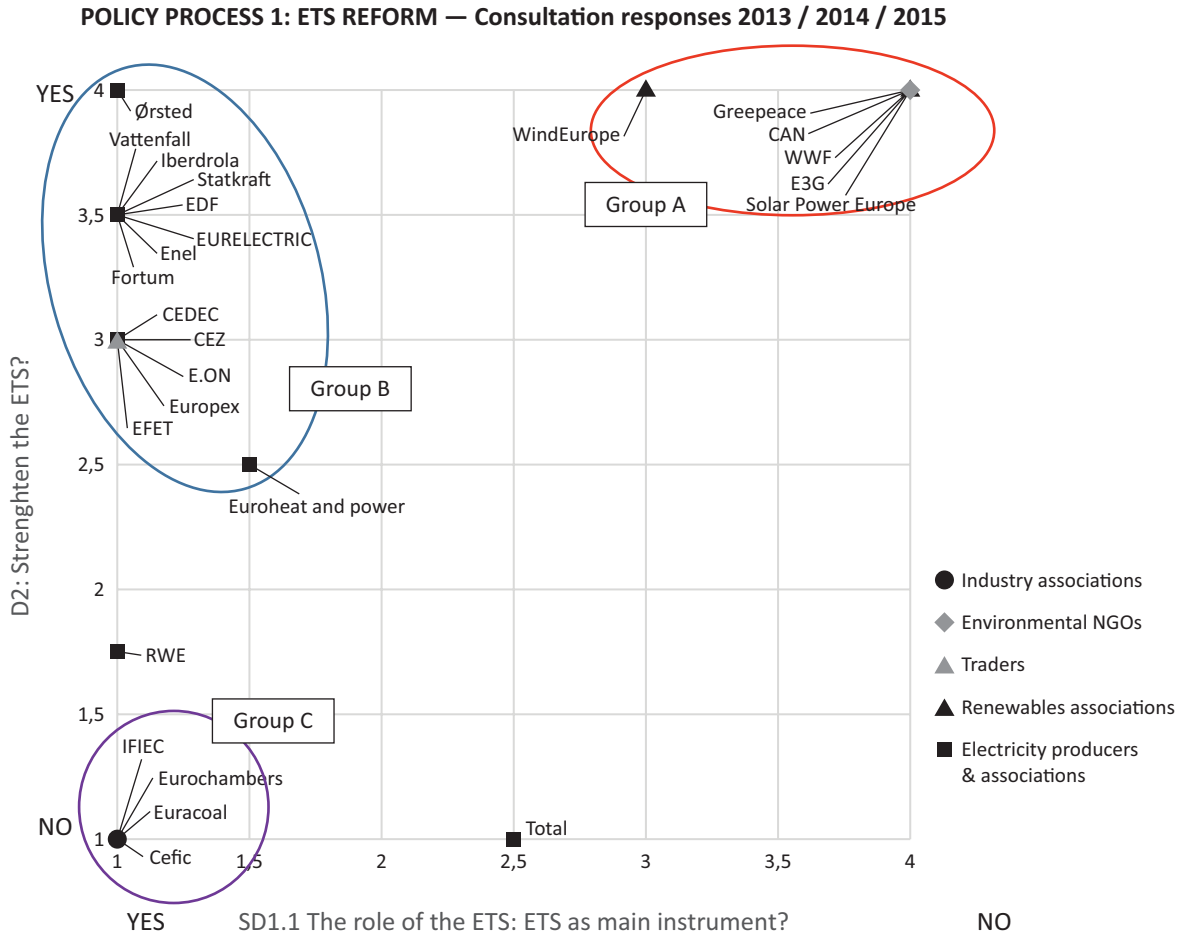

Figure 2. Policy preferences as expressed in consultation responses regarding the ETS reform.

Table 4. Overview of policy preferences for GHG and RE targets in the 2030 Energy and Climate Framework. Sources: Consultation responses 2030 Framework; Ydersbond (2016).

POLICY PROCESS 2: 2030 Framework—Consultation responses 2013				
Actor type	**Policy Preference Group**	**Actor**	**GHG reduction target?**	**RE target?**
Environmental NGOs	A	CAN	55%	At least 45%, binding on national level
		WWF	55%	At least 45%, binding on national level
		Greenpeace	55%	At least 45%, binding on national level
		E3G	55%	At least 45%, binding on national level
Renewables associations		EREF	40%	At least 45%, binding on national level
		SolarPowerEurope	40%	At least 45%, binding on national level
		EWEA	40%	At least 45%, binding on national level
Electricity producers and their associations	B	Eurelectric	At least 40%	27%, binding, but not on national level
		Foratom	40%	no
		EDF	Single binding	no
		Statkraft	At least 40%	no
		CEZ	Single binding	no
		RWE	Single binding	no
		Fortum	Single binding	no
	B/D	Ørsted	At least 40%	Binding target, also on national level
		TOTAL	Consistent with other major emitters	No fixed target/Indicative target
		CEDEC	Legally binding	Binding target, also on national level
		Vattenfall	Single binding	no
		Iberdrola	Single binding	no
		E.on	Single binding	no
		ENEL	Single binding	no
Traders	B	EFET	Single binding	no
Industry associations	C (B)	CEFIC	Dependent on global agreement	no
		IFIEC	Dependent on global agreement	no
		Euracoal	Dependent on global agreement	no
		BusinessEurope	Dependent on global agreement	no
		Eurochambers	Single binding, taking the outcome of negotiations into account	Demand impact assessment of inconsistencies. Consider relative target.

The positions of the groups B and C in the ETS-process are largely sustained in the 2030 Framework, where most of them lobby against a distinct RE target, with the exception of Ørsted, CEDEC, and Eurelectric (see Table 4). Ørsted's response contained elements from the 'technology development' logic (see Section 1) arguing that even though a strong ETS is fundamental for the green transition: "in itself, it is not sufficient to ensure volume, industrialization, and cost reductions and market maturity for next-generation RES technologies such as offshore wind" (DONG Energy, 2013). Eurelectric was initially against a separate RE target in their 2030 Framework-response but changed their position during 2014 to accept a modest target.

Whereas the ETS reform is characterized by clear divisions between the actors and rather 'extreme' positions, the CEP-process shows a more modest picture. Figures 3 and 4 show policy preferences as expressed in consultation responses to the CEP and distinguishes between showing the preference for RE support only (D1.2), and combining D1.2 with the ETS preference (D1.1) into a policy mix preference (D1).

The main division between the renewable industry and E-NGOs (group A) and industry associations (group C) is sustained. However, the electricity producers depart in their preferences for the ETS and RE support and form two separate policy preference groups: group B and D. When assessing the policy mix preference and not just RE support, the positions of the two groups B and D become even more distinct. Group B shows a strong preference for the ETS and argues that it should be the main driver for the energy transition in Europe. They propagate full integration of renewables into the market and that there should be no additional RE support or special advantages for mature technologies after 2020. Group D is characterized by higher RE ambitions and stronger preferences for RE support than group B. They also want a strengthening of the ETS, but many of them question whether this will be sufficient to ensure continued RE deployment. Some of them express specific preferences regarding how to ensure system reconfiguration in order to enable the integration of more RE into the system. This is a feature they share with actors in group A. An important difference between group A and D is that group D actors express higher confidence in the ETS and its reform.

5.2. Explaining Inconsistencies

The assessment of consultation responses reveals the actors' official positions but does not provide much information about the motivations and drivers behind them. The 'puzzle' in my sample, i.e., the inconsistent prefer-

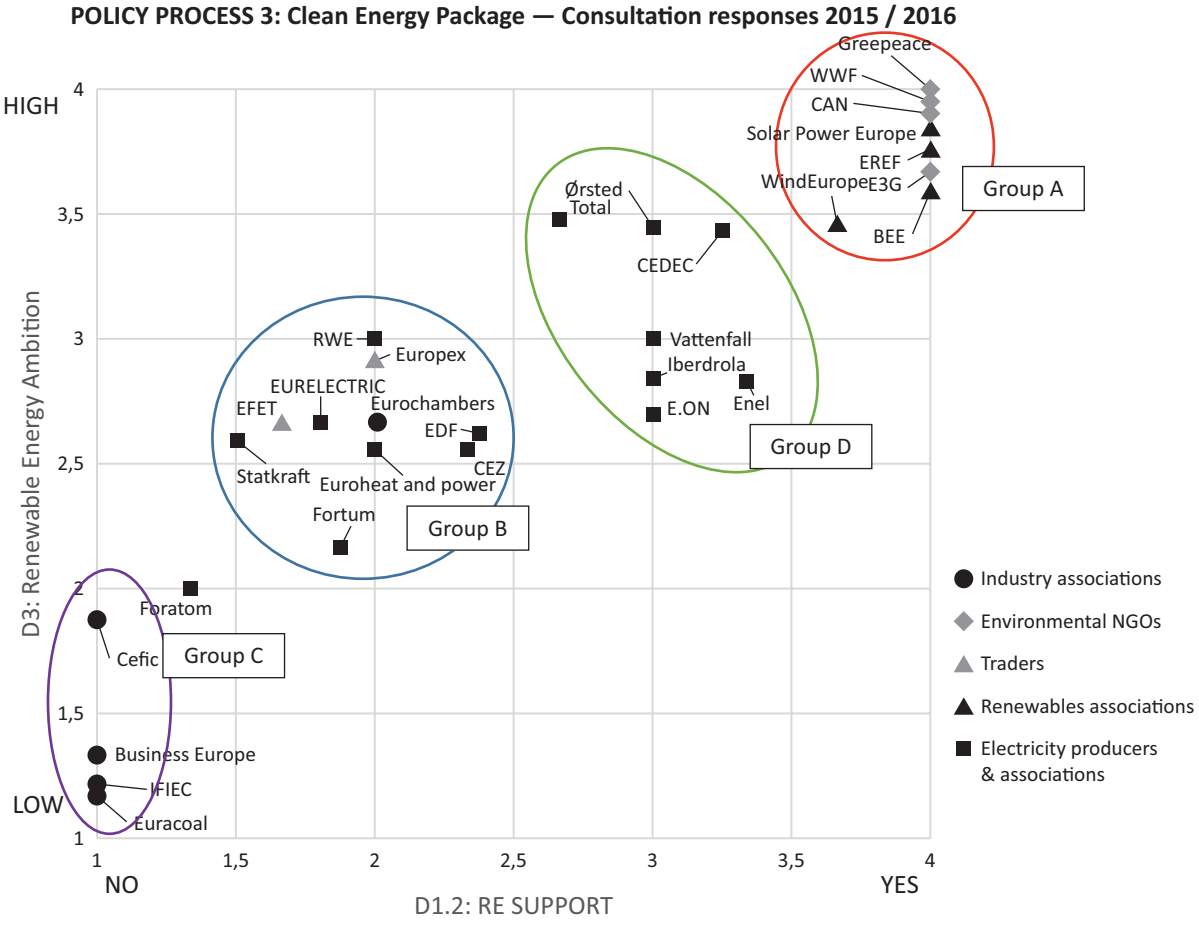

Figure 3. Policy preferences in the Clean Energy Package-process: RE ambition versus RE support.

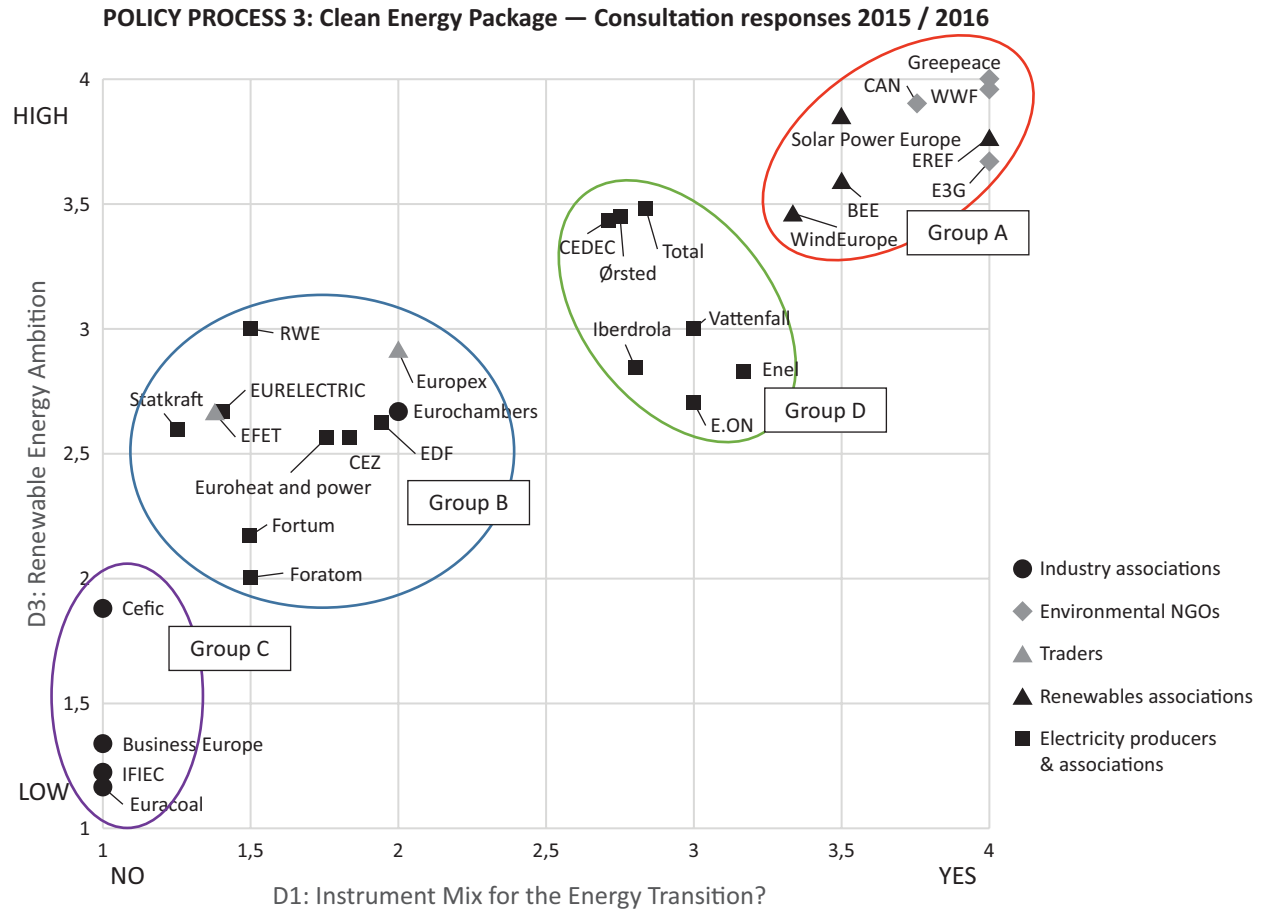

Figure 4. Policy preferences in the Clean Energy Package-process: RE ambition versus instrument mix.

ences across policy processes, is not yet documented or explored in the literature. Based on institutional theory literature and seven interviews with six actors from the respective groups (two in group A, two in group B, two in group D) and one electricity policy expert, I suggest the following explanations for the findings: 1) organizational factors, 2) institutional pressure and 3) reputation and market strategy. I will start with the first, which I argue is the most important.

Organizational factors include the characteristics of an organization, including size, type, internal structures, ethical values, and business model. For the electricity producers, their policy preferences vary with their production portfolios, which is linked to their economic interests. The 'pro-RE' utilities (group D) have shifted—or are in the process of shifting—their portfolios away from coal and are increasingly investing in RE. The interviewees (I5, I6) characterize this as a shift in business strategy and report that most of their investments are now in RE. One interviewee explains how this has resulted in a shift in policy preferences regarding the ETS and RE policies:

> I would think that our company, ten years ago, maybe also five years ago, would probably have said that the ETS should be the main driver in the transformation, but as we have become increasingly active in building more and more renewables, I must say, it is not our position that we should stop with support schemes because the ETS is now strengthened. (I5)

Their preference for combining the two instruments is described as a consequence of the current situation in the market, where it is possible to build RE with no support at very favorable places, but that "in most cases, you still need support" (I5). I6 argues that their overall view is that ETS should be the main policy, but that they are "not so rigid and say that we do not need other policies as well". The companies are optimistic about technology development, they believe that RE will become even more competitive and that one will be able to deploy it without a support system in the future.

Group D actors share the view of group A to continue RE support, but the former is much more ETS-friendly and market-oriented. They express a strong belief in the ETS and argue that they want a general policy which adheres to market principles (I5, I6). Regarding the inconsistencies in policy preferences, they explain that they pursue a two-track strategy in which they see both policies as complementary:

> We would very much like the energy market to work and to be able to take investment decisions without

> subsidies. Whether and when it can happen is still unclear, but we don't want to say that it will never happen since we see that it does happen if certain things fall into place. (I5)

Interestingly, I6 did not support a distinct RE target because they argue that there should be a balanced relationship between the GHG target and the RE target, i.e., you should not increase the RE target without increasing the GHG target too. I6 argues that RE support should target immature technologies and mentions offshore wind, which his company is investing in. He also points to other issues being more important for further deployment than support schemes, including grid development, balancing measures, and cross-border trade.

The positions of the 'pro-ETS' actors in the electricity industry (group B) who did not change their positions can also be explained by organizational factors and their business models in particular. Two interviewees argue that for utilities that are not carbon exposed, or even those whose portfolio is not exclusively coal-based, a higher carbon price will be profitable (I4, I5). Since the price of fossil power production sets the price in the wholesale electricity market most of the time, all power producers (whose generation is dispatched) will experience higher prices when the carbon price increases. This is what researchers have called "indirect windfall profits" (Wrake, Burtraw, Lofgren, & Zetterberg, 2012, p. 15). Confronted with decreasing wholesale electricity prices, the ETS is one of the few measures that can actually contribute to restoring these companies' revenue stream. This is supported by the study of Fitch-Roy, who finds that indirect windfall profits were a motivation for some of the utilities who lobbied for a strengthened ETS in the coalition 'Friends of the ETS' in the policy process for the ETS reform (Fitch-Roy, 2017, p. 259).

The recent reforms of the ETS were mentioned as dealing with many of the inconsistencies between the ETS and RE policies. However, one interviewee argues that fixing the inconsistencies through MSR and permanent cancellation of allowances was not the reason why the actors change their policy preferences towards RE policies. He believes the actors would have changed their position regarding RE policies anyway due to their business needs and that they would just have stopped talking about the inconsistencies (I7).

Institutional pressure is another important part of the explanation. The interviewees lend particular weight to the importance of non-market institutional drivers such as the legal and regulatory framework and recent scientific findings regarding the urgency of climate change but also highlight market drivers such as consumer demand. Overall, the binding RE targets in the 2009 RE directive is characterized as an important driver for RE deployment in Europe and associated cost-reductions (I1, I3, I4). The RED as of 2009 amplified the dynamics that had started with national energy transitions in several front-runner countries (Cointe & Nadaï, 2018).

Obviously, the change in the political landscape has affected many companies with many companies now having set up RE departments when previously they had none. The whole situation is very different from 2009 when the 2020 package was adopted (I7). If the policy preferences for RE support reflect the position of the RE departments, but not necessarily the view of the company as a whole, this can also be an explanation for the shift in policy preferences.

The Commission has also shifted their position on RE support since they announced their strategy to phase out RE support schemes by 2030 in the State Aid Guidelines (Commission, 2014). In the revised RE Directive (2018/2001) adopted in December 2018, MSs are still allowed to apply support schemes (Art. 4). According to one market expert, this reflects the broader position of the Commission, which acknowledges that it is difficult to build renewables without support and to set a deadline for when to phase out support schemes. The timing for ruling out subsidies completely depends on many different factors, including country geography, national framework conditions, and the ETS price (I7). This discussion is illustrative for the debate about whether and when these technologies can be characterized as mature.

Finally, it should be considered whether publicly announced RE strategies and high RE ambitions belongs to a *market strategy* of the companies, in which they employ selective disclosure or even greenwashing. For instance, RWE expressed quite high RE ambitions, which is questionable given their strong coal portfolio. However, shortly after the consultation, RWE split into RWE and Innogy, the latter promoting itself as a green energy company, which could have explained the RE preference. A closer look at Innogy's strategy reveals that it is primarily a retail electricity company, with limited, although renewable, production capacity (3,9 GW in 2017) (Innogy, 2018). Another example is Total, who promotes itself as a global leader within solar energy, and strongly advocates continued advantages for RE producers in the CEP. Even though they pursue an ambitious solar strategy, their main business is still within oil and gas (TOTAL, 2018). Whether their solar business is part of a market strategy of the company as a whole is outside the scope of this article.

Despite the economic interest of utilities in high CO_2 prices, interviewees disagree that the ETS is used as a strategy to prevent RE deployment. However, one of them acknowledges that some actors have done this in the past when claiming that the ETS should be the *only* instrument. Hence, one could also assume that those who were against a RE target would be more critical about RE support. I6 argues that the reason they did not lobby actively for a distinct RE target was that they want the GHG emissions reduction target to play a superior role in the climate policy framework. They perceive the solution to be a mix of technologies, in which a fuel switch from coal to gas and nuclear might play a role.

Summing up, what initially appears as inconsistency in policy preferences of many utilities can be

explained by organizational factors, i.e. endogenously driven changes in business strategies by these actors, which has influenced the companies towards divesting from coal and investing heavily in RE. This trend is highly related to external drivers, both non-market such as regulatory frameworks and policy targets, but also market factors including consumer demand. Whether or not these strategies are also part of a market strategy cannot be judged within the frames of this study, but for those utilities still active in fossil fuel and nuclear energy, this possibility cannot be excluded.

6. Discussion and Conclusion

This article systematically assesses the policy preferences of five non-governmental groups of actors within EU electricity policy across three policy processes. It finds that for four groups, preferences remain stable across policy processes. In the ETS reform process, industry associations, traders, and the electricity industry advocated that the ETS should be the main climate policy instrument. In this vein, they mobilize arguments set out by the economists, i.e., that additional policies are inconsistent with the ETS. In the 2030 Framework, the same groups argued almost univocally against a distinct RE target. This contrasted the positions of E-NGOs and the RE industry, claiming that the ETS is insufficient to drive RE deployment and that a mix of several different instruments is needed to enable the energy transition. For these actors, the ETS and RE policies were perceived as consistent and coherent, with many highlighting the need for a broad portfolio of measures in line with the arguments of innovation literature. However, in the CEP-process, several utilities (group D) adopted a middle position between the conventional utilities and RE industry. They advocated for the continued support of RE along with the strengthening of the ETS. Several of these actors lobbied against a distinct RE target in the ETS process, but for some reason modified their positions in the CEP-process. Even though this shows that the policy preferences of these actors are inconsistent across policy processes, data from in-depth interviews reveal that the actors themselves do not perceive their shift in position as inconsistent or problematic. For them, it is merely a question of which policies better suit their current portfolio and business strategy.

The positions occupied by this group of 'pro-RE' utilities (group D) represent something new in EU energy policy. Even though their positions approach the positions of RE associations and E-NGOS (group A), they stand out as being far more market-oriented and having much stronger ETS-preferences. Whereas group A questions whether the ETS will be able to set a proper price signal, group D believes that the ETS could become a main instrument sometime in the future.

For the literature on public policy, the study sheds light on situations in which shifts in policy preferences of many key actors can occur within very short time frames. Such rapid changes among a large number of actors are not well documented in the literature and deserve further attention. The limited scope of this article does not allow for elaboration regarding the theoretical implications of the findings, but a fruitful avenue might be to integrate concepts from the transitions literature into institutional theory for conceptualizing such dynamics.

For policymakers, it is important to acknowledge that large electricity industry actors are moving from having an 'either-or' position on climate policy to advocating that RE support can actually be combined with the ETS. This is also a question about choosing the correct policy design elements for the ETS, which succeeded, at least to some extent, with the MSR and permanent cancellation of surplus allowances. With the adoption of the revised ETS-directive, the argument that 'RE policies destroy the ETS' will no longer hold water. Provided with more consistency in the policy mix, the call for a rapid phase-out of RE subsidies might weaken, which might increase acceptance for continued RE policies. This is important given that RE is still a niche technology in many European countries, which points to the need for continued support. Moreover, the findings suggest that the number of pro-RE actors is growing, which increases momentum for the energy transition. This is also confirmed by the interviews. Policymakers could exploit these developments to introduce more ambitious policies in line with calls from science for rapid decarbonization (IPCC, 2018).

For the literature on policy mixes for sustainability transitions, the analysis shows the need to also study the interaction between policies from a policy preference point of view. It also provides new evidence on the key role which cap-and-trade systems might take in advanced transitions. A further contribution to the transitions literature is to show empirically how the energy transition is entering a stage in which several incumbents define themselves as key actors within RE. As a result, these actors will also try to pull the transition in a direction which is favorable for them, into what Lindberg et al. (2018) have called a 'low-disruption transitions pathway'. It remains to see whether this will happen at the cost of smaller and private RE producers, or whether these two developments can take place in parallel.

There are several interesting issues for further research. For the transition literature, it would be interesting to study the processes within the firms that have decided to change their strategies. It is likely that the discussion about whether and when RE-support should be abolished takes place also within companies with diverse portfolios, who are forced to balance their interests across these needs. Since the companies want to speak with one voice publicly, other methods would be needed to acquire more information about these intra-organizational tensions.

Another pressing task is to capture the policy preferences of another type of electricity producers which was clearly underrepresented in this study: the small-scale producers and prosumers (only represented to

some extent through the RE associations and CEDEC). These types of actors have contributed strongly to the energy transition, but have different needs than the incumbents when it comes to support and regulations. Scholars should pay attention to whether the incumbents will manage to pull the policy mix for the energy transition in their preferred direction, or whether these small players can find ways to maintain their role in this unfolding transition. Further research is needed to analyze the policy mix preferences for different types of actors, for identifying coalitions between these types of actors and assessing their influence in the contested EU energy and climate policy processes.

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Conflict of Interests

The author declares no conflict of interests.

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Annex

Table A. List of interviewees.

Interviewee	Position in organisation	Type of organisation	Date
Interviewee 1	Policy advisor	Eurelectric—umbrella association for European electricity industry	November, 2017
Interviewee 2	Policy advisor	Renewable energy association	November, 2017
Interviewee 3	Policy advisor	Renewable energy association	November, 2017
Interviewee 4	Head of Department	Utility	September, 2018
Interviewee 5	EU Regulatory affairs	Utility	January, 2019
Interviewee 6	EU Regulatory affairs	Utility	January, 2019
Interviewee 7	Former Policy Officer	EU energy policy expert	January, 2019

Table B. Consultations used as data source for this study.

Initiated by	Name of consultation	Consultation period	Abbreviation
DG Climate	Consultation on structural options to strengthen the EU Emissions Trading System	December 2012 to February 2013	ETS 2013
DG Energy	Consultation on climate and energy policies until 2030	March 2013 to July 2013	2030 Framework
DG Climate	Consultation on Emission Trading System (ETS) post-2020 carbon leakage provisions	May 2014 to July 2014	ETS 2014
DG Climate	Consultation on revision of the EU Emission Trading System (EU ETS) Directive	December 2014 to March 2015	ETS 2015
DG Energy	Consultation on a new Energy Market Design	July 2015 to October 2015	EMD
DG Energy	Preparation of a new Renewable Energy Directive for the period after 2020	November 2015 to February 2016	RED

Table C. Policy preference—ranking values for each dimension.

1.1 Lead question: The ETS should be the main instrument for the EU's energy transition
1.1 - 1 = Yes, the ETS is fundamental and should be the main instrument.
1.1 - 2 = Rather yes, ETS is important. In principle, it should be the main instrument.
1.1 - 3 = Rather no, the ETS is not sufficient. We may need other instruments as well.
1.1 - 4 = No, the ETS is not sufficient to ensure the energy transition and will not be so in foreseeable future.
1.2 Lead question: Should there be support for RE after 2020?
1.2 - 1 = No, RE support should be eliminated
1.2 - 2 = Rather no, but in some cases we may need (strongly) delimited support. Support to 'mature technologies' should be removed.
1.2 - 3 = Rather yes, we still need some sort of support post 2020
1.2 - 4 = Yes, RE support is inevitable to ensure we reach the 2030 targets. Prefer exemptions from balancing responsibilities and merit order dispatch.
2.1 Lead question: Do we need to strengthen the ETS? (permanent removal of surplus/include backloaded allowances in the MSR)? Higher LRF than EC proposal $>$ 2.2%?
2.1 - 1 = No, the ETS is working well and will achieve its objective for 2020 (Or: the cap for 2030 is already too high).
2.1 - 2 = Rather no, there is not much need to strengthen the ETS. Any adjustment should not come before 2020.
2.1 - 3 = Rather yes, we need the MSR and support the suggestion for a tighter LRF (as suggested by EC).
2.1 - 4 = Yes, we need a rapid introduction of the MSR (before 2020)/permanent removal of surplus allowances/a higher LRF than suggested by the EC ($>$2,2%).
2.2 Lead question: Should there still be free allowances after 2020 and, if yes, how large should this share of the post-2020 allowance budget be?
2.2 - 1 = Yes, there should be no limit to free allowances for industry.
2.2 - 2 = Yes, higher or same share of free allowances in phase 4 (post 2020) as in phase 3 (2012–2020).
2.2 - 3 = Yes, lower share in phase 4 than in phase 3/based on efficiency benchmarks that provide incentives for GHG reductions
2.2 - 4 = No, as a general rule, there should be no free allowances. Only if it can be proved that carbon leakage is a real issue.
3.1 Lead question: RE deployment is of greatest importance and we need to increase the pace of RE deployment.
3.1 - 1 = No, RE is currently sufficiently deployed (in the EU)
3.1 - 2 = Rather no, we might deploy a bit more in some regions, but no need to speed up deployment
3.1 - 3 = Rather yes, we need to increase RES shares
3.1 - 4 = Yes, we must aim for a renewable energy system and we need to speed up deployment to achieve this
3.2 Lead question: RE is sufficiently (or over-exploited) deployed in the EU
3.2 - 1 = Yes, potential for further RE is very limited.
3.2 - 2 = Rather yes, RE is quite well deployed and further potential is confined, at least in some areas.
3.2 - 3 = Rather no, there is potential for more RE
3.2 - 4 = No, there is a huge potential for much more RE in the EU
3.3 Lead question: We need ambitious RE targets and to make sure we reach these targets.
3.3 - 1 = No, there is no need for ambitious RE targets.
3.3 - 2 = Rather no, RE is developing fine as it is.
3.3 - 3 = Rather yes. We need to make sure that we have some targets for RE.
3.3 - 4 = Yes, we need ambitious (and preferably binding) targets for RE and make sure we reach these targets.
3.4 Lead question: RE deployment is a reason for increased system costs and energy prices
3.4 - 1 = Yes, RE are very expensive and increase the cost of system and consumer prices
3.4 - 2 = Rather yes, RE lead to higher costs.
3.4 - 3 = Rather no, RE are not the main reason why costs increase
3.4 - 4 = No, conventional energy is also expensive and we need to invest in the energy system anyways.

Table D. Groups of actors and quotes from consultation responses.

Policy preference group	**GROUP A**	**GROUP D**	**GROUP B**	**GROUP C**
Actor type	**E-NGOs, RE associations**	**Electricity industry**	**Electricity industry**	**Industry, business associations**
Quotes on ETS (examples)	WWF warns strongly against a carbon market 'orthodoxy' where the Commission would perpetuate the notion that the EU ETS can deliver all the needed emission reductions in a timely manner on its own. No single policy instrument can be left alone to achieve this complex and multi-faceted task since it cannot correct all the relevant market failuresIn particular, the EU ETS must be framed as having its rightful place in an optimal mix of policy instruments in the pre and post 2020 context. (WWF, ETS, 6.2) The EU ETS must be reformed boldly if it is to be turned into an effective policy instrument. Otherwise it will remain a toothless paper tiger that fails to adequately drive the decarbonisation of European industry. However, the EU ETS alone will not be able to deliver the necessary incentives to decarbonize the EU. (E3G, ETS) The ETS will not force old, carbon-intensive plants out of operation (allowance prices are too low and will likely remain too low even beyond 2030). (CAN, RED, p. 12)	Ideally RES support schemes should be phased out, but this requires that the ETS will start to become relevant as a proper pricing of CO_2 (Dong, RED, p. 12) Even though different drivers (such as CO_2 price and market forces) could ensure the development of renewable sources in the market, a gap versus the [EU RES] target could still remain. (Enel, EMD, p. 9) Although carbon pricing should be the main driver for decarbonisation investments, the existence of a quantitative RES target, together with an ETS so far incapable of giving a sound CO_2 price signal for decarbonisation, points to the need for continuing RES support schemes. (Iberdrola EMD, Executive Summary p. 1)	The objective should be that investments in competitive technologies are fully driven by wholesale and carbon market signals. To this end the ETS should become the main EU instrument to achieve the 2030 emission reduction target. (Statkraft, NEM, p. 10) ETS also has to play a greater role by delivering a clear carbon price signal. (Foratom EMD, main pos. p. 8) A clear CO_2 price signal set at a sufficient level should be the real driver for investments to foster the transition towards a low-carbon economy, including for investments in renewable energy sources (RES). In this respect, a reform of the existing EU ETS scheme should provide the right level of incentives to invest in low-carbon solutions in the long term, considering that low-carbon investments are highly capital intensive infrastructure depending from long-term choices. (EDF, EMD diff. layout p. 11)	A successful EU ETS is important as it provides clear market signals for all low-emission technologies. (Euracoal, EMD, p. 8) The ETS is delivering its objective for 2020: the ETS sector will reduce its CO_2 emissions by 21% compared with a 2005 baseline in a cost-effective and economically efficient way. (Euracoal, EMD, p. 6) The climate policy in the electricity generation sector is directed by EU ETS which is aiming at carbon reductions at the lowest cost. The ETS fits into a broader energy and climate policy aiming at guaranteeing secure, competitive and sustainable-energy. (IFIEC, RED, p. 7)

Table D. (Cont.) Groups of actors and quotes from consultation responses.

Policy preference group	GROUP A	GROUP D	GROUP B	GROUP C
Actor type	**E-NGOs, RE associations**	**Electricity industry**	**Electricity industry**	**Industry, business associations**
Quotes on RE support (examples)	National support should continue to be part of the EU climate and renewable energy policy as we move towards 2030. Steady and continuous RE deployment requires stable and credible framework conditions that build on a robust governance mechanism. (BEE, EMD, p. 9) The national support schemes adopted by EU member states have been instrumental in the deployment of renewable energy in recent years. They will continue to play an important role in ensuring the required investments for reaching the 2030 targets. The RED review should maintain provisions mandating the adoption of support schemes. (Greenpeace RED p. 6) There will be a continued need to ensure Europe can focus on no-regret measures [for decarbonisation] such as the deployment of renewable energy and energy efficiency at scale, guided by dedicated targets and support measures. (WWF, ETS, 6.2)	All support systems for electricity from renewable sources (RES-E) in line with the Environmental and Energy state Aid Guidelines (EEAG) shall determine the support level by competition. Hence production targets are a necessity to determine the volume (MW typically for Feed-in Premium systems with tenders or MWh for RES quota systems) beforehand. (Vattenfall, RES p. 9) The principle of priority access and dispatch enshrined in the RED should be maintained after 2020 (Total, RED, p. 30) Support schemes will still be needed for RES technologies under development, and in the industrialisation phase towards costs that are similar to expected market revenues. (Dong, RED, p. 12) Support schemes will probably still be needed to achieve the 2030 EU targets but need to evolve towards more cost effective competitive schemes leading to long term contracts. (Enel RED, p. 12)	Policies should be immediately reformed to make RES fit for market. This means applying to RES the same rights and obligations of market participation as other market participants (operational integration of RES). (Foratom EMD, main pos. p. 8) A clear rule should be that all remaining subsidies for mature technologies must be phased out at the end of the current subsidy schemes or at the latest after 2020 when the CO_2 price should be the only driver to steer decarbonisation and growth or RES" (Fortum, EMD, p. 11) Subsidies should be made available only where needed. Market-ready technologies should fully participate in the market while a functioning CO_2 emissions market that puts a clear price on externalities will help them; (Epex, RED, p. 11)	Heavily subsidising certain technologies (i.e. the solar boom leaves a debt to be paid by German consumers over the next 20 years of €100 to €200 billion) distorts the energy market so much that almost all other energy sources are at a disadvantage. (Euracoal, EMD, p. 6) RES-E support in many MSs leads to an uncoordinated impact into the functioning of the electricity market with negative consequences for stability and huge increase of system costs. (…) Technologies that cost 200–300 percent more than a product price should not be rolled out at the level of the RES target. (IFIEC, RED, p. 7–8)

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Article

The Political Economy of EU Climate and Energy Policies in Central and Eastern Europe Revisited: Shifting Coalitions and Prospects for Clean Energy Transitions

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Abstract
The countries of Central and Eastern Europe (CEE) have commonly been regarded as climate and energy policy laggards blocking more ambitious EU decarbonization targets. Although recent literature has increasingly acknowledged the differences in national positions on energy and climate issues among these states, there has been little comprehensive evidence about their positioning on EU climate and energy policies and the domestic interests which shape government preferences. The article addresses this gap by tracing the voting behavior of six CEE countries (Poland, Hungary, Czech Republic, Slovakia, Bulgaria, and Romania) on EU energy-related legislation in the Council of Ministers between 2007–2018. The article shows that the contestation of energy policies, particularly of climate-related legislation, in the Council of Ministers has increased over time and that these six CEE countries have indeed most often objected to the adoption of EU legislation. The CEE states do not, however, have a common regional positioning on all EU energy policies. Voting coalitions among the six CEE countries differ substantially across energy policy areas. The lack of a common regional position and changing national preferences have enabled the adoption of a relatively ambitious EU Energy and Climate Package for 2030. The differences in national voting patterns are explained by the evolving interests and the ability of key domestic political and economic actors to adapt to and explore benefits from the ever-expanding EU energy and climate policies.

Keywords
Central and Eastern Europe; Council of Ministers; domestic interests; energy transition; Energy Union; EU climate policy; EU energy; illiberalism; Visegrad states

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1. Introduction

During the last decade, formulating a common and comprehensive European Union (EU) energy policy has required the traversing of a long and bumpy road. EU member states have incorporated their previously independently pursued policy goals of energy security, energy market integration, and decarbonization under a single framework with the publication of the Energy Union Strategy in 2015 (Szulecki, Fischer, Gullberg, & Sartor, 2016). Among the different policy dimensions of the Energy Union, energy sector decarbonization has been the most dynamic but also the most contested policy area (Skjærseth, Eikeland, Gulbrandsen, & Jevnaker, 2016). The EU’s climate and energy policy framework was first enacted in 2009 laying out the 2020 goals in the areas of energy efficiency, renewable energy, and greenhouse gas emissions reductions. The latter was to be

achieved mainly through the Emission Trading Scheme (ETS). The EU has made considerable progress in meeting its 2020 climate and energy targets, triggering far-reaching policy change at the national level (Jörgens & Solorio, 2017). However, the difficulties in policy implementation and the opposition from domestic vested interests have led to increasing resistance among some member states against further expansion of EU energy and climate policy and more ambitious post-2020 targets. The six Central and Eastern European (CEE) countries (four Visegrad countries: Poland, Hungary, Slovakia and Czech Republic, together with Bulgaria and Romania) in particular have been described as climate and energy policy laggards opposing stricter EU goals in the decarbonization of the energy sector (Braun, 2014; Skjærseth, 2018).

Despite growing national reluctance, the adoption of the bold ETS reform and several pieces of legislation under the 2030 climate and energy framework during 2018 signify a deepening and broadening of EU integration in this area. The new EU energy efficiency target has been set to 32.5% (up from the original 27% agreed in 2014) and the new Renewable Energy Directive features a 32% EU target (up from 27% agreed in 2014) together with the EU-wide regulation which grants a preferential treatment for prosumers and community-owned projects (European Parliament, 2018a, 2018b). Even if the lack of national renewable energy targets is clearly a setback compared to the 2009 Renewable Energy Directive, a new governance mechanism for the Energy Union has been put in place to ensure effective monitoring and policy implementation at the national level (Council of the EU, 2018a). The policy process has thus been a relative success, particularly in view of the modest ambition and political saturation signaled by the European Council in 2014 (General Secretariat of the Council, 2014). This raises the question about the reasons behind the recent positive policy developments and the lessons to be drawn for the future of the Energy Union and national clean energy transitions.

Given that the six CEE countries have been the main opponents of EU energy and climate policies, we expect that the progress in EU energy and climate integration has been related to the weakening of the common position among the six CEE countries in this policy field. While earlier literature rarely differentiated among CEE countries and their energy sectors and suggested that they share a homogeneous view on EU energy and climate issues (Ćetković & Buzogány, 2016; Skjærseth, 2016; Skjærseth et al., 2016), differences within this group have been acknowledged more recently (Bocquillon & Maltby, 2017; Mišík, 2017; Nosko & Mišík, 2017). However, no comprehensive evidence has been offered so far on the national positions of the CEE countries on EU energy and climate policies, how these have changed over time, their implications for EU decision-making, and possible reasons behind the stability and change in national positions.

We argue that different national adaptation capacities, in terms of ability and willingness of domestic energy business interests and governments in the six CEE countries to adapt to the new incentives and opportunities offered by different EU energy and climate policies, have led to the divergence of interests and weakening of a common regional position. This, in turn, has made policy progress at the EU level more politically feasible. To test our assumption, we analyze the voting patterns of the six CEE governments in the Council of Ministers (the Council) in the period 2007–2018. We are particularly interested in climate-related energy legislation (e.g., ETS reform, renewable energy, energy efficiency) but we also consider legislations in other energy-related issue areas, such as energy air pollution or energy security, to obtain a comprehensive picture. In the first step, we ask whether the six CEE governments have indeed increasingly objected to EU energy legislation in the Council and whether the six CEE governments have displayed a common or diverging voting behavior across different energy issue areas. In the second step, we offer some evidence on the reasons behind the common and/or diverging voting patterns of the six CEE countries by focusing on domestic vested interests and drawing on the insights from political economy and energy transitions studies.

The article advances the understanding of EU climate and energy policy integration and the role of the six CEE governments in affecting EU climate and energy efforts while also contributing to the broader literature on decision-making and policy change in the EU. Furthermore, we draw policy-relevant conclusions from the interplay between EU policies and domestic structures for the future prospects of the Energy Union and of national clean energy transitions.

2. Theoretical Framework

2.1. Post-Accession Decision-Making in EU Energy and Climate Policy

With the eastern enlargement having almost doubled the number of EU member states, decision-making in the EU Council was expected to become more complicated or to leave EU institutions gridlocked (Börzel & Buzogány, 2019; Hertz & Leuffen, 2011). A decade later, the evidence remains mixed. Some argue that eastern enlargement has led to a new East-West cleavage in the Council (Mattila, 2009) and that different factors, such as vote weight, budget benefits from the EU, or government positions (left-right, EU integration), are driving voting behavior in old and new member states (Hosli, Mattila, & Uriot, 2011). Other authors note that the paralysis in EU decision-making that was awaited as a result of eastern enlargement did not materialize (Hagemann & de Clerck-Sachsse, 2007; Parízek, Hosli, & Plechanovová, 2015; Toshkov, 2017). While the success of pre-accession conditionality or post-accession socialization might partially explain this, the new member states' policy prefer-

ences were unclear or matched already existing conflict lines within the Council. Adding to this, institutional solutions, such as delegation to lower echelons of decision-making, have helped to avoid gridlock (König & Junge, 2009; Parízek et al., 2015).

More attention is needed related to the issue-specific preferences guiding governments' voting behavior (Bailer, Mattila, & Schneider, 2015; Høyland & Hansen, 2013; Mühlböck & Tosun, 2017). This reinforces arguments made by liberal intergovernmentalist scholarship that member states seek to protect their regulatory systems from costs incurred on them by EU law and that governmental positions mostly reflect key economic players' interests (Moravcsik, 1993; Naurin, 2018). While these positions might be covered by partisan differences as reflected in governments' left-right orientations, sectoral perspectives should provide more nuanced views on conflict in the Council (see Mühlböck & Tosun, 2017; Roos, 2018).

The literature provides some evidence that the level of conflict along the East–West divide is higher for environmental, energy, and climate change policies than in other policy fields. In his examination of general patterns of EU-level decision-making, Toshkov (2017) found no evidence of new conflict lines emerging after eastern enlargement, but pointed to emerging differences regarding environmental and climate policies as well on migration issues. Case studies also suggest that energy policy has been a policy field where CEE countries "developed quite clear sets of preferences…, contrary to many other issues where they have very limited or no preferences at all" (Mišík, 2015, p. 6) and have watered down climate and energy policy initiatives at the EU level by opposing stronger regulations (Braun, 2014; Ydersbond, 2018). Changes in EU agendas have partially occurred to accommodate the concerns of CEE states (Bocquillon & Maltby, 2017; Skjærseth, 2018). Bocquillon and Maltby (2017) show that, even though there is strong internal coordination in the region and increasing opposition towards EU climate and energy policies, the CEE states nevertheless cannot be regarded as a homogeneous block in the shape and intensity this opposition takes.

While much of the literature suggests that CEE countries are likely to converge in contesting ambitious EU climate and energy goals, in this article, we build on work by Bocquillon and Maltby (2017) in that we trace the possible differences in national positions and divergence in voting patterns among the six CEE countries. We advance the debate by not only extending the temporal perspective to the decade 2007–2018, but also by including different policy dimensions in the "interrelated sectors of EU energy and climate change" (Bocquillon & Maltby, 2017, p. 88) as witnessed in the Council's voting records. The existing literature offers only scarce knowledge about the reasons behind the diverging positions of the six CEE governments on EU energy issues. We seek to close this gap by paying closer attention to the key domestic interests and their evolution. In the following section, we highlight how domestic energy structures and interests might explain decision-making at the EU level.

2.2. Political-Economy and Domestic Climate and Energy Preferences in CEE

Following the seminal work of Hall and Soskice (2001) on 'Varieties of Capitalism' (VoC), scholarly attempts have been made to expand the binary typology differentiating between Liberal Market Economy (LME) and Coordinated Market Economy (CME). For the CEE region, Nölke and Vliegenhart (2009) identified a distinct type of political economy which they termed Dependent Market Economy (DME). The development model of DMEs is primarily driven by foreign capital and the exceptional role of transnational corporations (TNCs) moving their product assembling activities to CEE countries, attracted by their low labor costs, relatively skilled workers, and favorable tax regimes. In addition, DMEs have significantly lower transparency, more centralized decision-making, higher political party clientelism, and higher corruption levels than in Western Europe, undermining the governing capacity of the state and its ability to purposefully engage in transforming the domestic economy (Innes, 2016).

The political-economic model of CEE countries is matched by the similar structures of their industrial and energy systems. Previous research has shown that the DME model has produced dysfunctional patterns in promoting new low-carbon technologies (Ćetković & Buzogány, 2016). Nevertheless, the commonalities among DMEs should not divert attention from important cross-country differences both in terms of the broader political-economic landscape, but especially concerning the institutions, interests, and material base of the energy sector. While the VoC framework offers important insights into the institutional structure and logic of the six CEE economies, different strands of the political economy literature make us attentive to national- and sector-specific vested interests and institutions as key factors affecting domestic political processes and their international implications (Katzenstein, 1976). One key insight borrowed from these approaches is that the inherited socio-political structures and vested economic interests will resist or at least try to modify policy reforms that go against domestic interests. The literature on sustainability transitions and socio-technological transformation in the energy sector also emphasizes the role of prevailing interests, ideas, and resources which form the so-called socio-technological regime in the energy sector (Kern, 2011). These approaches highlight the stable, path-dependent nature of energy regimes, which therefore require endogenous or exogenous pressures in order to enable socio-technological change (Lockwood, Kuzemko, Mitchell, & Hoggett, 2017). As implied by the literature on multi-level reinforcement (Schreurs & Tiberghien, 2007), the EU has an in-built affinity towards ever-ambitious climate and energy policy, and the ability of reluctant national interests to resist this pro-

cess might be constrained by the powerful coalition of 'environmental leaders', the Council's consensus-seeking culture, or side-payments received in other policy areas. Another crucial point, elaborated upon in the literatures on policy feedback and policy diffusion, is the dynamic and self-reinforcing nature of the policy process itself. Although negative policy implementation experience can deter national actors and augment policy resistance (Skjærseth, 2018), previously implemented EU policies are also likely to create unanticipated benefits (Skogstad, 2017) which in turn can affect domestic preferences and power-constellations and, ultimately, accelerate policy change.

In sum, whereas the less technologically and economically advanced energy sectors in the six CEE countries are not likely to embrace more ambitious EU energy and climate policies, a more differentiated response by domestic actors is to be expected over time. We expect that the ability of national energy regimes to adapt to and to embrace new energy and climate policies is contingent upon a number of factors in both the state and market spheres. On the state side, energy policy priorities and the ability of the state to impose them on the energy sector are central. In DMEs, governments are particularly concerned with energy security and affordability of energy prices for the industry and households. While the state's ability to steer the clean energy transition is limited and the risk of policy capture by domestic vested interests is high, the dependence on foreign investments may motivate these governments to embrace the EU policy framework and to open the market in new low-carbon sectors. The recent 'illiberal' trend that has gained ground in some CEE countries like Poland and Hungary (Appel & Orenstein, 2018; Buzogány, 2017) provides further insights into the role states can play in shaping the energy transition. Democratic backsliding and creeping authoritarianism are related to the dependence of these countries on foreign firms and capital as well as the domestic elites' efforts to counter this through regaining control over 'strategic' political and economic resources (Scheiring, 2018). To the extent that illiberal tendencies prevail in the region, this may imply less openness towards foreign investments in renewable energy projects and increasing state influence over the energy sector. On the market side, the concentration of domestic energy business interests, their economic and technological capacity to take advantage of new energy and climate policies, as well as the level of the technological lock-in in fossil-fuel energy sources, should all be key economic factors determining governmental positions towards EU energy and climate policies.

Overall, the literature suggests that national governments and energy sectors will be under increasing pressure to adapt to the evolving EU energy and climate policies and that dynamic state-market constellations will determine national preferences on a given policy issue. Although preference formation at the national level is likely to vary across policy issues, in general we expect that strong illiberal trends, higher dependence on conventional fossil-fuels, and more concentrated and less adaptive capacity on the part of domestic energy industries are likely to lead governments to oppose or abstain from energy legislation in the Council.

3. Research Design and Data

This contribution investigates the six CEE countries' positions on EU energy legislation based on voting behavior in the Council. As already noted, the energy policy field under the framework of the Energy Union is relatively broad and includes several different policy dimensions (security, affordability, sustainability) as well as multiple policy areas. For the sake of comprehensiveness, in our analysis, we consider all EU legislation related to the energy sector, including that which does not relate directly to the core issues of the Energy Union, such as air pollution from energy combustion. We also include sustainable transportation policies, as they are tightly linked to EU energy decarbonization measures. A broader view on different energy-related policy areas allows for a more robust comparison and gives insights into the variations of voting behavior and the possible interests behind these.

We use the data on voting on Council decisions published in the Council Secretariat's 'Monthly Summary of Council Acts' reports. Council voting records are widely used in the literature studying national positions and influence in decision-making (Hosli et al., 2011; Mattila, 2004; Toshkov, 2017). Although many issues are typically settled among EU institutions and actors before official voting in the Council takes place, previous research has shown that governments regularly use their votes in the Council to express their disagreement with the agreed legislation as a signal to both domestic and EU-level actors (Hagemann, Hobolt, & Wratil, 2017). With the expansion of common EU energy policy across different policy areas, we expect to find growing polarization and increasing numbers of dissenting votes. The analysis of the Council´s voting records thus allows for tracing the voting-behavior of the six CEE countries over time and the level of regional homogeneity across policy issues.

As most decisions in the Council are adopted with unanimous support, we focus on those cases where Member States voted 'no' or abstained from voting. Following the common practice in the literature, we count abstentions and outright 'nos' together, as the Member States are often thought to avoid publicly opposing the majority. The timeframe for our analysis runs from 2007 to 2018, marking the first decade when all six CEE states were full members. Given that the latest available Monthly Summary of Council Acts is from June 2018, we cover the remaining period through 2018 by referring to individual voting records available on the Council website. Our sample of countries includes the four Visegrad states (V4), which joined the EU in 2004, as well as Romania and Bulgaria, which joined in 2007, and allows us to account for the possible influence of the date of accession

on the voting behavior of the country. The six CEE countries were selected given their close coordination of positions on EU energy issues (Visegrad Group, 2014), their broadly acknowledged reluctance towards more stringent EU energy and climate policy, and their similarity in terms of their economic models (Ćetković & Buzogány, 2016). Thus, we are interested in whether, in such a seemingly homogeneous block of countries, convergence or divergence in voting behavior on EU energy issues can be detected and to what extent domestic preferences might help to explain the countries' voting patterns.

4. Analysis

4.1. Voting Behavior in the Council

Altogether, in the period 2007–2018, we identified 67 decisions adopted by the Council on energy issues. Of these 67 decisions, 23 were adopted without unanimous support. A list of these decisions is provided in the Appendix. We are interested in the dynamics of energy policy-making during the last decade and focus both on member state positions and on coalitions. The coalition behavior of member states provides information on the existence of similar preferences, even if similar voting positions might be based on different reasons. In our data on voting in the Council, 39% of the decisions were contested by a single state, 35% by coalitions of two or three states, and 26% by coalitions with four or more members.

The analysis of the Council's voting records shows that the six CEE countries have indeed most often been members of the 'coalition of unwilling', either by directly opposing or by abstaining from the majority position in the Council on energy issues. However, not only is this trend a relatively recent phenomenon which began in 2013, but, in addition, not all six CEE countries have objected to EU legislation on the same energy policy issues. Figure 1 displays the total number of adopted pieces of energy legislation in the studied period next to the number of pieces of energy legislation adopted without unanimity. The relative number of bills adopted without unanimity has increased since 2015. Here, the comparison between the year 2009 (adoption of the EU energy and climate policy package 2020) and the year 2018 (adoption of the EU energy and climate package 2030) is particularly illustrative. While in 2009 only one out of 13 pieces of legislation failed to reach unanimous support, in 2018 only three out of nine bills were adopted by unanimity.

Figure 2 shows the number of dissenting votes of EU member states for each year, differentiating between the six CEE countries and other EU member states. Between 2007–2012, the six CEE members did not object to any single piece of EU energy legislation adopted by the Council. While there are several likely reasons for this, including the relatively low salience of energy and climate issues and the insufficient political power of CEE countries as new members of the EU, two probable central explanations are that the common EU energy and climate policy was initially not particularly ambitious and CEE countries were able to receive concessions on many important issues.

In the subsequent period 2013–2018, 17 Council decisions which were taken regarding energy legislation fea-

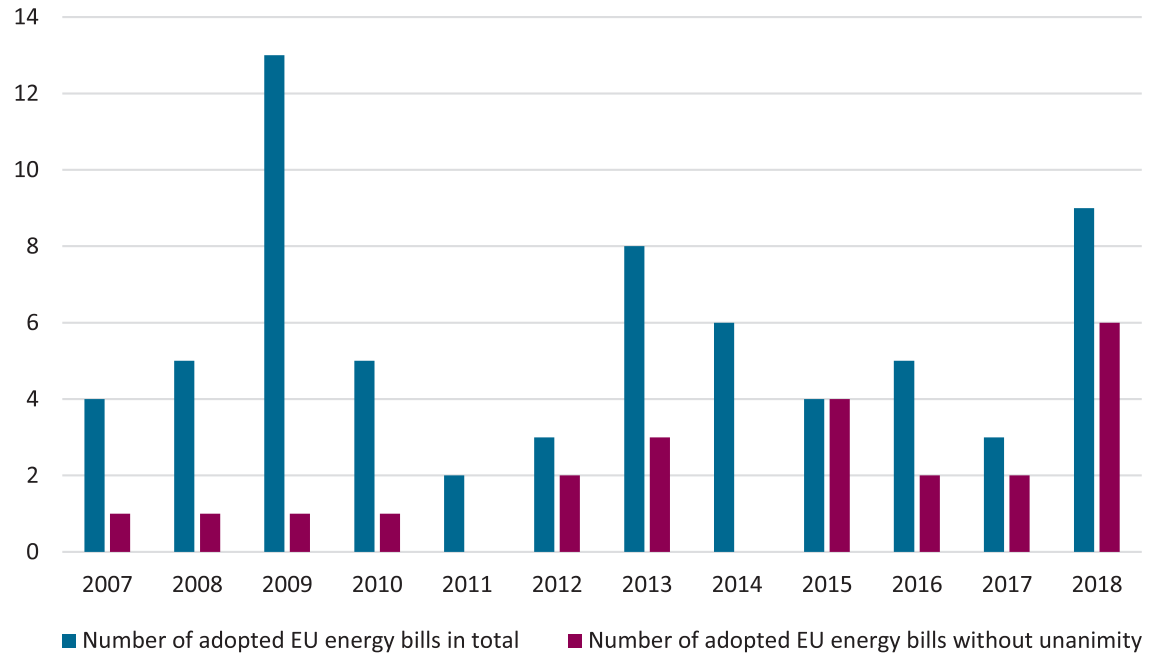

Figure 1. Total number of adopted EU energy legislative acts and the number of energy legislative acts adopted without unanimity in the period 2007–2018. Source: Authors' calculation based on data from the Monthly Summary of Council Acts (https://www.consilium.europa.eu).

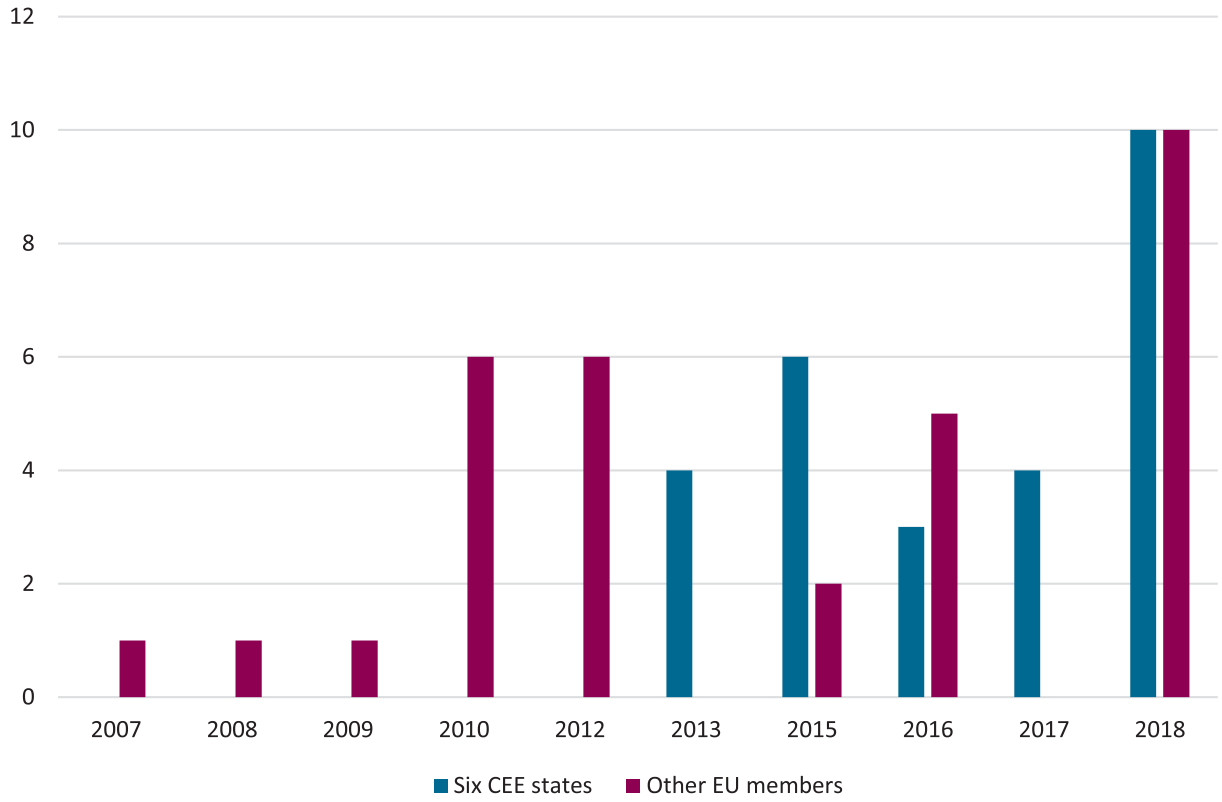

Figure 2. Number of dissenting votes of EU members on EU energy legislative acts in the period 2007–2018. Source: Authors' calculation based on data from the Monthly Summary of Council Acts (https://www.consilium.europa.eu).

tured at least one abstention or a negative vote by a member state. Of 17 cases adopted without unanimity, 16 involved at least one of the six CEE countries. Poland has been the most prominent in objecting to the majority position in the Council by participating in 10 out of 17 cases. Hungary objected seven times, Romania, Slovakia, Czech Republic three times, and Bulgaria twice. No distinctive trend can be noted between 'older' CEE EU members (V4) and 'newer' ones (Bulgaria and Romania). Poland and Hungary have consistently featured among the dissenting voting group while other CEE members have dissented less frequently.

Figure 3 depicts coalitions in the Council using social network analysis. Nodes in the network represent countries while edges between them stand for commonly voiced dissent. Countries with connections to many dissenters are located at the center of the graph, while countries that often form coalitions of dissent together are closer to each other. The size of the nodes shows the frequency of dissent, while the different colors stand for the six CEE and 'other' member states. From Figure 3, it becomes clear that there is a regional pattern of dissent, with Poland, and to a lesser extent Hungary, playing a central role. They are followed by several other CEE countries. Interestingly, Slovakia and the Czech Republic are on the margins of this network of dissenters. Another much smaller and disconnected network of dissenters includes Germany, Finland, Estonia, Spain, and Portugal.

To grasp the potential differences in governments' positions across different policy issues, we identified five main issue areas among the contested legislation documents: 1) GHG emission reductions and ETS reform, 2) air pollution, 3) renewable energy promotion, 4) energy efficiency, and 5) others, which do not belong to any of the mentioned categories including, for instance, a decision on the EU gas supply strategy or state aid for coal mines. We are particularly interested in the dissenting votes of the six CEE countries across issue areas. This data is presented in Figure 4. Overall, climate-related energy legislation has been most often contested by some of the six CEE governments alongside the legislation on air pollution related to energy production. Legislation on GHG emissions reductions, with seven cases, has dominated the energy policy issues on which the six CEE countries abstained or opposed the majority position in the Council. Poland has been involved in all of the seven cases, while Hungary joined in on two occasions and Romania and Bulgaria each joined once in 2015. Air pollution has been the second most controversial issue, with three cases in total. Poland, Romania and Hungary objected to air pollution legislation twice and Bulgaria once. On renewable energy promotion, three Council decisions have been reached without unanimity, one objected to by Poland and Hungary, the second by the Czech Republic, and the third by the Czech Republic, Slovakia, and Hungary. Energy efficiency legislations have been opposed

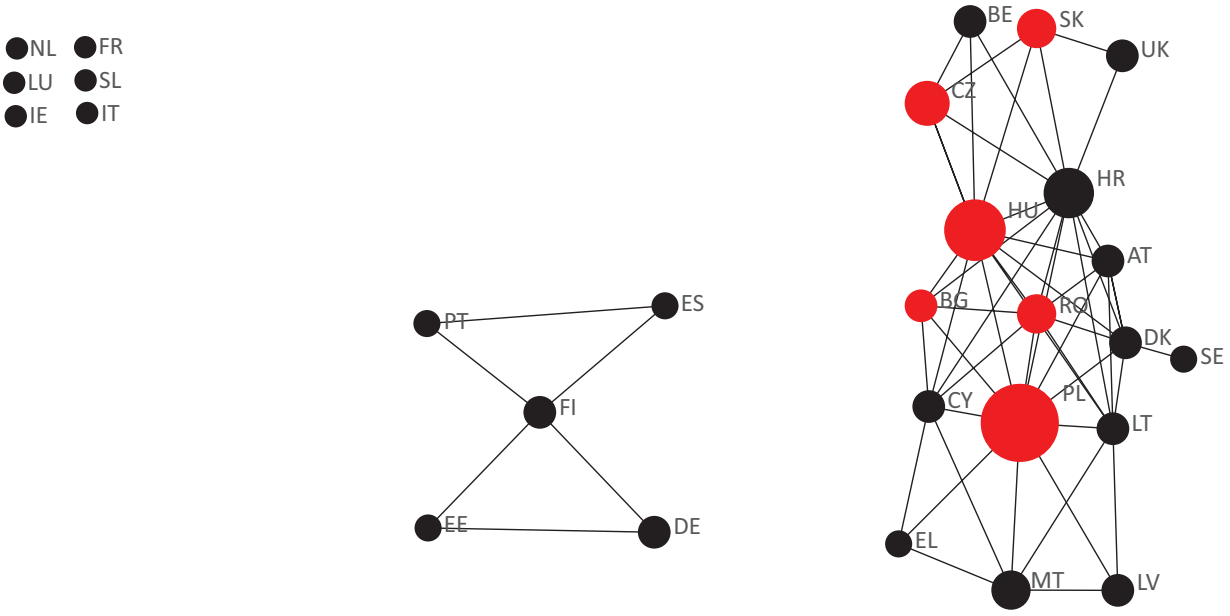

Figure 3. Coalitions of dissent in EU energy policies. Source: Authors' calculation based on data from the Monthly Summaries of Council Acts (https://www.consilium.europa.eu). The size of the nodes represents the number of dissenting votes. The graph was made with Ucinet 6 and NetDraw 2.1 software.

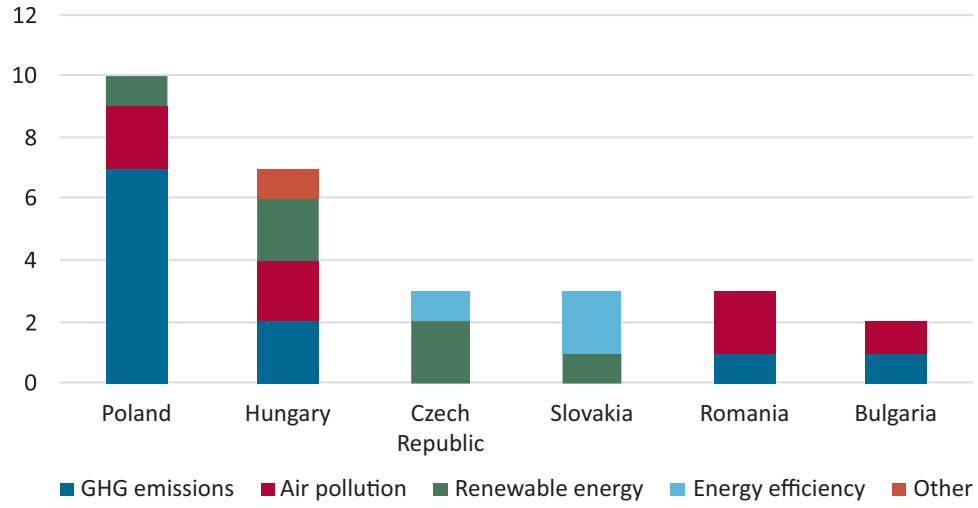

Figure 4. Dissenting votes of the six CEE countries by policy issue. Source: Authors' calculation based on Monthly Summary of Council Acts (https://www.consilium.europa.eu).

twice, once by Slovakia and once by Slovakia and the Czech Republic. In the category 'other', we include a regulation on the security of gas supply, opposed by Hungary.

Overall, three main observations can be made. First, there is an obvious pattern of varying voting behavior across different issue areas. Poland has been almost isolated in continuously dissenting from the majority position in the Council on GHG emissions reductions and ETS reform. With regard to air pollution, the situation is more mixed with other countries, particularly Bulgaria, Romania, and Hungary, objecting to the Council's majority position alongside Poland. The voting behavior of Slovakia and the Czech Republic is particularly telling given that the disagreements raised by these two countries have been in the areas of renewable energy and energy efficiency and do not match the voting pattern of the other four CEE countries. Overall, the homogeneity in voting behavior among the six CEE countries is low and, if anything, issue specific. Second, there is a clear trend of intensified objections raised by the six CEE governments on various EU energy policy legislative acts since 2013. Finally, while several different coalitions of CEE countries can be identified based on the specific issue area, it is worth noting that Poland and Hungary have been the two CEE countries which have most often voted in the same way in objection to the Council majority position.

4.2. Political-Economic Interests and Developments in the Energy Sectors in the Six CEE Countries

Although partly or fully state-owned energy utilities still control significant shares of the market in Hungary, Poland, and Slovakia, many energy plants in CEE were privatized as part of the privatization wave in the 1990's and 2000's. The privatization trend has been reversing recently and there has been a marked revival of state interventions in the energy sector in the last decade through state acquisition of ownership over foreign energy companies, regulation of energy prices, and negotiation of large energy projects. This trend has been particularly apparent in Hungary and Poland, and to a lesser extent in Slovakia. In the Czech Republic, the state already owns the majority share of the CEZ company, which is a key regional market player in the electricity sector. In its energy strategy published in 2012, the Hungarian government announced that:

> In the future we will make an effort to increase the involvement of the public sector in the energy economy, while obviously respecting competitive neutrality and the rules demanded by a democratic society. (Hungarian Ministry for National Development, 2012)

The Slovak prime minister Fico has also declared the ambition to re-seize control over the energy sector while criticizing the privatization of the energy power undertaken by the utility Slovenské elektrárne in 2006 (Reuters, 2017a). Such statements have been followed by concrete actions. In 2017, a Hungarian businessman close to Prime Minister Viktor Orbán, Lőrinc Mészáros, together with the Prague-based company EPH, bought shares of RWE and EnBW in Mátrai Erőmű, the country's largest lignite coal power plant (Reuters, 2017b). In electricity distribution, in 2017, the state-owned company NKM Nemzeti Közművek (formerly ENKSZ) completed the take-over of the distribution company Démász from the French energy utility EdF and acquired stakes in two other electricity distributors owned by the German utility RWE (Budapest Business Journal, 2017). In addition, the Hungarian government has introduced interventionist measures to cap energy prices below market levels (International Energy Agency, 2017). In 2015 in Slovakia, the Italian energy utility ENEL announced it was selling 66% of its shares in Slovenské elektrárne to the Czech company EPH. The Slovak government maintained 34% of shares with the option to acquire majority ownership in the electric power utility once two new nuclear power reactors Mochovce 3 and 4 have been built (Velinger, 2015). The same developments have been witnessed in Poland since 2015, with four state-owned energy utilities acquiring ownership and control over production facilities previously owned by foreign companies (Reuters, 2018). The trend of an increasing state role in the energy sector has been, however, far less prominent in Bulgaria and Romania where foreign companies continue to play important role in the distribution and generation of electricity. The new Romanian energy strategy, for instance, has maintained the need for the state to preserve ownership over some energy utilities, but it also stresses the principle of market competition and clear division between the state as a regulator and as a shareholder (Ministerul Energiei, 2016).

Not only has the nature and scale of state intervention in the energy sector varied across CEE countries—the material base and industrial interests in the energy sector have exhibited important differences as well. Poland, for instance, has by far the most carbon-intensive electricity sector in the EU owing to the overreliance of the energy industry on domestic coal (Moro & Lonza, 2018). The Czech Republic ranks second in terms of the carbon intensity of its electricity sector (Moro & Lonza, 2018) but, interestingly, the state-owned CEZ company which owns stakes in energy companies throughout the region supports a more stringent ETS system. This is due to the fact that CEZ is less carbon intensive than some other major energy companies in Europe; thus, higher carbon prices give the company a competitive advantage in the short- and medium-term (CEZ Group, 2018). Bulgaria and Romania rank third and fourth in terms of carbon intensity of electricity production, but their concerns are aggravated by the high carbon intensity of their heating sectors as well as weaker economic development, leading to a higher impact of increasing emissions standards on energy prices. Slovakia and Hungary have comparatively less carbon-intensive electricity due to the significant role of nuclear and hydropower in their energy mix (Moro & Lonza, 2018).

The levels of electricity prices, one of the main factors of competitiveness among the six CEE economies, also display important differences. Concerning prices for households, in the first half of 2018, Bulgaria had the lowest prices while Czech Republic had the highest. For non-households, Slovakia had the highest electricity prices among the six CEE countries, which are above the EU average. The lowest non-household electricity prices are in Czech Republic followed by Bulgaria, Romania, Hungary, and Poland (Eurostat, 2018). The unusually high electricity prices in Slovakia are due to various factors including hidden subsidies for coal and nuclear power, renewable energy support, increasing carbon prices, and considerable imports of energy sources and electricity (Slovak Spectator, 2016). In Poland, the price of electricity for non-households has increased recently and is expected to be under further upward pressure due to rising carbon prices and reliance of the energy sector on coal as the dominant source (Energy Transition, 2018).

5. Discussion

The presented data on voting behavior shows that there is no strong coherence among the six CEE governments in their positioning on EU energy-related legislation, and it supports recent findings regarding the heterogenity

in energy and climate policy preferences in the CEE region (Bocquillon & Maltby, 2017). However, our assessment has not confirmed the existence of two blocks with Poland, Bulgaria, and Romania on one side, and Hungary, Slovakia, and Czech Republic on the other, as suggested by Bocquillon and Maltby (2017). The differentiation across issue areas reveals that a more issue-specific approach is necessary to acquire deeper insights into the voting behavior of the six CEE countires and possible motives behind it. If Poland, Bulgaria and Romania have displayed similar preferences, it has only been in the case of air pollution legislation, where they are also accompanied by Hungary. In the area of GHG emissions and ETS reform, Poland has been relatively isolated in its voting behavior, with only occasional support from Hungary, Bulgaria, and Romania. Slovakia and the Czech Republic have revealed themselves to be outliers in the group, with their oppostion in the Council primarily targeting energy efficiency and renewable energy legislations.

The differences in voting patterns across issue areas underline the importance of sector-specific domestic preferences. Domestic political-economic interests are particularly powerful in illuminating differences in the voting behavior of the six CEE governments in the area of GHG emissions and ETS reform. Poland has been the most concerned party due to its heavy reliance on domestic coal and has opposed virtually all decisions of the Council on this matter (see also Skjærseth, 2018). Other countries have expressed lesser concern while the Czech Republic and Slovakia have not objected to any of the legislation pieces in this field. The decisions of the Czech government not to oppose the ETS reform has been largely motivated by the increasing awareness of the state-owned energy utility CEZ that higher carbon-prices can strengthen the company's competitiveness on the regional market (see also Jevnaker & Wettestad, 2017). Bulgaria and Romania have received considerable concessions from the EU in terms of free carbon permits and additional funding for fossil-fuel district heating through the Modernization Fund, which successfully moderated their opposition to the ETS reform. Vested economic interests and governments' concerns about increasing energy prices can also account for the relatively broad coalition of countries opposing higher air pollution standards since most of the EU air pollution legislation targets medium and large combustion plants operated by large energy utilities.

The Czech Republic's reluctance towards renewable energy targets can be explained by CEZ's concentrated sectoral power and its clear preferences for protecting the market and developing nuclear energy. The Slovakian and Hungarian governments have also advanced their plans of using nuclear energy. While illiberal tendencies in Hungary have likely decreased the government's willingness to open the domestic energy market to foreign producers of renewable energy, the same has not occurred in Poland, whose government has not opposed the most recent renewable energy directive. Part of the explanation may lie in the strategic decision of major state and business actors in the energy sector. As previously mentioned, Hungary has initiated the construction of a nuclear power plant (Paks II), which should provide low-carbon electricity to satisfy domestic demand, while Polish decision-makers have increasingly been considering renewable energy, particularly onshore and offshore wind, in response to the rising costs of carbon emissions from coal (Energy Transition, 2018). Bulgaria and Romania also withstood from objecting to renewable energy legislation, which may be related to their less concentrated domestic energy business interests and higher openness to foreign investments in renewable energy.

6. Conclusions

This article has set out to explore the question of whether the six CEE countries have exhibited common voting behavior on EU energy legislative acts in the Council in the period 2007–2018. We also examined the extent to which domestic institutions and actors (and their preferences) can account for the voting patterns of countries across different energy policy areas, and what conclusions can be drawn from this to inform EU decision-making and the future prospects of the EU energy union and decarbonization efforts. Five important contributions to the literature and policy-oriented research emerged from this analysis.

First, we have shown that, although the overall frequency of dissenting votes by the six CEE countries on energy legislative acts has increased in recent years, voting coalitions have varied across policy issues. There was no common blocking coalition among the six CEE countries in the Council on the latest legislative pieces of the EU energy and climate framework for 2030, which facilitated the political agreement for their adoption. Our findings support evidence about differences in energy interests among CEE countries advanced in recent studies (Bocquillon & Maltby, 2017; Nosko & Mišík, 2017), but provide more nuanced insights into the variation of voting and coalition patterns across major EU energy policy issues.

Second, we have illustrated the importance of domestic state-market structures in affecting voting behavior. While caution is necessary while drawing conclusions about the possible influence of domestic interests on voting behavior given the lack of empirical data and variety of factors at play, several important trends and plausible explanations have been suggested. Although all six CEE countries are dependent on fossil-fuels, the extent of this dependence and the interests and abilities of domestic energy companies to reap benefits from the decarbonization process have led to different government positions, as voting records on the ETS reform illustrates. Furthermore, we have highlighted the important trend of increasing statism in the energy sectors associated with the illiberal turn in several CEE countries. While this trend is motivated by the protection of domestic energy com-

panies and provision of cheaper energy prices, we have not found a uniform immediate impact of this trend on voting behavior. Poland and Hungary, the two countries forming the region's 'illiberal avant-garde', have indeed displayed the most similar voting pattern among the six CEE countries, but this trend has weakened recently, as the case of the new Renewable Energy Directive shows. We have proposed that the differences in strategic energy planning at the national level may account for this, with Poland showing higher interest in renewable energy as an alternative to increasingly costly coal-based electricity. These findings underline the necessity of paying closer attention to sectoral preferences (Mühlböck & Tosun, 2017), as well as their interplay with EU policy over time, in order to understand policy change and national governments' preferences towards EU legislation.

Thirdly, our results confirm the growing trend of contestation voting in the Council, already identified in other EU policy areas such as justice and home affairs (Roos, 2018). Even if political divisions regarding EU energy policies are intensifying, this does not necessarily lead to gridlock or stagnation in the process of widening and deepening of EU energy policy, especially in climate-related energy policy areas. Our analysis suggests that shifting national preferences and weak issue-specific coalitions within the six CEE countries have facilitated further EU integration.

Fourth, the step up in the ambition of the EU energy and climate policy package 2030, from the Guideline given by the European Council in 2014 to the final formulation and adoption of the legislation in 2018, somewhat downplays the prevailing notion about the increasingly decisive role of top-level negotiations in the European Council for EU decision-making (Bocquillon & Dobbels, 2014).

Finally, and related to the previous point, it is worth noting that the dissenting votes and written concerns on the new EU Energy Efficiency Directive and Renewable Energy Directive came not only from some of the six CEE governments (Czech Republic, Slovakia, and Hungary), but also from member states including Belgium, Portugal, and Germany (Council of the EU, 2018b, 2018c). This indicates that individual national governments find it increasingly difficult to influence the EU decision-making process on energy issues and are faced with high adaptation pressure. This may open up possibilities for a positive policy feedback loop and deeper structural changes. For example, the increasing CO_2 price through the reformed ETS has already placed fossil-fuel industries and interests under pressure, leading governments and businesses to explore opportunities in low-carbon sectors. The ability of relevant actors to link the benefits from new low-carbon technologies to domestic objectives, such as job creation, energy security, and decarbonization, will significantly affect the prospect of national clean energy transitions. The recent emphasis on residential solar PV in the energy strategies of Hungary and the Czech Republic (Czech Ministry of Industry and Trade, 2014; Hungarian Ministry of National Development, 2012), which resonate well with the goals of economic patriotism and domestic value creation, shows the variety of possible policy framings which can facilitate domestic clean energy transitions. On a more cautious note, the increasing role of the state coupled with traditionally closed energy policy communities and democratic backsliding in several CEE countries might hinder clean energy transition efforts and EU energy market integration while strengthening the prospects for established energy sources such as nuclear energy.

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Conflict of Interests

The authors declare no conflict of interests.

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Appendix

1. Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information.

2. Regulation (EC) No 106/2008 of the European Parliament and of the Council of 15 January 2008 on a Community energy-efficiency labelling programme for office equipment (recast version).

3. Regulation (EC) No 1005/2009 of the European Parliament and of the Council of 25 March 2009 on substances that deplete the ozone layer (recast).

4. Council Decision 2010/787/EU of 10 December 2010 on State aid to facilitate the closure of uncompetitive coal mines 16229/1/10 REV 1.

5. Directive 2012/33/EU of the European Parliament and of the Council of 21 November 2012 amending Council Directive 1999/32/EC as regards the sulphur content of marine fuels.

6. Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

7. Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'.

8. Decision No 1359/2013/EU of the European Parliament and of the Council of 17 December 2013 amending Directive 2003/87/EC clarifying provisions on the timing of auctions of greenhouse gas allowances.

9. Decision No 377/2013/EU of the European Parliament and of the Council of 24 April 2013 derogating temporarily from Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community.

10. Directive 2015/1513/EU of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

11. Regulation (EU) 2015/757 of the European Parliament and of the Council on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC.

12. Directive 2015/2193/EU of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants.

13. Decision No 2015/1814/EU of the European Parliament and of the Council of 6 October 2015 concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/87/EC.

14. Directive 2016/2284/EU of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC.

15. Regulation (EU) 2016/1952 of the European Parliament and of the Council of 26 October 2016 on European statistics on natural gas and electricity prices and repealing Directive 2008/92/EC.

16. Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008.

17. Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010.

18. Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814.

19. Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU.

20. Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013.

21. Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

22. Directive of the European Parliament and of the Council amending Directive 2012/27/EU on energy efficiency.

23. Directive of the European Parliament and of the Council on the promotion of use of renewable energy sources (recast).

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Article

Organised Interests in the Energy Sector: A Comparative Study of the Influence of Interest Groups in Czechia and Hungary

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Abstract
In this article, we explore civil society mobilisation and the impact of organised interests on the energy policies of two post-communist countries—Hungary and Czechia—and specifically nuclear energy. Drawing on numerous hypotheses from the literature on organised interests, we explore how open both political systems are for civil society input and what interest group-specific and socio-economic factors mediate the influence of organised interests. Based on the preference attainment method, our case studies focus on the extent to which organised interests have succeeded bringing nuclear energy legislation in line with their preferences. We find that while both democracies are open to civil society input, policy-making is generally conducted in state-industrial circles, whereby anti-nuclear and renewable energy advocates are at best able to make minor corrections to already pre-determined policies.

Keywords
civil society; Czechia; energy policy; Hungary; interest groups; nuclear energy

Issue
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1. Introduction

In this article, we explore civil society mobilisation in two post-communist countries, Czechia and Hungary, while specifically analysing the impact of organised interests on nuclear energy policy-making. The post-communist political transformation is indeed a well-studied phenomenon. In the early transformation phase, most studies focussed primarily on the re-design of political institutions and constitutional arrangements (Hellman, 1998; Ramet, 2010; Stark & Bruszt, 1998). More recently though, numerous analyses addressed civil society mobilisation (Carmin, 2010; Fink-Hafner, 2011; Howard, 2003; Pérez-Solórzano Borragán, 2006) and the development of interest intermediation systems (Avdagic, 2005; Pleines, 2011). This is a crucial aspect of democratisation because organised interests—as conveyors of inputs into the political process—can be regarded as a precondition of democracy (Dahl, 1971). While organised interests indeed may have a legitimising effect by injecting citizens' preferences into decision-making, the democratic process may also be undermined when special interests continuously assert their demands to the detriment of others (Dür & De Bièvre, 2007). Moreover, democracy may be endangered by weak or inefficient channels of interest intermediation. Crouch (2004) defines this condition as a "post-democratic" legitimation crisis, hence a situation in which institutions exist formally, but civil society no longer shapes policies.

Organised interests are burdened with a difficult legacy in Central and Eastern Europe (CEE). Under socialism, civil society activity was largely channelled through communist parties, which in turn converted any pre-existing interest associations into their own ap-

pendages (Kubik, 2005). The oppression of civic participation outside the party has reinforced the view that post-communist organised interests remain weak and fragmented (Howard, 2003). For example, Ágh (1996) speaks of a "missing middle", thus an absence of effective links between societal interests, the state and market institutions. In contrast, Fink-Hafner (1998) contends that civil society is being reinvented, a view backed by numerous analyses on organisational membership (Petrova & Tarrow, 2007) and parliamentary representation (Fink-Hafner, 2011). Along these lines, Guasti (2016) argues that civil society has emerged as an "arena for contestation of governmental policies and ideational alternative to national-conservative ideologies" (Guasti, 2016, p. 229).

In either case, interest organisations constitute an important field of research regarding the functioning of democracy, in particular in CEE. Due to the historical oppression of democratic mobilisation and the communist system's heavy burden on civil society, it is crucial to assess—almost three decades after the fall of the Berlin Wall—*whether* and *which* organised interests have shaped post-communist policies. Against this background, this article focusses on the design of interest intermediation structures and, specifically, the actual influence of organised interests on recent nuclear energy legislation in Hungary and Czechia.

Energy is a highly relevant policy area in CEE and beyond, as secure, cost-effective and environmentally friendly energy is a precondition for functioning societies. CEE countries generally share a legacy of environmental neglect and inefficient energy usage. While the post-communist transformation, European integration and, notably, the bankruptcy of many energy-intensive industries indeed resulted in a reduction of usage, CEE is still characterised by limited natural resources, increasing prices as well as dependence on Russian energy (Aalto, Nyyssönen, Kojo, & Pal, 2017; Binhack & Tichý, 2012). Thus, CEE countries are simultaneously aiming to promote renewable, safe, and diversified energy sources, increase efficiency and form regional markets.

Drawing on the well-established literature on interest groups (Dür, 2008; Eising, 2008; Klüver, 2013), we explore the following research question: How open are post-communist political systems for civil society input and what factors condition the influence of interest groups on nuclear energy policy? Taking inspiration from Kitschelt's (1986) study on anti-nuclear movements in western democracies, we assess the accessibility of post-communist political systems for interest groups and highlight the factors which have increased or hampered the impact of anti-nuclear movements.

We aim to modestly advance three bodies of research—the literature on post-communist civil society, research on interest groups in general, and research focussing on CEE energy policy. Substantively we address the national energy strategies laid out in the Czech State Energy Policy (SEP; Ministerstvo průmyslu a obchodu, 2015) and Hungarian National Energy Strategy (NES) 2030 (Nemzeti Energiastratégia, 2030) from 2012 (Nemzeti Fejlesztési Minisztérium, 2012). The timeframe of analysis is from 2011 to 2018, whereby the Fukushima disaster is a turning point which compelled many countries to reassess nuclear energy and the viability of their energy mix.

Next we outline pre-existing studies, before presenting our theoretical framework and methodological approach. In our empirical analysis, we first discuss the overall energy policy background and identify key interest groups. We then assess to what extent they pushed relevant legislation in their preferred direction, before identifying the key factors that condition their impact. Finally, we elaborate on the modes of interest intermediation by engaging with classical concepts of statism, pluralism and corporatism (Fink-Hafner, 2011; Siaroff, 1999). Our analysis reveals that statist arrangements with some corporatist elements have emerged, whereby governments strongly incorporate nuclear energy providers into official policy-making, thus resulting in formidable state-industry alliances to the detriment renewable energies groups.

2. Post-Communist Civil Society and Energy Policy-Making

Political science is rich in studies on civil society and organised interests. However, they focus largely on western countries (Baumgartner, 2009; Binderkrantz, Christiansen, & Pedersen, 2014; Mahoney, 2007), while organised interests and lobbying in the European Union (EU) have increasingly attracted attention (Klüver, 2009; Schneider & Baltz, 2003). Political scientists have also more recently significantly enhanced our understanding of the determinants of lobbying success (Binderkrantz & Rasmussen, 2015; Bunea, 2013; Klüver, 2013).

Although CEE has largely been overlooked by such research, the 2000s gave rise to numerous studies on civil society in post-communist democracies. Most notably, Howard (2003) paints an ambivalent picture of civil society in CEE by arguing that it neither endangers the democratic system itself nor leads to the development of anti-democratic activities. Fundamentally, he contends that mistrust in the political process has led to low civic participation (Howard, 2003). Pérez-Solórzano Borragán (2006) also highlights two reasons for the low civic participation: historical legacies and disappointment with the regime transformation. The former refers to the oppression of civil society by the communist regime, resulting in suspicion towards the state. Moreover, CEE interest organisations suffer from their lack of experience, organisational capacity, and knowledge of "what civil society is and how it operates" (Pérez-Solórzano Borragán, 2006, p. 138).

In his analysis of the development and regulation of organised interests in CEE, McGrath's (2008) diagnosis is the same: the discouragement of non-partisan civil society engagement and lacking skills and motivation

of civil society are major impediments to mobilisation (McGrath, 2008). In a seminal article, Vráblíková (2009) finds that the factors determining participation greatly vary between CEE countries. More recently, Fink-Hafner (2011) focussed on relations between interest groups and CEE national parliaments and demonstrated that the weakness of the parliament is frequently interconnected with its level of attractiveness for interest groups (Fink-Hafner, 2011).

Scholars have also addressed the impact of the EU on individual organised interests (Císař & Vráblíková, 2013). Guasti, for example, argues that "new norms, ideals and collective understandings" facilitated higher civil participation (Guasti, 2016, p. 230). Her finding of a civil society revival in CEE is also supported by other studies addressing the importance of EU access in transforming the institutional setting for organised interests (Fagan & Kopecký, 2017; Vándor, Traxler, Millner, & Meyer, 2017). Yet despite our enhanced understanding of civil society mobilisation, only few authors have assessed its impact on specific policies (for an exception see Gallai, Döme, Molnár, & Reich, 2015).

2.1. Energy Policy Research in CEE

Numerous analyses on CEE energy policy exist (Balmaceda, 2002; Binhack & Tichý, 2012; Szulecki, Fischer, Gullberg, & Sartor, 2016; Vlček & Černoch, 2013), some of which have even addressed organised interests (Carmin, 2010; Tosun & Schulze, 2015). According to Andersen, Goldthau and Sitter (2017), the main explanation for energy policy choices within these countries is neither the post-communist legacy nor geographical particularities. CEE rather differs regarding attitudes towards energy policy: first, there is little unity on the EU level mainly due to distinct national preferences. Second, differences persist regarding perceptions of priorities and structural obstacles in these countries due to "energy populism, corruption and general incompetence" (Andersen et al., 2017, p. 215).

Balmaceda (2002) analyses the energy-related geostrategic position of CEE between the EU and Russia and argues that the creation of a gas market will positively impact the energy situation in CEE. Binhack and Tichý (2012), however, stress that there is an asymmetric relationship between Czechia and Russia regarding Czechia's dependence on Russian energy, which in turn has been somewhat balanced by the EU's involvement in transnational energy policy-making. Numerous qualitative studies also have elaborated on energy mixes and energy "democracy", several of which include CEE (Szulecki, 2018; Szulecki et al., 2016). Bakos (2001) explored the privatisation and liberalisation of electricity in Hungary, suggesting an asymmetry similar to the already mentioned case of Czechia, while Aalto et al. (2017) conducted a comparative study on Russian-built nuclear reactors in Hungary and Finland as part of Russian "nuclear energy diplomacy".

Regarding Czechia, Frantál and Malý (2017) address community support for nuclear power plant (NPP) expansion. They conclude that the support of two-thirds of Czech society is related to their "general perception of pros of nuclear power" (Frantál & Malý, 2017, p. 134). Yet radioactive waste is a problematic issue, drawing the concern of municipalities (Ocelík, Osička, Zapletalová, Černoch, & Dančák, 2017). A rather technical analysis of energy strategies conducted by Minin and Vlček (2018) reveals that the Fukushima accident did not affect nuclear energy usage at all. Osička and Černoch (2017) argue that structural and cultural factors affected pro-nuclear policy-making in Czechia while Ocelík et al. (2017) address the framing of nuclear waste storage places.

Several studies have also focussed on civil society mobilisation in post-communist energy policy-making. In her important contribution on environmental governance in Hungary and Czechia, Carmin (2010) regards resources and knowledge as important assets for organised interests to participate in decision-making processes. Resources are necessary to maintain their activity level while knowledge and expertise are preconditions for significant input (Carmin, 2010). Devaux (2006) analyses the influence of professional organisations on environmental issues and determines that organisations from the Soviet era with expert knowledge are still most influential. Tosun and Schulze (2015), by contrast, analysed the influence of interest groups in a very specific case—compliance with EU biofuel targets. Interestingly, their analysis indicates, first, that their influence varies within countries and, second, that biofuel producers more significantly impact the adoption of targets than environmental groups (Tosun & Schulze, 2015).

3. Theoretical Framework

Keeping these significant research advancements in mind, we propose a study which applies the perspectives of civil society mobilisation and interest intermediation to post-communist energy policy-making. Before outlining our working hypotheses, we briefly elaborate on terminology. One outstanding characteristic of interest groups is their fragmented nature and heterogeneity (Eising, 2008), resulting in numerous terms such as special interest organisations, associations, lobbies, civil society organisations, social movements, civil groups, etc. Following Eising (2008), we pragmatically stick to the terms "interest groups" and "organised interests" and define them as *non-state*, *organised groups pursuing political interests by seeking to influence political decision-making processes*. They are characterised by three factors: "organization, political interest, and informality" (Eising, 2008, p. 5). Organisation means that they strive to "influence policy outcomes….*Political interest* refers to attempts…to push public policy in one direction or another on the behalf of constituencies or a general political idea" while "*[i]nformality* relates to the fact that interest groups do not normally seek public office but pursue

their goals through informal interactions with politicians and bureaucrats" (Eising, 2008, p. 5). Against this background, we define influence as 'control over outcomes' to the extent that interest groups "influence outcomes in a way that brings them closer to their ideal points" (Dür & De Bièvre, 2007, p. 3).

Yet what factors mediate the influence of interest groups on policy outcomes? Dür and De Bièvre (2007) distinguish between *interest group-related*, *issue-related* and *socio-economic* factors. Olson's (1971) seminal work showed how the structure and focus of interest groups may impact their means for collective action. Diffuse interests (e.g., environmental or consumer groups) may be more difficult to organise than concentrated interests (e.g., business lobbies, coal lobbies). Accordingly, size may be critical: the bigger a group, the fewer individuals may take action to achieve common interests. This implies a certain relationship between individual behaviour and group size. Olson (1971) argues that individuals' efforts to contribute to collective well-being exceed the benefits they receive in return. This creates a *free-rider problem* since, if there are public benefits emerging from collective action, not only individuals who actively pursued them, but also those who did not, benefit. This may encourage individuals to "free-ride" on the efforts of few. Smaller groups, in particular business interests, therefore may have an organisational advantage as they are easier to organise, monitor and control than large groups. Therefore, we hypothesise that:

> H1: Concentrated organised interests wield greater clout over policy than diffuse interests due to their inherent organisational advantage.

Yet Olson's theory arguably overlooks other internal characteristics of interest groups, specifically their resources. These can encompass material aspects such as funding, but also non-material assets like public support, policy expertise and information on voters' interests and the possibilities of other policy-makers (Dür & De Bièvre, 2007). The calculation is straightforward:

> H2: Organised interests with greater monetary, staffing and personnel resources wield greater clout over policy than organised interests with fewer resources.

Technical expertise may also shape policy outcomes, especially in energy policy which is ideally shaped by sound science and expertise. If an issue is technically complicated, policy-makers may require consultations with concerned organised interests (Klüver, 2011). According to Bernhagen (2012) information is a great source of lobbying power: to assess its relevance, the *expected costs* of information must be evaluated. Channels of influence usually include the relationships, commitments, and expected costs of policy-makers and lobbyists. Information may entail technical expertise, data on costs and citizens' preferences as well as the assessment of policy consequences. Therefore:

> H3: Organised interests with specialised expertise will enjoy greater recognition and legitimacy and thus wield greater clout over policy.

Looking beyond factors inherent in interest groups, their capacity to influence policy may depend on the political and socio-economic context. Some structures may strengthen concentrated interests, others diffuse interests, while also potentially facilitating or impeding access to policy-makers. Lobbying regulations are one such factor. In systems with weak regulations, private interests, especially those with substantial resources, may more easily penetrate the policy-making apparatus.

> H4: Resource-rich organised interests will wield greater clout in systems with lenient lobbying regulations, as policy-makers are more responsive to wealthy interest advocates.

Besides these conventional hypotheses, we also explore the interest intermediation systems evolving in both countries. *Statism* regards private groups as a disturbance to public life and builds policy-making around a strong, technocratically operating executive which seldom consults non-governmental stakeholders (Woll, 2009). *Corporatism* is by contrast a type of coordinated capitalism in which policy-making is transferred to semi-private organisations, generally representatives of labour and capital (Siaroff, 1999). By contrast, *pluralism* envisages a multiplicity of representative groups who compete for influence, form temporary alliances, and competitively pressure governments. Generally more free-market capitalist systems bring about pluralist forms of interest representation while coordinated economies (Soskice & Hall, 2001) tend to produce corporatist structures, to the detriment of excluded interest groups.

4. Methodological Approach

Measuring interest group influence is notoriously complicated, as preferences may be fluid, unstable and unclearly asserted (Beyers, Eising, & Maloney, 2008). Influence may be based on a sense of obligation, authority or respect or serve to change the "influencee's" perception of potential alternatives. Hence, decision-makers frequently base their decisions on the anticipated reactions of others. Moreover, interest groups may be less concerned with shaping policy than securing their own survival by mobilising resources (Schmitter & Streeck, 1999). Baumgartner (2009) also argues that we must consider the status quo and difficulty of policy change. If organised interests seek to maintain a strongly embedded status quo, lobbying success may be a "non-event".

To partially overcome these difficulties, we conduct a qualitative comparative policy analysis of Hungary and

Czechia. Both post-communist countries can be regarded as most similar cases regarding a wide range of variables (e.g., new democracies, economic transition, size, geographical position, and legacy of communist energy policy). However, they are different regarding two variables which, as outlined in our hypotheses, potentially affect the means of influence of organised interests: economic coordination and lobbying regulations. Hungary exhibits a higher degree of market coordination (Tarlea, 2017), while Czechia is a more liberal market economy (Fink-Hafner, 2011; McGrath, 2008). Thus, we would expect corporatist interest intermediation structures to emerge in Hungary, and more pluralist structures in Czechia, which in turn may constrain or facilitate capacity for action of interest organisations. Moreover, no encompassing lobbying regulations exist in Czechia despite many attempts to regulate lobbying (Reutter, 2012). In Hungary there has been a voluntary registry since 1994 and a far-reaching lobbying act was passed in 2006 (McGrath, 2008)[1]. Against this background, we secure a relatively large degree of variation along our country-specific, socio-economic variables to assess their impact on policy, while variations between interest groups operating in both countries (e.g., concentrated/diffuse, expertise, resources) enable us to assess their influence in two different settings.

Our comparative case studies rely on the *preference attainment method* (Dür, 2008; Dür & De Bièvre, 2007; Howard, 2003). The method (Mahoney, 2007) entails comparing the "outcomes of political processes…with the ideal points of actors" (Dür, 2008, p. 566). We determine the initial positions of the lead ministry, the final national position and the ideal points of various interest groups. We then define influence as "the difference between two absolute differences: between a group's ideal position and the initial position of the lead ministry, and between a group's ideal position and the final national position" (Dür, 2008, p. 567). Hence, the aim is to assess whether interest groups could either shift the initial position of the lead ministry or shift the final policy position towards its ideal preferences. Our case studies aim to assess the applicability of our hypotheses in two different socio-economic settings and thus identify the causal mechanisms posing obstacles to or facilitating the attainment of preferences. Unlike a rigid statistical approach, qualitative case studies enable the in-depth, context-specific study of factors shaping the impact of interest groups, while also providing leeway for the analysis of previously unforeseen influential factors. Furthermore, comparative case studies allow us to study the process itself and how "initial conditions are translated into outcomes" (Kaarbo & Beasley, 1999, p. 389).

We analysed a large body of qualitative data including media coverage, statements of interest groups, government documents and secondary literature. We also conducted six interviews (three respectively in Czechia and Hungary) with organisations lobbying for and against nuclear energy. The interview partners were chosen based on a population ecology of energy interest groups, whereby the selection was narrowed down to the groups most frequently mentioned in media coverage on energy reform and who presented encompassing position papers on energy reform. We limited the number of "big energy-policy players" to 4–5 organisations per country, representing both pro- and anti-nuclear views. This enabled us to identify and contact actors who actively sought to influence energy legislation. The approximately 45-minute interviews focussed on the degree of issue-specific preference attainment (yes, no, partially) and included numerous questions pertaining to resources, expertise, and strategies of interest groups as well as the extent to which these factors were facilitative to them in attaining their own preferences and to others groups in attaining their opposing preferences. The interviews were then transcribed and coded[2]. Our empirical analysis is structured as follows: we first provide background information on energy policies and involved interest associations. We then descriptively outline which organisations asserted their preferences and why, before linking each hypothesis to empirical realities to address its explanatory power and weigh alternative explanations.

5. Empirical Analysis

5.1. Background Information

The 2015 Czech SEP and Hungarian NES 2030 of 2012 are the most recent energy policy frameworks, both of which focus on nuclear energy. Currently, one-third of Czech electricity production stems from NPPs. There are six operating power reactors, four in Dukovany with indefinite licences and two in Temelín. The owner and operator is *ČEZ* energetic enterprises of which nearly 70% is state-owned (World Nuclear Association, 2018b). In Hungary, almost 50% of the electricity supply is generated by NPPs. The country has four units located in Paks while a contract for two additional power reactors was signed despite an incident in 2003 during which radioactive waste polluted water and plants. The owner and operator is the state-run *MVM Paks Nuclear Power Plant Ltd*. (World Nuclear Association, 2018). The Czech SEP calls for an increase in nuclear capacities. It identifies support among citizens for nuclear energy despite safety concerns, as well as a preference for an energy mix and the replacement of coal energy. It targets a 50% share of nuclear sources until 2040, thus the construction of new units in already existing NPPs. It also postpones to

[1] For critique of its effectiveness, see Transparency International Hungary (2014a).

[2] The paragraphs of transcripts served as coding units. The coding categories reflected the hypotheses, i.e., type of organisation, finances, most important issues/interests, etc. Relevant information was then extracted for the terms "(partial) success", "(partial) influence" and compared with other interview results as well as primary and secondary literature.

2025 the decision on nuclear waste storage. The Hungarian NEP 2030 additionally targets the expansion of Paks and stresses the importance of nuclear energy for energy self-sufficiency.

5.2. Energy Interest Group Landscape

Since 1989, Czechia has experienced a reconstruction of the system of interest intermediation, whereby the number of lobbies has grown rapidly (Rakušanová, 2007) and umbrella organisations have emerged. As for nuclear energy, economic, trade and environmental associations (see Table 1.) are particularly relevant. The former represents labour and capital, creating a form of collective interest representation harmonising heterogeneous socio-economic interests into one association, while environmental associations aim to ensure the public interest in a healthy environment. Based on our overview of Czech media and policy-related literature, we categorised the most relevant actors in Czech nuclear energy into four groups: the state, more specifically the Ministry of Industry and Trade; actors associated with the state, industries and organisations favouring nuclear energy, e.g., ČEZ, Česká nukleární společnost (ČNS), State Office for Nuclear Safety (SÚJB), etc.; environmental actors, usually opposing nuclear energy such as Hnutí DUHA, Greenpeace, Jihočeské matky, Calla, Občanské Sdružení v havarijní zóně, etc.; and the municipalities affected by nuclear legislation.

The transformation in Hungary was regarded as successful mainly because of the development of civil society. However, the number of interest groups has decreased (Központi Statisztikai Hivatal, 2018) and in 2003 a National Guarantee Fund was established since many organisations lacked the necessary resources to operate. Currently, scholars have also argued that semi-authoritarian structures have stunted civil society growth, a problem further compounded by their weak organisation and social embeddedness (Reutter, 2012).

Only few environmental protection interest groups exist, while economic associations are more numerous. In our overview of the policy arena, we identified several energy-related stakeholders: the Government and the Ministry of Development; state-associated or pro-nuclear energy institutions: MVM, Hungary's National Atomic Energy Committee (OAB), Hungarian Atomic Energy Authority (HAEA) etc.; actors usually opposing nuclear energy such as Greenpeace, Energiaklub; and finally, municipalities. Before evaluating the factors affecting the influence of interest groups, we address whether they were able to attain their preferences based on a distinction between nuclear supporters and opponents. Supporters, usually industrial interests, emphasise benefits over risks while opponents represented by environmental groups (see Table 2.) highlight risks (Sarlós, 2015). Overall, the ministry belongs to the former.

5.3. Preference Attainment Analysis

The main goals of the Czech energy policy were security, export competitiveness and self-sufficiency, whereby new nuclear reactors are supposed to reduce greenhouse gases (International Energy Agency, 2016). The initial position of the lead ministry was to increase the

Table 1. Environmental stakeholders in Czechia, information based on interest groups websites.

Actor (and founding)	Staff	Volunteers	Finances	Members
Jihočeské matky (1992)	3	yes	42,700 €	n.a.
Hnutí DUHA (Praha) (1989)	40	yes	600,000 €	n.a.
Calla (1991)	2	yes	75,000 €	30
Greenpeace Česká republika (1990)	17	yes	560,000 €	n.a.
Občanské Sdružení v havarijní zóně (2001)	n.a.	n.a.	n.a.	n.a.
Centrum pro dopravu a energetiku (2000)	6	n.a.	30,000 €	n.a.
Glopolis (2004)	22	n.a.	512,000 €	n.a.

Table 2. Environmental stakeholders in Hungary, information based on interest groups websites.

Actor (and founding)	Staff	Volunteers	Finances	Members
Energiaklub (1992)	24	10	118,011 €	30
Magyar Természetvédők Szövetsége (1989)	19	Yes	150,000 €	100+
Levegő Munkacsoport (1988)	75	47	54,000 €	60+ HU NGOs
Greenpeace Hungary (2002)	19	100	900,000 €	n.a.
Zöld Kapcsolat Egyesület (2005)	7	32	18,000 €	12

share of nuclear energy usage by 10% (D. Burket, personal communication, August 7, 2018) and then 50% by 2040 (Nachmany et al., 2015). To this end, the 2015 National Action Plan called for the construction of new NPP units. The position of the pro-nuclear coalition was thus very close to the legislation adopted while the ideal position of anti-nuclear movements was partly against any new NPPs. ČEZ, for example, has strong leverage over energy policy and actively lobbies (Schwartzkopff, Schulz, & Goritz, 2017). Since the company is state-owned, the state assesses the impact of potential legislation on the company (Osička & Černoch, 2017, p. 12). Thus, the SEP emerged from cooperation between the government and ČEZ (K. Polanecký, personal communication, August 1, 2018), while ČEZ also strongly lobbies for the EU emission trading system. To promote a non-carbon transition in line with EU directives, it advocates more nuclear energy (Schwartzkopff et al., 2017). ČNS also pushed for the expansion of NPPs, and even was allowed to co-draft some of the laws (D. Burket, personal communication, August 7, 2018).

Environmental groups, by contrast, mainly pushed to stop nuclear energy usage and include renewables into policies. The former extreme position was not attained, while renewables were indeed taken into account. The state argued that the complete abandonment of nuclear energy is not yet possible because other sources could not meet national energy demands. The state therefore sought to compensate the elimination of coal-based energy with increased nuclear energy. Hence, environmental groups opposing nuclear energy were perceived as a "complication" and excluded from policy-making. Therefore, the state required additional technical expertise on nuclear energy and only enabled pro-nuclear groups to engage in decision-making (E. Sequens, personal communication, July 19, 2018).

However, opponents did succeed in generating media attention and bringing anti-nuclear positions into the political debate. Beyond the SEP, they were successful regarding nuclear waste storage legislation as *Calla* claims. Together with municipalities that were chosen as candidates for nuclear waste storage, *Calla* pushed through a law to include municipalities when deciding on the construction of storage places. The channels of influence were meetings with parliamentarians who actively pursued the goal. Mayors were then authorised to express their opinions on the underground storage of nuclear waste. Renewables and coal mining reductions also made their way into the SEP. Here channels of influence can be traced back rather to the Ministry of Industry and Trade, especially the Standing Committee on Nuclear Energy, where interest groups are more frequently incorporated (E. Sequens, personal communication, July 19, 2018). Since renewable energy is only developing very slowly, organisations aim to revive the debate and include renewables in the SEP as example models. However, environmental organisations generally faced enormous difficulties in asserting their preferences, a main reason being delays in the policy process. Also neither ecological organisations nor nuclear energy opponents were permitted to participate within the Czech National Action Plan for the Development of the Nuclear Energy. This hindered their access to governmental material during the decision-making phase "behind closed doors" (E. Sequens, personal communication, July 19, 2018).

The Hungarian NES 2030 targets "a sustainable and secure energy sector while supporting the competitiveness of the economy" (International Energy Agency, 2017, p. 9). It aims for energy security and efficiency, a greater share of renewables, the preservation of the current nuclear capacity and decarbonising while exploiting nuclear power. The country plans to increase the share of 52% of the already generated electricity by adding at least two more units to Paks and building a new power plant Paks II (Gallai et al., 2015). The decision was framed as a guarantee for self-sufficiency and independence since Hungary highly depends on energy imports (Schulz, Amon, Goritz & Schwartzkopff, 2017). The Ministry of National Development was the main actor in the policy formulation process (International Energy Agency, 2017), thus giving the government extensive clout. Nevertheless, NGOs like Energiaklub, the Clean Air Action Group (Levegő Munkacsoport, 2015) and Greenpeace pushed for a transition towards renewables—while some even outright rejected nuclear energy (Levegő Munkacsoport, 2015). However, organisations with positions diverging from the official state position face difficulties: if a group supports the official position, it is easier to successfully advocate one's own position. By contrast, groups neutral or not favouring the position of the stakeholder in power face difficulties or even outright rejection when pursuing their own interests. Hence, contrary to the generally corporatist policy-making structures in Hungary, energy decision-making structures are rather statist and impenetrable because only interest groups close to the state are strongly incorporated. Environmental groups are given space to express themselves to maintain legitimacy, but they generally have failed to attain their preferences and policy ideals (P. Zagyvai, personal communication, August 30, 2018).

Like in Czechia, it is difficult to distinguish between the initial and final national position in Hungary, as the government had a strong position that it rapidly pursued without civil society consultations. Hence, neither in the policy-definition nor policy-formulation process were there open channels for nuclear opponents. Thus in Kitschelt's terminology political opportunity structures are relatively closed on the input side (1986). Other sources even claim the state holds an energy policy monopoly (Méltányosság Politikaelemző Központ & Energiaklub, 2011). For example, the parliament was not seriously included in the Russian-Hungarian deal to construct Paks II. Negotiations were short, while many parliamentarians learned about it from the press only (Nagy, 2014). The nuclear lobby, by contrast, was heavily involved in the preparation process as the MVM worked

on the issue for two years, prompting claims of "strategic arrangements between the government and corporations" (Transparency International Hungary, 2014b). The policy was thus crafted without regard to public opinion (Perger, 2009).

Hungarian energy negotiations are held in "high politics" expert circles, while opponents of government policy are largely excluded or only have the opportunity to express opinions on nearly finalised legislation (A. Perger, personal communication, July 26, 2018; P. Zagyvai, personal communication, August 30, 2018). Thus, both environmental and anti-nuclear groups assess their degree of preference attainment rather negatively to the extent they were indeed able to raise awareness, initiate discussions and draw attention to the problems of nuclear energy. However, they failed to substantially push decisions in their preferred direction and could not influence the Paks II agreement (A. Perger, personal communication, July 26, 2018; P. Zagyvai, personal communication, August 30, 2018).

5.4. Assessing the Hypotheses

How did our hypotheses match up against empirical events? We assumed that interest groups rich in financial, staffing and personnel resources are likely to be more powerful, especially when lobbying regulations are lenient. Our interviews revealed that financial resources indeed generated higher levels of activity in both countries and secured the further employment of staff, thus ensuring organisational survival. Finances were insofar relevant as they also enabled interest groups to employ experts to analyse legislative proposals, facilitate access to information and create information material (D. Burket, personal communication, August 7, 2018; P. Zagyvai, personal communication, August 30, 2018). However, the preference attainment analysis shows that these factors matter only up to a certain point, whereby we again have to distinguish between industrial and environmental groups. In general, the latter have fewer funds available. Yet despite their failure to research their far-fetched goals such as abolishing nuclear energy, organisations like Hnutí DUHA influenced some less central aspects of the Czech SEP. They were invited to comment on the SEP especially in the fine-tuning phase and tried to raise awareness for renewables. Specifically, they submitted example models on how to implement a sustainable energy plan (K. Polanecký, personal communication, August 1, 2018). By contrast, with even fewer personnel and financial resources *Calla* was unsuccessful in reducing nuclear energy usage, but together with municipalities succeeded in tackling the issue of nuclear waste. Specifically, municipalities must agree on the construction of a new storage places and at this stage, *Calla* steps in (E. Sequens, personal communication, July 19, 2018).

While some supporters of nuclear energy, e.g., ČNS, have even smaller annual budgets, they participated in drafting the policy. This was facilitated by their strong media presence and personal contacts as individuals within groups have often been acquainted for many years. Hence, access proved easier if long-lasting personal ties exist (D. Burket, personal communication, August 7, 2018; K. Polanecký, personal communication, August 1, 2018). In Hungary, Greenpeace has even more funds and personnel, but achieved little success because the Hungarian government proved impenetrable for opposing groups (A. Perger, personal communication, July 26, 2018). Industrial actors as well as the ČEZ and the MVM not only have more resources, but are also partly state-owned and have been incorporated in the policy-making process for a long time. Thus, although groups lacking resources were at a disadvantage, we determined no direct link between resources and preference attainment. However, resources did enable higher levels of activity such as funding environmental protection projects or requests for independent analyses, while more personnel also enabled the recruitment experts to assess issues or policy drafts (P. Zagyvai, personal communication, August 30, 2018). Gallai et al. (2015) suggest that in Hungary financial resources were only partially relevant, but acknowledged that larger organisations are very successful. Therefore, the first hypothesis can be partially confirmed.

We also found that specialised expertise facilitated preference attainment but is only relevant when interest groups have already established access to decision-makers and are recognised in higher circles. All groups in both countries claim to provide policy-makers with specialised expertise. However, there is a difference in the type of information: groups providing technical or physical expertise such as research institutions enjoyed greater recognition while interests groups focusing on environmental issues like renewables were less influential. Expertise on renewables influenced public debates and was more acknowledged by Czech authorities (K. Polanecký, personal communication, August 1, 2018). ČNS even identified a shift in information demand: while several years ago, technical information was more significant, demands for economic and legal information have increased (D. Burket, personal communication, August 7, 2018). Research on Hungary also stresses the importance of expertise (Gallai et al., 2015) and Greenpeace Hungary suggests they indeed aimed to exchange information with policy-makers and conducted case studies. However, they could not shape policy—all proposals were heard but later reformulated. Especially in the case of Paks II, Energiaklub answered questions, gave opinions and after consultations with the ministry, the parliament entirely rewrote the proposal. The suggestion to build a new NPP, that was originally not included, was newly added (A. Perger, personal communication, July 26, 2018). By contrast, technical information from research institutes was specifically demanded frequently (P. Zagyvai, personal communication, August 30, 2018). These findings fall in line with previous research which suggests that the nuclear energy discourse was

conducted in a highly technical manner in closed communities (Osička & Černoch, 2017), thus limiting public participation (Ocelík et al., 2017). The same generally applies for Hungary (Vari & Ferencz, 2007). The anti-nuclear lobby met a dead-end when providing information and only succeeded in adding various new details to legislation on nuclear waste storage or expanding renewables. Altogether, in both countries environmental groups had weaker influence than industrial groups because they lacked the capacity to mobilise despite being smaller. Somewhat counterintuitively to the collective action dilemma (Olson, 1971), these smaller groups seem to miss the chance to influence the outcomes while larger industrial groups have much greater leverage over policy. Generally, the ideal positions of supporters and the position of the lead ministry match while nuclear opponents only exerted complimentary influence i.e., they brought opposing positions into debates or achieved small concessions e.g. the inclusion of municipalities into decision-making and upholding the debate on renewables. The same pattern can be observed when comparing the final national position with the ideal positions of pro- and anti-nuclear groups. Industrial groups were able to attain their preferences while environmental groups exerted negative influence by "hindering decisions or their implementation, or preventing an issue from being put on the policy agenda" (Gallai et al., 2015, p. 1484).

We also hypothesised that groups representing concentrated interests are more successful in preference attainment because it is easier to mobilise their members (Olson, 1971). Contrarily, our empirical findings show that ČEZ collaborated with the government during the preparation phase of the SEP (K. Polanecký, personal communication, August 1, 2018). Smaller and concentrated interests such as *Calla* only had minor success, e.g. they could not completely stop the construction of new NPPs but did secure the inclusion of municipalities into the decision-making process on nuclear waste management (E. Sequens, personal communication, July 19, 2018).

Interview partners, alternatively, contended that membership is a crucial prerequisite for preference attainment. Membership can be twofold: first, interest groups may have individual and corporate members; second, interest groups themselves may be members of larger groups i.e. umbrella groups. In Czechia, there were only few members in the least influential groups, while e.g. ČNS had strong pro-nuclear membership consisting of large corporations as well as many volunteers promoting nuclear energy (D. Burket, personal communication, August 7, 2018). Even though all groups are members of umbrella organisations, their level of activity i.e. membership in more and larger umbrella groups either on the European or international level is critical. In Hungary the same applies: according to Gallai et al. (2015), large membership, networks and cooperation with other organised interests and positions that correspond with those of the government and media have a high explanatory value. Therefore the level of activity in pursuing interests is an important factor: as already mentioned, groups like the ČNS or Hnutí DUHA in Czechia participated either in the drafting phase of the SEP (D. Burket, personal communication, August 7, 2018) or by including renewables into the policy in the latter case (K. Polanecký, personal communication, August 1, 2018). By contrast, *Calla*, which has fewer members and is not represented in many umbrella organisations, only achieved success on the local level (E. Sequens, personal communication, July 19, 2018). Similarly in Hungary, Greenpeace cooperates only occasionally with likeminded groups and has little influence. This lack of cooperation is due to the organisation's philosophy—it operates with voluntary independent donations. They accept neither private funds nor financing from the government, governmental organisations (e.g., Visegrád fund) or the EU in order to remain independent and neutral. Therefore, they collaborate only on specific projects since some donors expect certain results and the organisation often cannot cooperate with other groups (A. Perger, personal communication, July 26, 2018).

5.5. Interest Intermediation Structures in Comparison

What general conclusions can we draw regarding interest intermediation structures? As noted above, Hungary exhibits stronger market coordination (Tarlea, 2017) and lobbying regulations, while Czechia is a more liberal market economy with weaker lobbying regulations (Fink-Hafner, 2011; McGrath, 2008). Contrary to a generally more pluralist and unregulated interest group environment in Czechia, energy policy-making remains highly statist and technocratic (E. Sequens, personal communication, July 19, 2018) with the direct incorporation of nuclear energy enterprises such as ČEZ (D. Burket, personal communication, August 7, 2018). There are, however, signs of emerging corporatism as it was possible for other groups to participate in debates on or in the fine-tuning of already decided policies (K. Polanecký, personal communication, August 1, 2018). Thus altogether, we observe a combination of (more pronounced) statist and (weaker) corporatist features (D. Burket, personal communication, August 7, 2018).

Hungarian energy policy-making appears to be more open to civil society, as the public can attend hearings and present opinions. However, these democratic participative elements have their limits (P. Zagyvai, personal communication, August 30, 2018). After the draft prepared in expert circles is ready, there is a very limited timespan for expressing opinions (on highly technical issues). Thus interests are generally defined by state-owned companies and expert groups, thus creating unequal participation opportunities (A. Perger, personal communication, July 26, 2018). Interestingly, in the preparation process, participants are invited, most of whom are experts while external stakeholders are not included. The information reaches them only after the

decision has almost been taken. Afterwards, civil surveillance is granted only to citizens with technical knowledge. Also, many groups wishing to participate do not have the resources necessary to analyse an extensive draft (P. Zagyvai, personal communication, August 30, 2018). Thus corporatist structures exist, but policy-making remains highly centralised and technocratic (Aalto et al., 2017). We also hypothesised that resource-rich organisations in systems with lenient lobby regulations might exert more influence. However, the existence of lobby regulations matters little as structures and developments are rather determined by the state and not interest groups—at least in energy policy.

6. Conclusions

In this article, we put together a set of factors to analyse the mobilisation capacity and impact of interest groups on post-communist energy policies. Our general finding is that strong state-industrial alliances persist in both cases, which clearly enabled supporters of nuclear energy to attain their preferred positions. They closely cooperated with state policy-makers in designing nuclear policies, making it difficult to distinguish the exact positions of the state and the interest groups. Despite this overarching finding, it also became apparent that civil society groups (i.e., renewable energy and environmental groups) indeed demonstrate strong signs of mobilisation capacity and that various forums have emerged enabling them to at least voice their demands. This has resulted in numerous "cracks" in the state-industrial alliances, allowing environmental groups at least to make modest modifications or corrections to pre-determined policies. In other words, preference attainment is issue-specific to the extent that even smaller, non-industrial NGOs may achieve less bold objectives which do not alter the pro-nuclear status quo (e.g., commitments to expand renewables, coal mining limits, regulations on municipality inclusion regarding decisions on nuclear waste storage). Thus, in Kitschelt's terminology, the Czech and Hungarian energy policy opportunity structures cannot be considered entirely closed to civil society mobilisation and input, but are more selectively open to those pursuing state-favoured policies.

Beyond this general finding, we also determined that financial and personnel resources are not necessarily automatically predictors of preference attainment. In both countries, poorly equipped pro-nuclear actors were also able to exercise influence to the extent that they were backed by strong industrial lobbies. As for Olson's (1971) classic hypothesis on concentrated and diffuse interests, we found membership in organisational associations and umbrella organisations to be more significant than the type of interest being pursued. Our hypothesis regarding specialised expertise was also only partially confirmed in these two cases. Interest groups must already have access to decision-makers to be able to provide them with expertise. Thus, the precondition for providing information is essentially incorporation into state-industrial policy alliances.

Regarding interest intermediation constellations, the energy sectors of both countries exhibit a mixture of corporatist and statist features. Decision-making is not very transparent and participation opportunities are unequal since some groups have little access to policy-making. This in turn has proven to be an impediment to pluralist political competition and progressive policy change (i.e., towards renewable energy).

Where should this research agenda now be taken? We admit that our study bears numerous methodological constraints. Most notably, the technical nature of nuclear energy and strongly embedded status quo somewhat distort the generalisability of our findings, a problem further compounded by our limitation to two countries. Therefore, we argue that future research should focus on other aspects of CEE energy policy (e.g., coal, oil, energy efficiency) and other countries. We also believe that research on the region could benefit from new approaches in interest group research, which focus on novel variables such as the size of lobbying coalitions (Klüver, 2011) or the professionalisation of CEE interest groups through interactions with EU peers. Finally, given the methodological shortcomings of our qualitative approach to interest groups, scholars should engage with the quantitative, survey-based analysis of interest group influence by incorporating a broader range of variables to explain lobbying success.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Following, Challenging, or Shaping: Can Third Countries Influence EU Energy Policy?

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Abstract
Can non-EU member states influence the EU's energy policy? The Europeanization of energy policy in third countries is often described as a one-directional process in which these countries essentially adopt the EU *energy acquis*. Our article questions this dominant view by exploring whether and how third countries can influence the formulation and implementation of EU energy policy. We argue that relative differences in third country influence depend on their access to relevant venues and actors of EU policy-making as well as their structural power resources. We develop a typology linking these two factors to the outsider, follower, challenger, or shaper roles that third countries assume in EU energy governance. We empirically probe our argument in three case studies representing different models of EU–third country cooperation. Our cases include a group of nine Southeast and East European countries (Energy Community), Switzerland (bilateral arrangements), and Norway (European Economic Area). The analysis shows that it is access and structural power which together define the extent to which third countries are able to influence the formulation of EU energy policy and customize its implementation to their domestic needs. We find that while the Energy Community members are followers in EU energy governance, Switzerland and Norway are shapers. Strikingly, the influence of these two non-EU members may occasionally even surpass that of smaller EU member states. This highlights that third countries are not merely downloading EU energy regulation but sometimes also succeed in uploading their own preferences. Our contribution has implications for the post-Brexit EU–UK energy relations and qualifies claims about EU regulatory hegemony in the wider region.

Keywords
Brexit; Energy Community; energy policy; European Economic Area; European Union; Europeanization; influence; Norway; Switzerland; third country

Issue
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1. Introduction

Can, and if so how, do non-members influence EU energy policy? Brexit has placed third country relations with the European Union (EU) in the spotlight. In the area of energy, different institutional arrangements for coordination between the EU and third countries exist, and these relationships are dynamic. For many years, Switzerland and the EU have been negotiating to extend their bilateral relations to an electricity agreement. Norway is a member of the European Economic Area (EEA) which involves dynamic cooperation in the sense that relevant EU energy laws are incorporated as they arise. Furthermore, the Energy Community (EnC), a multilateral frame-

work between nine Southeast and East European countries and the EU to integrate their energy markets, is undergoing a reform process. Common to each of these relationships is the growing entanglement between EU and national policies, a process that EU scholarship refers to as 'Europeanization' (cf. Cowles, Caporaso, & Risse, 2001). This entanglement can generally work in two directions; studies show how the EU influences member state policies and vice versa (cf. Featherstone & Radaelli, 2003). Yet, Europeanization in energy relations with third countries is often described as a one-directional process where such countries adopt or "download" the EU *energy acquis* (i.e., the EU's accumulated legislation, legal acts, and court decisions relevant for the area of energy). The diffusion of EU regulation and norms beyond its external borders is held to exemplify the Union's regulatory and market power (Goldthau & Sitter, 2015). This article seeks to advance the study of Europeanization of energy policy and third countries through a closer examination of the dynamics of third-country influence or "uploading" in EU energy governance.

We depart from the assumption that the relationship between the EU and third countries in the energy field is more nuanced than generally portrayed. Putting academic contributions with an EU-centric approach into perspective, we argue that third countries can indeed influence EU energy policy. However, third countries are not a homogeneous category but differ significantly in their ability to upload their preferences to the EU level. We explain relative differences in influence with reference to two variables: Third countries' access to venues and actors of EU policy-making (or lack thereof), and their structural power resources. Whereas access is a necessary precondition to creating channels of influence, structural power resources provide the political weight to utilize these channels. This differentiation accounts for variation in influence among countries that are subject to similar institutional relationships with the EU. Since we include structural power, we move beyond the purely institutionalist focus which characterizes this research field (cf. Godzimirski, 2019; Jegen 2009; Marcus et al., 2017). Our contribution is to explain the influence of third countries on EU energy policy as a function of two independent, yet intrinsically related variables.

The article proceeds in four steps. First, we review the literature on Europeanization in light of external and energy policy and develop a framework of third-country influence in EU energy governance. Second, we probe our arguments in three qualitative case studies, which include data from 15 interviews with experts from the EU and third countries. The cases represent different models of third-country institutional relations with the EU. They include a group of nine Southeast and East European countries (contracting parties of the EnC), Switzerland (bilateral arrangements with the EU), and Norway (member of the EEA). Third, we discuss the implications of our findings for differences in third country influence and for future research on Europeanization. Finally, we conclude by reviewing the implications of our main arguments for future EU–UK relations.

2. A Framework of Third Country Roles in EU Energy Policy

Since the late 1980s, European integration has made accelerated progress in the area of energy (Buchan, 2015; Thaler, 2016). As the Union's involvement grew internally, so did the influence on energy sectors beyond its territory. Arguably, the establishment of an internal energy market and national targets for renewable energy sources have had most impact on the energy policy of third countries. Physical interconnectedness of electricity grids and pipeline systems, participation in the internal energy market, and the definition of common goals for renewable energy sources required coordination and approximation of rules—not only within the EU but also between the EU and third countries (cf. Buschle, 2014). Developments such as these have caused an increasing entanglement between EU and national levels of policy-making.

Academic research has captured the gradual expansion of supranational consequences and the underlying reciprocal dynamics between the EU and member state policies under the concept of 'Europeanization' (Cowles et al., 2001; Goetz & Hix, 2000). While scholars emphasize different mechanisms of how European and national levels influence one another, broad agreement exists around the bi-directional nature of Europeanization (cf. Featherstone & Radaelli, 2003; Olsen, 2002). On one hand, it is described as a top-down process of national adaptation, whereby formal and informal rules, procedures, and norms of the EU policy process cause a reorientation of domestic politics and policy-making (Börzel & Risse, 2002; Knill & Lehmkuhl, 2002). Addressees of this mechanism of 'downloading' can be EU member states (causing central penetration of national systems of governance) as well as non-members (causing changes outside the EU's external border). On the other hand, Europeanization is a bottom-up and horizontal process of national projection, whereby domestic preferences, models, and ideas are lifted to the supranational level or transferred to other national levels (Börzel, 2002). At the EU level, this mechanism of 'uploading' typically leads to the development of new institutions, new policies, and capacity building.

Contributions on Europeanization of third countries in the EU's immediate neighbourhood or the wider region generally focus on top-down processes (Börzel, 2011; Gawrich, Melnykovska, & Schweickert, 2010; Schimmelfennig & Sedelmeier, 2005; Subotic, 2011). They share an implicit assumption that the EU is the dominant partner in the relationship. As a result, the diffusion of norms and regulations occurs mainly from the EU to the third countries. The same pattern can be seen in the field of energy policy, where the EU is typically perceived as a regulatory and market power (Goldthau &

Sitter, 2015, 2019) exporting its model of energy governance. Consequently, the EU *energy acquis* is expanded beyond Union territory.

This article departs from an EU-centric approach by investigating the possibilities which exist for third countries to shape EU energy policy. Hereby, we focus on European rather than other multilateral policy processes, such as global climate or trade negotiations. The main argument is that the relationship between the EU and third countries in the energy field is more nuanced than generally portrayed: while third countries are not represented in EU decision-making, including on energy, they might still play a role in shaping EU policies. This article investigates third country influence as the ability to shape EU energy policy in line with own preferences (Dür, 2008, p. 561). Influence is exercised at two different stages of the policy cycle: Before (*ex-ante*) the conclusion of an EU legal act, third countries may seek participation in policy discourses that shape agenda setting and policy formulation (Arts & Verschuren, 1999, p. 413). After (*ex-post*) the conclusion of an EU legal act, third countries may be required to implement it. Like EU members, third countries may customize their implementation of the EU *energy acquis* by tailoring it to domestic needs (Thomann, 2015). However, unlike EU countries, the terms of domestic implementation will usually be subject to negotiations with the EU. Flexible instruments may provide some leeway in this process. The outcome of this process can be considered a form of policy influence because it shapes the overall effects of EU energy policy by defining its geographic boundaries. While recent research has started to describe specific elements of third-country influence (cf. Godzimirski, 2019), this article seeks to offer a more systematic account: What enables third countries to shape EU energy policy *ex-ante* or *ex-post*?

We argue that the relative influence of different third countries on EU energy governance depends on two main factors: their access to relevant venues and actors of EU energy policy-making, and their structural power resources. Access to relevant venues and actors of EU energy policy-making may be formal or informal. Formal channels include all frameworks and specific arrangements (e.g., member or observer status) that institutionalize access to six European institutions and bodies with energy governance functions (e.g., via their boards, committees, and working groups): the Commission, the Council, the European Parliament, the Agency for the Cooperation of Energy Regulators (ACER), and the European Network of Transmission System Operators for Electricity (ENTSO-E) and Gas (ENTSO-G). We include ACER and the ENTSOs because the EU's Third Energy Package has provided them with important legal mandates in the completion of the internal energy market, including the development of market and network operation rules, infrastructure plans, and adequacy forecasts. Informal access denotes all contacts with relevant decision-makers outside the six institutions mentioned above, including through participation in loose political forums or ad hoc meetings.

The structural power resources of third countries can turn access into influence. We focus on the role of structural power in adding weight to preferences and arguments of third countries regarding EU policy-making in the areas of electricity and gas. To the extent that third countries implement EU legislation, structural power impacts their ability to customize it, i.e., to negotiate for adjustments and exemptions as well as to make full use of flexible provisions. We thus apply a broader understanding of customization compared with Thomann (2015) since we include the negotiated aspect of *ex-post* incorporation, which is relevant when analyzing third countries. Third countries can gain structural power because of physical interdependencies with the EU. Scholars have noted that energy import dependencies of the EU can create political leverage for its suppliers, such as Norway and Russia (Godzimirski, 2019, pp. 106–107). This is arguably an important source of power, despite the fact that demand sensitivities can somewhat limit the political leverage of energy producers (Casier, 2011, pp. 497–500).

We posit, however, that the sources of structural power in the energy sector are more diverse (Strange, 1994, pp. 24–42). Besides acting as a major energy supplier, there are three more sources measured by several indicators (Table 1). First, third countries can serve as transit countries for energy supplies and flows. The extent to which third countries can assume powerful transit functions depends on their geographical location, physical grid integration, and competitive position in relation to alternative supply routes (cf. Casier, 2011, p. 496; Haghighi, 2007). Second, third countries can serve as knowledge hubs and technology leaders. Multiple state and non-state actors, including national regulatory authorities, transmission system operators (TSOs), utilities, renewable energy companies, and research institutions, can provide valuable expertise which therefore grants access to EU decision-makers (Bouwen, 2004). Third, non-EU countries with flexible energy sources and highly interconnected grids can serve as flexibility providers. The rapid surge of renewable energies has increased the demand for flexible supply options. Hydropower and gas contribute to supply-side flexibility, and robust, well-designed transmission grids help balance local supply-demand differences (Lund, Lindgren, Mikkola, & Salpakari, 2015, pp. 797–798). Overall, these sources of structural power play out in many facets of EU electricity and gas policies, including security of supply, infrastructure, internal market, and environment and climate change.

The greater the number of such indicators we can detect within a country—both in terms of quantity and quality—the higher its structural power. While all sources of power matter, we acknowledge that being a large supplier of energy to the EU stands out and may compensate for a lack of other sources. Although conceptually distinct, the relationship between structural power resources and access to relevant venues and actors of

Table 1. Structural power resources in the energy sector.

Source of Structural Power	Indicators
Energy supplies	• Oil, gas, and electricity supplies
Transit Country	• Strategic location in supply corridor • Interconnectedness of grid • Limited alternative supply routes
Expertise	• Level of technical knowledge • Experience • Numbers of energy staff in missions to the EU
Flexibility provider	• Installed hydro and gas capacity • Natural gas production • Storage capacity • Number and capacity of grid interconnectors

Note: Compiled by the authors.

EU energy policy is complex. Disentangling it would exceed the scope of this article, but we acknowledge that at times the two variables may interact and facilitate one another. Figure 1 illustrates third country influence as we conceptualize it in this article.

Departing from the above conceptualization, we distinguish four ideal-typical roles of third countries in EU energy governance (Table 2). Relative to other third countries, *shapers* influence EU policy formulation and implementation because of their access and high structural power. Institutionalized relations may require third countries to implement the EU *energy acquis* but also provide for formal or informal access to EU policy deliberations. Structural power resources allow them to use this access to shape EU policies. The role of shapers thus consists of both (partial) downloading of EU energy poli-

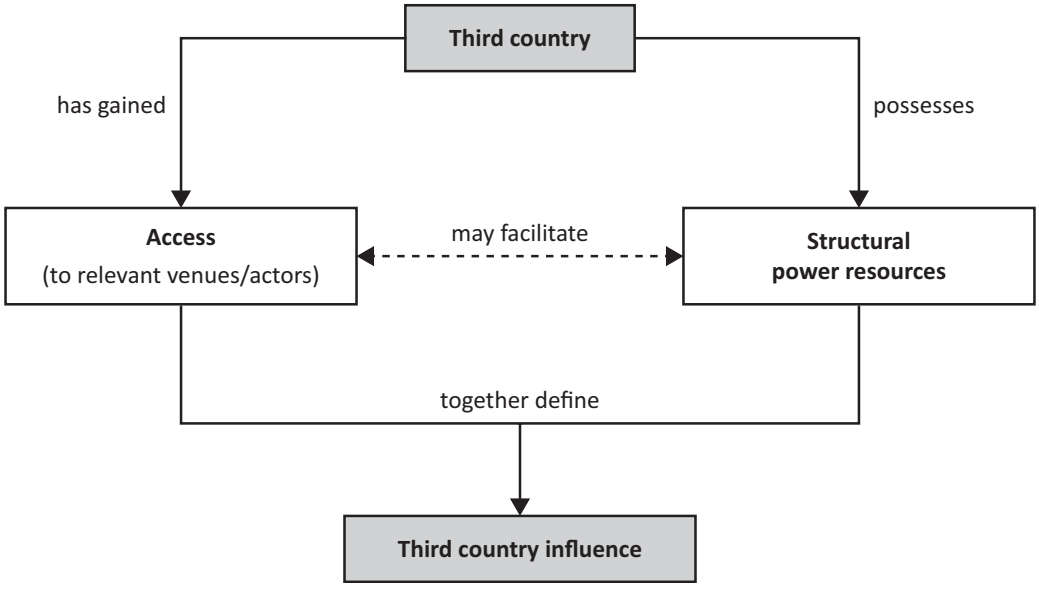

Figure 1. Schematic illustration of third-country influence on EU energy policy. Note: Compiled by the authors.

Table 2. Typology of third countries in EU energy governance.

		Third Country Access	
		Absent	**Present**
Third Country Structural Power Resources	**High**	Challengers	Shapers
	Low	Outsiders	Followers

Note: Compiled by the authors.

cies as well as the uploading of own preferences to the European level. *Followers* also have strong institutional links with the EU but lack significant structural power resources. That is why followers cannot use their access to influence EU policies. Hence, their relationship with the EU primarily consists of downloading rather than uploading. In contrast to shapers and followers, challengers and outsiders have virtually no institutional access to the EU and are not obliged to implement the EU *energy acquis*. *Challengers* are third countries possessing high structural power vis-à-vis the EU usually because of their supply or transit functions. As they lack formal access to EU policy processes, their influence will mainly materialize through informal channels and in the context of "high" politics. *Outsiders* lack the structural power resources of challengers. Accordingly, they have no tangible influence on EU energy policy development.

These ideal type categorizations are admittedly rather coarse. Additional factors may come to shape EU–third country energy relations. They include the similarity of norms of the EU and third countries, mutual economic interests, and the conditionality of EU investments in energy infrastructures abroad (Lavenex, 2004, p. 693; Prange-Gstöhl, 2009, pp. 5300–5302). Nevertheless, our typology is a useful heuristic for understanding the basic configurations of EU–third country relations in energy governance because it facilitates a systematic comparison of third-country influence. Conceptualizing third country influence on EU energy policy as a function of access *and* structural power resources, we add a novel nuance to the current frameworks. Notably, we allow for variation across countries that exhibit comparable levels of access, yet different structural power resources, and vice versa.

3. Case Studies of Third Country Influence on EU Energy Policy

To answer the research question of how third countries can influence EU energy policy, we investigate the role of access in combination with structural power resources. Our analysis includes three cases, each of which represents a different model of cooperation between the EU and third countries: the EnC, Switzerland, and Norway. The EnC is an international organization created by a sectoral multilateral agreement. Today, it is made up of the EU (represented by the European Commission) and nine contracting parties: Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Georgia, Moldova, Montenegro, Serbia, and Ukraine. Switzerland is part of the European Free Trade Area (EFTA) and has defined its political relations with the EU in bilateral agreements. Because these agreements currently do not cover energy, Switzerland autonomously adapts to EU energy legislation and relies on case-by-case arrangements for access to EU governance venues. Norway is also a member of EFTA and, in addition, a part of the EEA (the other members being Iceland and Liechtenstein). As a comprehensive multilateral agreement, the EEA Agreement covers energy amongst other issues. In a structured comparison, we probe our expectation that the EnC countries generally act as followers, whereas Switzerland and Norway are shapers in EU energy policy. The analysis rests on a review of academic and public sources, as well as 15 semi-structured interviews with experts from the EU and national, public, and private organizations.

3.1. Energy Community: A Follower with New Demands

Coming into force in 2006, the EnC aims at creating a pan-European energy market based on EU rules. Contracting parties commit to adopt and apply core parts of the EU *energy acquis* in their domestic legal systems. Due to legal approximation in the energy field and a close institutional relationship with the EU, the form of integration has been described as an example of sectoral multilateralism (Blockmans & Vooren, 2012; Petrov, 2012). However, despite an institutional structure designed for the dynamic expansion of the EnC legal framework, the contracting parties have *access* neither to relevant EU decision-making processes (in the Council and the European Parliament) nor to ACER. Only five of their electricity TSOs are members of ENTSO-E (those from Balkan EnC parties apart from Kosovo) and five gas TSOs have observer status in ENTSO-G (those from Albania, Bosnia and Herzegovina, Macedonia, Moldova, and Ukraine). Moreover, they do not participate in key forums of EU energy policy (such as the Madrid or Florence Forums). Their contact with the Commission is confined to the EnC Ministerial Council where they cannot influence EU policy-making (Interview K, L). Compared to EU member states which can upload their preferences through all of these channels to the European level, EnC contracting parties, therefore, have only a very limited (if not virtually non-existent) voice in future rule-setting (Prange-Gstöhl, 2009, p. 5299). This imbalance renders the EU law export to the EnC a legal one-way street.

Regarding *structural power resources*, EnC countries present a differentiated picture. Their electricity sectors play a minor role in electricity trading because they are relatively small (Balkans and Moldova), partly unsynchronized (Ukraine), or disconnected from other contracting parties (Georgia). With a combined maximum hydro capacity of 8.6 GW (54% of Swiss hydro capacity), the Balkan EnC members provide some flexibility to the grid of Continental Europe (EnC, 2018; Swiss Federal Office of Energy [SFOE], 2018a). Ukraine is an important transit country for natural gas from Russia. Around 20% of EU total gas imports pass through its territory, making it a key partner for the security of supply (European Commission, 2018). In this respect, the roles of Albania and Georgia may be enhanced once the Southern Gas Corridor is completed and passes through their territories (Petrov, 2012, p. 337). With few exceptions (Serbia has gained some reputation within ENTSO-E), technical expertise and resources are reportedly less developed across contracting

parties (Interview K, L). Overall, aside from Ukraine's position in gas transit, individual structural power resources of the contracting parties are therefore negligible.

The individual and collective *ex-ante influence* of contracting parties on the evolution of the EU *energy acquis* has been largely insignificant. Individually, they rarely make use of informal channels due to a lack of resources, capacity, and access. Their TSOs experience similar issues in ENTSO-E, resulting, for instance, in a passive role in the Network Code drafting process (Interview K). Collectively, their record for collaboration remains poor despite an institutional framework that is conducive to joint lobbying. Rather to the contrary, initiatives for concerted action occasionally proposed by the EnC Secretariat are often opposed by the contracting parties (Interview F, L). Reasons include diverse energy market structures resulting in heterogeneous interests. For instance, electricity generation is dominated by hydro (Albania, Montenegro, and Georgia), coal (Kosovo), or gas capacity (Moldova), while Ukraine is the only contracting party with nuclear power (EnC, 2018). Moreover, countries which have a concrete perspective for EU accession (the Western Balkans) tend to avoid conflictive behaviour vis-à-vis the European Commission (Buschle, 2014; Prange-Gstöhl, 2009). Finally, ethnic tensions still politicize technical cooperation on the Balkans. Repercussions are occasionally experienced across Europe, as in the case of a conflict between Serbia and Kosovo which disrupted the electric power grid in early 2018 (cf. Hopkins & Pérez-Peña, 2018; Interview F, I). Consequently, EnC members have an underdeveloped culture to coordinate and voice their collective interests, and generally accept the design of energy regulation from Brussels (Interview F, K, L).

Ex-post influence of contracting parties has slowly increased: from the transposition of regulation without changes, via small adaptations reflecting the institutional framework of the EnC, to recent developments potentially enabling substantive customization. Although the EnC Treaty has always provided for customization (Article 24 lays down that the situation of each contracting party must be considered when making changes to the EnC Treaty), this ability has never been used. One reason is that EnC members welcomed the rigid copy-paste transplantation because it promised the establishment of a functioning legal and institutional framework within their territories (Interview F, L). Only lately has Brussels' one-size-fits-all approach to EU rule export across the EnC provoked calls for more flexibility (cf. Buschle, 2014, p. 18). EnC members have developed self-confidence in pronouncing their idiosyncrasies and have started voicing them through alliances with one another. The EU has signalled openness for change. Internally, it has been experiencing a parallel development, turning away from a rigid system of top-down imposition towards pursuing energy and climate goals through nuanced member state contributions. An expansion of this model to non-members would necessarily consider national characteristics (Interview L). In 2014, a reform process of the EnC Treaty was initiated to address the challenges of the agreement. The High-Level Reflection Group, set up to review the effectiveness of the agreement, proposed flexibility in the implementation process to adapt EU rules to the socio-economic situation of contracting parties (EnC, 2014, pp. 11–13). The reform process, which is entering its final phase, could thus entail institutionalized opportunities for legal customization similar to those of the EEA (Interview L).

3.2. Switzerland: A Shaper at the Crossroads

Switzerland has *access* to EU policy deliberations despite not being part of the EEA. Although the bilateral agreements between Switzerland and the EU do not cover energy yet, several institutional arrangements exist in this field. Switzerland is regularly involved in the informal meetings of EU energy ministers as an observer but does not have access to the EU Energy Council and its preparatory bodies (Interview C). Swiss officials may also participate in some expert group meetings of the European Commission (e.g., Gas Coordination Group) as well as in European regulatory forums, including electricity (Florence) and gas (Madrid) (Lavenex, 2015, p. 34). The Swiss national regulatory authority, ElCom, has signed a Memorandum of Understanding with ACER granting it observer status in the organization's Electricity Working Group (Interview A, D). The Swiss electricity TSO, Swissgrid, is a full member of ENTSO-E; the Swiss gas TSOs are associated members or observers of ENTSO-G. The prevalent observer status does not preclude Swiss influence because in most of these forums expertise and deliberation are more important than formal voting (Interview D, I). Switzerland's future access to European institutions depends on the conclusion of an electricity agreement that it has been negotiating with the EU since 2007 (Interview I, J). These negotiations have been severely affected by disagreements on the broader institutional framework between both parties, especially following a Swiss referendum decision in 2014 to limit immigration from the EU (Hettich, Walther, & Schreiber Tschudin, 2015).

Switzerland has a relatively high level of *structural power resources*. Its electricity trade relationship with the EU is one of mutual dependence with net exports to the EU in summer and net imports in winter (SFOE, 2018b). Switzerland is a major transit country for electricity, especially between Central Europe and Italy. It accounts for 10% of all cross-border electricity flows in continental Europe and one-fifth of the European interconnector capacity (Marcus et al., 2017, p. 43; Pattupara & Kannan, 2016, p. 153). Switzerland is an electricity hub with long-standing expertise in managing transboundary electricity flows. In the 1950s, its cross-border infrastructure marked the birth of the European electricity grid. Today, Swissgrid is perceived as an active TSO in Central Europe with a high level of technical knowledge (Interview I, J). Additionally, the Swiss mission to the EU is made up of two diplomatic positions in the area of en-

ergy and climate. Finally, its large hydropower capacities (16 GW) and its highly integrated grid with 41 interconnectors make Switzerland a flexibility provider in the European electricity system (SFOE, 2018a; Interview B).

These relatively high levels of access and structural power resources suggest that Switzerland has some *ex-ante influence* on EU energy policy. On a technical level, Switzerland has been able to use its formal access to shape the work of ENTSO-E in subsidiary legislation (Interview N). The Swiss TSO has notably taken leading roles in the development of European Network Codes and Guidelines that are prepared by ENTSO-E for adoption by ACER and the European Commission (Interview J, K). Swissgrid's influence is attributed to its proactive attitude, its technical expertise, and the management of key physical and administrative infrastructures in the European grid (Interview D, I, K). On a political level, Swiss influence through formal channels has been more limited. The Swiss national regulatory authority is repeatedly excluded from important meetings of ACER and cannot appeal against decisions which adversely affect Swiss interests. Switzerland is also excluded from activities related to the EU internal market for electricity, such as the Cross-Border Intraday Market Project XBID (Interview A). However, the pressure on Switzerland is somewhat attenuated by the fact that the EU is dependent on Swiss grid infrastructure for integrating Italy into its flow-based market coupling (Interview D, J, M, N). Still, the overall impression is that Switzerland can use formal access more readily for shaping technical rather than political facets of EU energy policy.

Switzerland uploads its preferences to the European level also through informal channels. It is an observer in the Pentalateral Forum—an important venue for discussing electricity matters with all major governance actors from the Central West Europe market region (Interview C, E). Switzerland's participation provides it with early information and opportunities for voicing its concerns to influential EU member states (Interview B, E). Although not an EU body, the Pentalateral Forum has repeatedly shaped EU energy policies through its contacts with the European Commission (Interview B). Moreover, Swiss diplomats have regular bilateral contacts with energy attachés of neighbouring EU countries who are important sources of information and susceptible to Swiss concerns (Interview C). Additionally, shared interests and the provision of technical knowledge have allowed Switzerland to inject policy positions into EU deliberations via Luxembourg (Interview E). The simultaneous use of both formal and informal access points has been particularly effective. For instance, Swiss actors were able to shape parts of the Electricity Balancing Guideline to suit them better by articulating a joint position through various channels (Interview C). Hence, Switzerland voices and to some extent even successfully uploads its policy preferences to the European level.

Ex-post influence is currently not relevant for Switzerland because it is not legally bound to implement the EU *energy acquis* but autonomously adapts to new EU legislation (Marcus et al., 2017, p. 39). Consequently, the energy laws of Switzerland and the EU take similar strategic directions but differ in various specific aspects (Interview A, D, H). In the future, pressures for stronger Swiss convergence with the EU *energy acquis* will rise to the extent that Switzerland wishes to participate in the EU internal market for electricity (ACER, 2018, p. 2; Interview D, J). In sum, Switzerland finds itself at a crossroads: The (non-)conclusion of an institutional and an electricity agreement with the EU will affect its European market integration as well as its ability to shape EU energy policy (cf. also van Baal and Finger, 2019, in this issue).

3.3. Norway: A Reactive Shaper

Norway has been part of the EU's Single Market through the EEA Agreement since 1994. The prerequisite is the implementation of 'EEA-relevant' EU legislation, although a veto option exists. Beyond market legislation, relevance is assessed based on what was previously incorporated, and subject to negotiations between the EU and the EEA countries (Buschle & Jourdan-Andersen, 2016). Norway does not have political representation—or voting rights—inside the EU institutions and has no *access* to the political negotiations on proposed legislation in the Council or in the European Parliament (Interview G, O). Among EEA members, only Norway as a major energy provider holds an annual bilateral energy dialogue with the Commission, which it has since 2002 (Ministry of Petroleum and Energy, 2017, p. 4). However, the EEA countries may collectively comment on Commission initiatives, and the EEA agreement grants them access to Commission (comitology) committees. Experts from EEA countries may also participate as observers in Commission expert committees and working groups, as well as in EU agencies. The latter requires implementation of the relevant legislation, so the Norwegian energy agency's access to observe ACER board meetings remains on hold due to delays implementing the Third Energy Package (see below). The Norwegian gas TSO (Gassco) is an observer in ENTSO-G, while the Norwegian electricity TSO (Statnett) is a full member of ENTSO-E with voting rights and a high-ranking representative on its board.

In regard to *structural power resources*, Norway is the second-largest provider of oil and gas to the EU, contributing 12% of oil and 23% of gas imports (Eurostat, 2018). With minimal domestic gas consumption, Norway has built pipelines exclusively for export to Europe. Its electricity system is based predominantly on hydro which provides flexibility to an interconnected Nordic market. Interconnectors also exist with the Netherlands and are under construction with Germany and the UK. Overall, Norway is a net exporter of electricity to the EU. Finally, Norway has permanent representation in Brussels, with two diplomatic staff working on energy (Norwegian Mission, 2018). With early domestic liberalization and regional integration of electricity, Norwegian public

and private actors have extensive experience to build on (Jevnaker, 2014; Interview G, I, O).

Norway uses its access to the Commission to seek *ex-ante influence*. Experts from EEA energy ministries and DG Energy meet to discuss upcoming and adopted EU legislation, and the Commission is characterized as receptive to discussing new initiatives (Interview G). While EEA countries rarely (and never since 2008) submit formal joint comments to the Commission on upcoming energy legislation (EFTA, 2018), Norway has submitted non-papers individually as well as jointly with EU member states (Interview G, see also Szulecki, Fischer, Gullberg, & Sartor, 2016). Moreover, Norway uses the energy dialogue for political talks with the Commission (Jevnaker, 2014, p. 18), most recently in 2016 (Interview G). Norway does not have privileged access to the European Parliament (Interview G, O), but has been invited to informal Council sessions since 2003. Nordic-Baltic meetings ahead of the formal Council sessions allow Norway to present its interests to EU member states. Norway also ensures that it has a meeting with the incoming Council presidency to inform that member state about the EEA Agreement (Interview G). Generally, Norwegian politicians have weak incentives to prioritize informal channels vis-à-vis the Council due to their inability to participate in formal sessions or negotiations (Trondal & Stie, 2015; Interview G). Norwegian experts participate in comitology committees on energy-related issues (Jevnaker, 2014, 2016). Although major Norwegian energy companies and associations are actively engaged in Brussels (Interview O)—including via EU associations—they mainly lobby in Norway to influence EU decision-making processes (Gullberg, 2015). However, Statnett is a central player due to its expertise and use of resources, dedicating a large number of staff to, and having experience with, liberalization and regional energy market integration (Interview I). Participation without representation in the EU generally leaves Norway's management of its EU relations to the administration (Trondal & Stie, 2015), with weak political impetus behind Norwegian use of available channels for *ex-ante* influence.

Regarding *ex-post influence*, EEA incorporation of the *energy acquis* is subject to negotiation, where adjustments represent a form of customization. Moreover, not all EU energy legislation is relevant to the EEA. For instance, the Common European Facility, which also funds energy infrastructure, was defined as a budget issue which is outside the scope of the EEA Agreement. In practice, whether an act is classified as EEA relevant or not involves some political discretion that can be exploited through good reasoning (Interview G). Nevertheless, Norwegian arguments carried additional weight due to Norway's strategic energy assets. Norway has resisted most EU legislation on offshore issues to protect its petroleum sector, disputing relevance on grounds that its continental shelf—where petroleum extraction takes place—is outside the EEA's geographical jurisdiction (Norwegian Ministry of Foreign Affairs, 2012, p. 13). Outright rejection of EEA-relevant legislation has occasionally been discussed in Norway (for energy: the 1994 licensing directive, the 1998 gas market directive, and the 2009 ACER Regulation), but a formal veto has never been effectuated (NOU, 2012, p. 103). Instead, the EU and the EEA countries have negotiated on adjustments and derogations for specific articles in difficult EU energy legislation prior to EEA incorporation, for instance, deciding on a lower renewables target for Norway than was anticipated from the EU's methodology (Jevnaker, 2016). Negotiations on adjustments are sometimes linked to discussions on EEA relevance and a potential veto, whereby resistance and disagreements can prolong the process. EEA incorporation needs unanimous support from the EEA countries (Buschle & Jourdan-Andersen, 2016), so delays in one country prevent application everywhere. At the time of writing, the Third Energy Package of 2009 was still awaiting Icelandic parliamentary approval. Finally, EEA countries can customize implementation where there is flexibility in EU legislation. On energy, Norway used this option to uphold domestic practices, for example, reinforcing public ownership when EU legislation banned the differential treatment of public and private ownership in licensing contracts on energy (Austvik & Claes, 2011).

4. Comparing Followers and Shapers

This section discusses the findings of the empirical case studies in light of our conceptual framework. The cases exhibit very different degrees of *ex-ante* influence. Lacking access to relevant venues and actors, the EnC plays no active role in EU policy-making. Where there is only weak potential for formal or informal access, low structural power often impedes the exploitation of these channels. Switzerland makes more and effective use of its formal access to certain European bodies, in particular to ENTSO-E where it successfully draws on its expertise to influence the technical aspects of EU regulation. It also actively utilizes informal channels to upload its preferences on political aspects of EU energy legislation. Among our cases, Norway has the most access and possesses sufficient structural power resources to exploit it. As for Switzerland, expertise and capacity generate leverage in European bodies such as ENTSO-E. Nevertheless, Norway's influence is somewhat compromised by the lack of attention given to the matter by its politicians, which has largely left Norwegian engagement vis-à-vis the EU to bureaucrats and stakeholders.

In all case studies, a clear distinction was found between influence over political as compared to more administrative and technical policy-making. The political venues in the EU (the European Parliament and the Council) are mainly off limits to the third countries studied here. By contrast, the more technical and administrative venues for the development of EU subsidiary legislation (European Commission working groups, ACER, and the ENTSOs) are more amenable to third countries. Strik-

ingly, the *ex-ante* influence of third countries here may even surpass that of certain EU member states. In this context, an EU official involved in high-level EU energy policy-making stated that "the de-facto power and representation of Switzerland without voting rights is many times higher than a small Eastern European member state with voting rights" (Interview J, own translation). Our analysis suggests that this assessment may be extended to Norway. Nevertheless, while the case studies indicate instances of influence during policy-making, an investigation of the relative impact on adopted legal acts exceeds the scope of this analysis.

An assessment of *ex-post* influence on EU energy policy through customization revealed diversity across the cases. Empirical evidence suggests a link between access and structural power on one hand and *ex-post* influence on the other hand. Essentially copy-pasting the EU *energy acquis*, the EnC has long been a prime example of top-down Europeanization of third countries. Only lately did the contracting parties signal interest to move towards a more balanced relationship. A model could be the EEA, which despite an obligation to adopt relevant EU energy legislation grants its members some scope for negotiated adjustments. This requires reasoned argumentation, which may carry more weight if the country possesses structural power—such as Norway. Still, even Norway is not always granted adjustments. In contrast, Switzerland does not need *ex-post* influence because it is not legally required to transpose EU energy legislation and autonomously adapts to it instead. In practice, Swiss energy policy takes similar strategic directions to EU legislation but deviates in its substantive provisions.

Among the three cases, Switzerland enjoys the largest leeway for formulating an energy policy that considers domestic needs. This is not surprising given the bilateral framework for cooperation with the EU which does not entail automatic law export in either direction. Nevertheless, the bilateral path to energy sector integration has become increasingly cumbersome for the EU (cf. Buschle, 2014). The difficulties experienced when trying to conclude an electricity agreement with Switzerland suggest that multilateral agreements may better suit EU interests. From a Brussels perspective, the multilateral model promises economies of scale, since it facilitates the export of EU law to more than one country. A functioning framework can also attract other third countries to join the agreement. Moreover, the two multilateral frameworks currently in place have shown that integration does not have to come at the price of rigidity: customization as already practised in the EEA—and as discussed in the reform process of the EnC—can provide for at least some flexibility. This corresponds to the idea of a modern, goal-oriented form of governance that accommodates diversity and integrates heterogeneous countries into a single legal space.

This diversity is reflected in the different roles that individual countries may play in relation to EU energy policy-making (see Table 3). Among our cases, both Norway and Switzerland are shapers of EU energy policy. They can upload their preferences to the European level thanks to their access to relevant policy venues and actors and their relatively high structural power resources. These countries have a particular status in relation to the EU, making them more than 'pure' third countries. While Norway ranks higher on both variables, it is mainly a reactive shaper as it uses most of its influence in the *ex-post* stage. Switzerland is a shaper of EU energy policy formulation but presently finds itself at a crossroads. Failure to achieve an electricity agreement with the EU will likely come at the expense of market and political access (Interview J). Switzerland is thus at risk of losing its shaper role. The EnC is a follower and despite the differences in structural power resources among its members (six countries from the Western Balkans, Georgia, Moldova and Ukraine), all of them fall short of being shapers. The EnC reform process is unlikely to change this.

Future research could locate other third countries within this framework. Tentatively (marked in Table 3 in brackets), we assume that Russia's high structural power (oil and gas supplier) and comparatively low access (Energy Dialogue) make it an almost ideal typical challenger. As an important transit country within the EU's strategy to diversify supply routes (Southern Gas Corridor), Turkey also falls within this category. The low structural power of Belarus (transit country bypassed by Ukraine and Nord Stream) and its lack of access render it an outsider. Iceland, with a fair degree of access (EEA) yet low structural power (energy island), is a follower.

Table 3. Third country roles in EU energy policy.

		Third Country Access	
		Absent	**Present**
Third Country Structural Power Resources	**High**	**Challengers** (*Russia*) (*Turkey*)	**Shapers** Norway Switzerland
	Low	**Outsiders** (*Belarus*)	**Followers** EnC members (*Iceland*)

Note: Compiled by the authors.

5. Conclusion

In this article, we explored the relative influence of third countries on EU energy policy. In contrast to one-sided concepts of Europeanization, we argued that non-EU member states can indeed exert influence on EU energy governance. The relative influence of third countries is a function of their access to relevant EU policy venues and actors, and their structural power resources. We empirically probed our argument in three case studies which represented different institutional models of EU–third country cooperation. We found the nine Southeast and East European states that are parties to the EnC to be followers of EU energy policy. Recently, however, they have voiced demands for greater flexibility in the transposition of the *energy acquis*. By contrast, Switzerland (bilateral arrangements) and Norway (EEA member) act as shapers of EU energy policy—although with some limitations: Switzerland currently faces uncertainties regarding its future access to European institutions; Norway has generally taken a more reactive stance. Nonetheless, we find it striking that these two non-members are held to sometimes have even more influence on EU energy policy than some EU member states with voting rights. Future research could examine this further by means of in-depth case studies of third-country influence in specific policy processes.

What does our research reveal about the future of the UK in EU energy governance? Its role will partly depend on access to European institutions. The EU seeks to avoid giving institutional and market access to third countries without requiring them to follow EU rules, as its harsher stance towards Switzerland illustrates. Models for future EU–UK cooperation could hence be the electricity agreement between the EU and Switzerland or the more extensive EEA Agreement. Notwithstanding this choice, the UK is losing important structural power due to decreasing fossil fuel production and supplies to the EU. Its electricity interconnection with Ireland and Continental Europe may matter for the internal market, but its island position naturally limits transit functions. The UK could gain some leverage though through its expertise in energy markets and liberalization. Irrespective of what access the UK should get to the EU via a Brexit agreement, our framework thus predicts difficulties in exploiting channels of influence. The UK, therefore, finds itself at a crossroads of its future energy relations with the Union. If upcoming political decisions led to the loss of British access to most EU policy venues, the UK could become an outsider according to our framework.

Brexit is the most obvious reason why systematic research on the role of third countries in EU policy-making is timely. Our contribution to this emerging research agenda is to highlight that the Europeanization of energy policy works in two directions—also with third countries. The EU regulatory regime is not immune to external influence. Depending on their access and structural power, third countries can follow, challenge, and even shape EU energy policy.

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Conflict of Interests

The authors declare no conflict of interests.

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Appendix

List of Interviews

Interview	Affiliation of interview partner
A	Nation state official
B	Nation state official
C	Nation state official
D	Nation state official
E	Nation state official
F	Nation state official
G	Nation state official
H	Subnational official
I	European institution
J	European institution
K	International organization
L	International organization
M	Private sector
N	Private sector
O	Private sector

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Commentary

What to Expect from the 2020 Gas Package

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Abstract
Gas is considered an important part of the European Union's (EU) energy mix. Making up a quarter of the energy consumed in the EU, it is widely used by both households and industry. Gas supports the penetration of intermittent renewable electricity and is considered the cleanest of the fossil fuels but its combustion emits a considerable amount of greenhouse gases. In the fight against climate change, the EU has committed itself to the near-complete decarbonisation of the energy sector well before 2050. This will have a significant impact on the gas sector, especially in the EU, which has well-developed gas transportation and storage assets. This commentary examines two potential pathways that could enable the gas sector to contribute to the EU's decarbonisation efforts while continuing to play a substantial role in the EU's energy supply. The pathways include gas and electricity sector coupling and the substantial increase of renewable gas production. Those options, which are not mutually exclusive, provide an opportunity for the gas sector to thrive in a decarbonised energy future. In some cases, it could require changes in the EU's gas legislation, these changes were announced by the European Commission to be proposed in 2020.

Keywords
carbon capture use and storage; decarbonisation; energy; energy supply; European Union; gas; power-to-gas; renewable gas; sector coupling

Issue
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1. Introduction

Trilogue negotiations on the Clean Energy Package (CEP), published in November 2016, have come to an end. In mid-December 2018, European Commission, the Council and the European Parliament finally reached a political agreement on the outstanding pieces of legislation. The CEP focuses on three areas: energy efficiency, renewable energy generation and the consumers' role in the energy transition. It aims to provide a set of principles which enable the electricity market to respond to the challenges stemming from the increase of variable renewable energy (VRE). This increase is unavoidable if the European Union (EU) is to achieve at least 40% CO2 reductions by 2030.

The CEP is different from the three liberalisation packages that came before it. The previous packages set the principles of the functioning of the internal electricity and gas markets, where legislative frameworks regarding both sectors have been negotiated in parallel. The CEP, on the other hand, is focused on the power sector, and is not comprised of a single piece of legislation addressing the organisation of the gas market. Does this mean that gas will not play any role in the EU energy transition? The answer to this question is that gas could continue to play a major role in the EU's energy supply, but it needs to adapt to the decarbonisation challenges.

To achieve the Paris Agreement targets, the EU needs to reduce its greenhouse gas (GHG) emissions by 80–95% by 2050. With the gradual phase-out of coal power plants, the emissions reductions resulting from coal-to-gas switching in power generation will diminish. As a result, the additional GHG reductions will need to "come from within the gas sector" (Spijker, 2018),

which currently generates 66 gCO2-eq./MJ, that is 9.7 gCO2-eq./MJ for gas supply and 56.2 gCO2-eq./MJ for gas combustion (Joint Research Centre [JRC], 2017).

The GHG emissions in the gas sector will not reduce automatically. According to the TYNDP 2018 Scenario Report prepared jointly by European Network of Transmission System Operators for electricity (ENTSO-E) and gas (ENTSOG), EU gas demand will not change dramatically (ENTSO-E & ENTSOG, 2018a). The ENTSOs expect the annual gas demand to stay in line with or be lower than the historic demand average (5,000 TWh) and account for around 3,900–5,000 TWh in the 2040 perspective. However, there is high uncertainty regarding the gas demand after 2050. Additionally, unless the CO2 produced by burning the natural gas can be compensated by further mitigation, decarbonisation beyond 70% would effectively prohibit the use of natural gas. (Hecking & Peters, 2018). For this reason, some projections foresee a steep decline in the EU gas demand (Szeles, 2018).

For the gas industry, the potential GHG abatement options include sector coupling through Power-to-Gas technology, renewable gases and Carbon Capture Use and Storage (CCUS). These potential pathways are at the top of the political agenda in Brussels and important regulatory meetings such as the Madrid Forum (European Commission, 2018).

The following two sections will focus on sector coupling and renewable gases, currently in the spotlight as key technological pathways allowing gas to contribute to the EU decarbonisation efforts. The third part will dig into the positions and preferences of some of the key actors involved in the discussions. The commentary will conclude with potential changes that may constitute a part of the new gas package to be released by the upcoming European Commission in 2020.

2. Sector Coupling and Hydrogen Technologies

The concept of sector coupling (SC) is defined as "co-production, combined use, conversion and substitution of different energy supply and demand forms—electricity, heat and fuels" (International Renewable Energy Agency [IRENA], International Energy Agency, & REN21, 2018, p. 93). In the EU context, it is generally understood as a closer integration between the electricity and gas sectors, with respect to both markets and infrastructure, allowing for the integration of the rising share of renewable energy on the one hand, and to decarbonise the final use on the other. However, the lack of an EU-wide definition of sector coupling is the first challenge that the new gas package should address.

In practice, SC allows the use of excess electricity from renewable sources to produce green hydrogen and synthetic methane via electrolysis and methanation, respectively. Renewable hydrogen could replace traditional hydrogen production, which is almost exclusively (95%) fossil-fuel based (IRENA, 2018). The process of converting renewable energy into carbon-free gas, liquids and heat is referred to as Power-to-Gas (P2G), Power-to-Liquid(s) (P2L) and Power-to-Heat (P2H).

This technological solution offers many advantages and solves some key energy transition dilemmas. Firstly, as our energy system becomes increasingly dependent on the generation of variable renewable energy, the technologies enabling the integration of a rising share of intermittent energy and energy storage are needed. Power-to-X technologies offer more flexibility to the energy system and are cost-competitive with alternative technologies such as demand side response, grid expansion or electricity storage (batteries), especially when the share of renewable energy comes closer to 40 or 50% (Göransson & Johnsson, 2018).

Secondly, SC allows the continued use of natural gas infrastructure for the benefit of energy consumers. Otherwise, part of the infrastructure would need to be decommissioned, in some cases before the return on investment is achieved or prior to the end of its economic life, leading to the problem of stranded assets. In recent years, public finance was used to support the construction of gas infrastructure with the objective to enhance security of supply and to establish a well-functioning European gas market. Using existing energy transport and distribution infrastructure is not only cost-efficient but should also be recognised as a secure strategy in the transition to a decarbonised energy future (Agency for the Cooperation of Energy Regulators [ACER] & Council of European Energy Regulators [CEER], 2018).

Thirdly, SC could significantly contribute to the EU emission reduction targets, as the green hydrogen and synthetic methane could replace the natural gas in conventional gas turbines, heating and cooling and transport (MacKinnon, Brouwer, & Samuelsen, 2018).

3. Renewable Gases

Another widely discussed decarbonisation pathway for the gas sector is the use of renewable gases or green gases, that is, gases that have similar qualities to natural gas but are produced from organic waste or renewable electricity through the above-mentioned Power-to-Gas process.

Although the costs of solar and wind electricity continue to fall worldwide, creating favourable conditions for producing cheap renewable electricity, the demand is not necessarily there. The electricity produced could be carried to the consumer centres via Ultrahigh-voltage (UHV) lines. Alternatively, the electricity could be used to produce renewable gas, which could be carried by existing pipelines or Liquefied natural gas (LNG).

Through electrolysis, electric currents split molecules of water to produce hydrogen and oxygen. The hydrogen can then be used in transport, mingled in small quantities with the natural gas in gas pipelines, or it can be used to produce synthetic natural gas (SNG) via methanation. Technology costs decrease substantially with increased production.

The second type of green gas is biogas. It is produced from the organic waste of varying origins, including the food industry, agriculture or municipal solid waste, through anaerobic digestion. Biogas usually consists of methane (40–70%), carbon dioxide (30–60%) and various contaminants (ammonia, water vapour, hydrogen sulphide, nitrogen, oxygen, etc.). Biogas is used on the spot to generate power and heat, or it is purified and upgraded to biomethane that can be injected into the gas grids. Injected biomethane has the same applications as traditional natural gas and is used by the industry, in the residential sector or to produce electricity.

The continued replacement of natural gas with renewable gases offers many benefits, mainly the reduction of GHG emissions. The uses of renewable gas could also boost the (seasonal) flexibility of the whole energy system. Furthermore, it gives the chance to use the existing gas infrastructure. However, the increase in renewable gas production will partly depend on the gas sector's effectiveness in minimising methane emissions.

Currently, there are roughly 500 biomethane plants (Gas Infrastructure Europe & European Biogas Association, 2018) and over 50 Power-to-Gas projects in Europe (Vartiainen, 2016). Although they are readily available, all renewable gas technologies require political and regulatory support to decrease the costs of investment and production, thus playing a more prominent role in the energy transition (Schmidt et al., 2017).

4. In the Pursuit of Political Support

Thus far, sector coupling has received the broadest political support from the European Commission (DG Ener), ENTSOs, ACER and the majority of the Member States. DG ENER is currently working on a "Study on sector integration" that aims to identify potential regulatory barriers and gaps preventing the integration of electricity and gas. The study will conclude with recommendations regarding legislative measures which enhance the removal of regulatory barriers and close gaps in the current regulation, with a focus on the 3rd Package's elements (mainly Regulation (EC) No 715/2009 and Directive 2009/73/EC). The final report will be published in April 2019 (Szeles, 2018).

ENTSO-E and ENTSOG gave concrete support to Power-to-Gas technology. In a joint paper released on the eve of the Madrid Forum, Transmission System Operators emphasised the need to significantly increase the current P2G capacity so that it achieves the GW-range by the early 2030s (ENTSO-E & ENTSOG, 2018b). This should be done through the upscaling process of P2G facilities, at least by a factor of 10, increased research and a demonstration of Power-to-Gas plants grid supporting capabilities. Moreover, the ENTSOs called on electricity and gas TSOs to cooperate and to take the lead in developing the technical requirements for system integration of P2G facilities. Despite the fact that the ENTSOs referred to biomethane and decarbonised gas as "valuable energy carriers", they do not call for any concrete measures aimed at the increase of renewable gas or decarbonised gas production.

In contrast to the EU Commission and the ENTSOs, ACER is more cautious. Although ACER considers finding synergies between the gas and power sector as a significant challenge and describes Power-to-Gas as a valuable technology due to its energy storage capacity, it refrains from using the term sector coupling. ACER instead supports renewable gases and the use of the existing gas infrastructure to accommodate its growth potential (ACER & CEER, 2018).

Member States remain divided on this issue. Austria, which held the rotating Presidency of the Council of the EU in the second half of 2018, put hydrogen technologies on the agenda of the informal meeting of energy ministers, which took place on 17–18th September 2018. During the high-level energy conference preceding the informal ministerial meeting, the invited politicians, researchers and business representatives debated the outcome of renewable hydrogen projects and their potential to scale up. However, only 25 out of 28 Member State representatives signed under the non-binding Hydrogen Initiative aimed at promoting the potential of hydrogen, which indicates a lack of consensus among the EU Member States on the issue (Taylor, 2018). The P2G is of particular relevance for the countries with well-developed gas infrastructure and a high share of intermittent renewable electricity. For this reason, it is difficult to expect that countries with low wind and solar energy production and under-developed gas infrastructure would be interested in investing in P2G facilities (Speirs et al., 2017).

At this time, the European Parliament has not expressed its official position on sector coupling. However, it began investigating the topic with the publication of a study on sector coupling at the request of the Committee on Industry, Research and Energy (ITRE Committee; van Nuffel, Gorenstein Dedecca, Smit, & Rademaekers, 2018).

5. Conclusions

Future gas regulation will be increasingly affected by environmental concerns and climate change policy objectives. The new role of the gas sector, emerging from current discussions, is highly intertwined with the electricity sector. Using gas as a source of seasonal flexibility and as a buffer to absorb excess variable renewable energy is not only the most economical pathway but is also potentially the most politically acceptable option for EU Member States and consumers. Therefore, sector coupling combined with the production of hydrogen and the generation of renewable gases seems to be the only credible decarbonisation option in several industrial activities due to the lack of alternative technologies.

Assessment of the current discussions suggests that the 2020 Gas Package:

- will develop a clear vision on the role of gas up to 2050 and will most likely propose renewable gas and decarbonised gas targets, whether they will be binding or non-binding targets remains to be seen;
- the vision will build upon the Third Energy Package (Regulation (EC) No 715/2009 and Directive 2009/73/EC) and the developments of the CEP (inter alia Recast Renewable Energy Directive, Directive 2018/2001). The synchronisation of the unbundling framework for electricity TSOs (Recast Electricity Directive, COM/2016/0864 final) and gas TSOs, which could allow them to operate the Power-to-Gas facilities, would be a key challenge as TSOs are among the key advocates of P2G;
- to enhance the cross-border trade of renewable gases will introduce a system of EU-wide certification or guarantees of origin through the revision of the Renewable Energy Directive (Directive 2018/2001);
- will address barriers related to gas quality and injection tariffs for renewable gases inserted into gas grids;
- will introduce integrated electricity and gas market design, e.g. by allowing conditional electricity and gas bids.

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Conflict of Interests

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