

# Four modes of Europeanization: How the EU influences renewables policy

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## Abstract

Europeanization is a circular process, where European integration influences processes at the national level, which in turn influence European integration. This paper conceptualizes four different relationships between the EU and national level policy developments. These modes of Europeanization include: constrained creativity, hard bargaining, frozen Europeanization and coercive Europeanization. Being interested in mixes of renewable energy policies in European countries, we explore which modes of Europeanization that characterize the development of renewable energy policy in the EU, trying also to find out whether some of these modes are more common than others. The focus is on six European countries, which represent two different types of policy mixes: France, Germany, Poland and the UK have a renewables technology-specific policy mix. In contrast, Sweden and Norway have technology-neutral support policies. The purpose of the study is to find out: To what extent and how the different Europeanization modes contribute to explain the countries' policy mixes? Based on a qualitative approach, we find that EU-national relations that are dominated by constrained creativity, hard bargaining and coercive pressures have been most likely to move towards a technology-specific policy mix, while the relations characterized by frozen Europeanization have chosen technology-neutral support policies.

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## Introduction

How an issue area in a country is related to the EU typically varies across issue area, time and geography. The importance of the EU for national policy-making depends on the nature of the relationship between the EU policy development and the development of national policy. Drawing on an understanding of Europeanization as a circular process, we conceptualize four different modes of Europeanization – eligible creativity, hard bargaining, frozen Europeanization and coercive Europeanization.

These four modes of Europeanization can help us detect and understand variance in how and to what extent the EU may influence national policy developments. By developing tools that contribute to understand differences in the relationship between the EU and the national level, the aim is to improve explanations as to why similar EU policy developments often have varying consequences for different countries.

In contrast to a linear process, we understand Europeanization as ‘a circular one, which also includes European integration and the process’ influence at the national level, which, in turn, influences European integration anew’ (Saurugger 2014:126; see also Radaelli 2003).

Eva Thomann and Fritz Sager (2017:1257) have argued that we lack a ‘systematic picture’ of the diversity of the ‘European experience’ and that a main reason for this shortcoming is the lack of systematic conceptualization and operationalization of how EU influence national policy developments. This paper offers a set of analytical tools that can help us to get a more systematic picture of the role and importance of the EU for national developments. EU level developments can be interrelated with national policy changes in many different ways: it can be a rather mutual relationship; or the EU may act as a rather external force, the EU developments may be a reaction to national developments or the reverse; or the developments at the two levels can be rather independent and unrelated. Moreover, this relationship may vary for different countries and change over time.

It is well known that implementation of EU policies leads to differentiated results at the national level (Héritier 2001). This is typically explained as a consequence of different national circumstances and conditions. However, EU policy developments themselves may also be the source of diversity across member states. This is not well understood in the existing literature although since the 1990s differentiated integration has been an important phenomenon in EU studies. The literature includes a number of classifications of differentiated integration (Stubb 1996; Howarth & Sadeh 2010; Tuytschaever 1999) and various aspects such as temporal (Goetz 2010) and spatial dimensions (Keating 2010) and why non-EU member states adopt certain policies whilst some Member States opt out of EU policies (Leuffen et al., 2013). Yet it remains insufficiently researched (Leiren 2013).

Being interested in mixes of renewable energy policies in European countries, we explore which modes of Europeanization that characterize the development of renewable energy policy in the EU, trying to find out whether any of these modes are more common than others and whether they have differentiated effects. Empirically, the aim is to understand the variation in when, how and to what extent the EU has influenced national support schemes for renewable energy in different EU and EEA countries, from the emergence of this policy issue in the 1990ies and until 2016. Drawing on insights from six longitudinal and comparative case studies of renewables policy development, it is of interest

to understand how EU policy influences national policy developments and whether and how different modes of such Europeanization contribute to shape the renewable energy policy choices nationally. The case studies include France, Germany, Norway, Poland, Sweden and the United Kingdom. These countries started to develop support schemes at different times, but under different circumstances.

Like Eva Thomann (2015), we explore how a single issue have been influenced by the EU, and not the implementation of a specific directive or regulation. Moreover, we take the influence of several strings of EU policy into account. The EU has had policies and rules for renewables support schemes for just as long as many EU member states. We zoom in on how these countries have been affected by EU policies, find that the EU have had very different consequences and the explanation is partly to be found in the variance in the very relationship between the EU and the national policy developments. The design of support schemes for renewable energy has been a highly contested issue in EU climate- and energy policy discussions since the late 1990s. This study takes both strings of EU policies that influence national support schemes into account: the EU renewable energy directives and the EU state aid rules for energy and the environment. EEA countries (Norway in this study) are required to implement all EU policies relating to renewables but it is not part of the EU policy development process in the same way as EU member states. We will examine whether that has consequences for its relationship with the EU policy development, or not.

Today, most European countries have adopted several different support schemes for renewable energy, operating in conjunction (Kitzing et al 2012). Our six countries all had at least one major scheme for large-scale renewables and one or more additional schemes for small-scale renewables in 2016. In 2016, their renewables support schemes fell into two categories: ‘technology-specific’ and ‘technology-neutral’ renewables market exposure. Countries in the first group – France, Germany, Poland and the UK – have mixes of schemes with technology-specific bonuses, only partially exposing renewables to market forces. These countries had also introduced auctioning for feed-in premiums as the support scheme for large-scale investments and traditional feed-in support for small-scale renewables. Countries in the second group – Norway and Sweden – have adopted policy mixes that provide similar support levels to most technologies, and ensure that renewables investments are deeply affected by market forces. In 2016, both countries had an electricity certificate scheme combined with limited investment support for small-scale renewables. On this background we ask the question: *To what extent and how do different Europeanization modes contribute to explain the countries’ policy mixes?*

There are many possible explanations as to why the support scheme mixes differ between the two groups. Differences in national political preferences and industry structures are obviously important; however, our key focus is to understand whether and how the the relationship between the EU and the national level matters.

Methodologically, we draw on insights from six in-depth case studies, which trace the policy development of renewables support policies from their inception and until 2016. The data were collected as part of the REMIX project<sup>1</sup>, which consists of a unique assembly of approximately 70 interviews with prominent political figures, including former government ministers, high-ranking civil servants in ministries and agencies, representatives of national and European industries, and European

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<sup>1</sup> <https://www.cicero.oslo.no/en/remix>

Commission officials. Further, we have examined thousands of publicly available documents, including consultation inputs, parliamentary reports and written correspondence between national public authorities and the EU.

In the following we present the theoretical perspectives that we draw on in more detail, specifying the four modes of Europeanization. Second, we present the renewables portfolios in the two countries. Third, we describe the relationship between the policy development at the EU and national level in the six cases. Finally, a discussion and conclusions follow.

## Four modes of Europeanization

There is a big literature on national implementation of EU policy. Initially, such Europeanization studies centred on member states' compliance with EU regulations and coerciveness of these regulations (Mastenbroek 2005; Saurugger 2014). A range of top-down, quantitative as well as qualitative studies have been performed in this tradition, examining whether and to what extent the transfer of formal authority from the national to the European level have enabled the EU to steer the development of national policy. It has however become increasingly clear that the national responses to EU policy developments are more complex and differentiated than originally assumed (Héritier 2001:2). Indeed, there seems to be 'a parallelism between European and national policy developments that, although they evolve independently of each other, [they] also intersect and have a reciprocally reinforcing, counteracting or neutralizing impact' (Héritier 2001:2).

While top-down coercion from the EU towards member states may be relevant and sometimes important, it is seldom the only factor shaping national policy developments. Europeanization consists of more than implementation of formal rules. Rather, it entails socialization, contestation, deliberation, and constructing systems of meanings and collective understandings (Börzel and Risse 2012; Cowles and Risse, 2001:219; Boasson 2015). Tanja Börzel and Thomas Risse (2012) argue that approaches that leads researchers to 'prejudge the EU as the main source of domestic change' should be avoided, and they take important steps to remedy this pitfall. (Börzel and Risse 2012: 2). They conceptualize how coercive as well as cultural-institutional change impulses at the EU level can influence national policy developments, and how the actors at the national level may respond in a variety of ways, rationally through lesson drawing or by more profoundly changing their normative and cultural beliefs.

A broad variety of policy activities at the EU level may influence national policy developments; social processes relating to initiating, constructing and diffusing policy ideas, as well as the emergence of beliefs and norms (Radaelli 2003: 3). Börzel and Risse (2012) specify a range of promising causal mechanisms embracing the breath of potential policy changing factors. However, they conceptualize the interrelationship between internal national factors and external EU level factors as rather static (see Thomann 2015: 1368; Börzel and Risse 2012). They regard Europeanization and domestication are complementary forces, and convincingly that both needs to be accounted for (see also Thomann and Sager 2017: 1256). In this paper, we are however more interested in characterizing the dynamic relationship between EU and national policy development and the different ways and degrees in which the national and the EU policy development processes may be interlinked, or de-coupled.

Both EU policy and national policy, will always be 'in the making', and the extent to which EU organizations contribute to construct, diffuse and institutionalize policy elements will vary (see Radaelli 2003:30). Just like new EU policy developments will often draw on pre-existing policy ideas provided by member states, new member state developments may have been inspired by EU level processes (Boasson 2015:56). Inspired by the work of Claudio Radaelli, Sabine Saurugger (2014:126) has coined the term 'circular Europeanization'. She argues that Europeanization is not a linear process, 'but a circular one, which also includes European integration and the process's influence at the national level, which, in turn, influences European integration anew'. Further, she highlights that 'at any point in time', the national and the European levels interact (Saurugger 2014:127).

Building on this circular understanding of Europeanization, we specify four different ways in which the national policy development may be related to the EU policy development. Each mode has its different internal workings, and hence we will see variance in which factors that are crucial, depending on which mode of Europeanization that dominates for the country in question.

### ***Europeanization as constrained creativity***

This mode of Europeanization captures issue areas where EU policy exist, but the national policy developments in the country in question broadly falls within the legal constraints given by the EU. Hence, the EU policy is rather weak and ambiguous in legal terms, or the EU rules are broadly in line with dominant national preferences. In such situations, national policy developments will primarily be shaped by national actors and these will have the leeway to test and develop new policy measures.

National policy development may be contested, but the conflicts are not caused by EU interventions; EU rules are rarely or only to a small extent contested at the national level and confrontations between national level and the EU level developments are rare. This does not imply that no national actors questions the EU constraints, only that the most influential national actors have preferences in line with EU rules. Hence, the EU-national relationship is more characterized by bottom-up, than top-down developments. Dominant national actors are allowed to be creative, and develop new measures through trial and error. As these national policy experiments are largely in line with the EU constraints, EU actors may hail the country as a kind of laboratory where new ideas are tested and refined.

The situation that Eva Thomann (2015) have called 'customizing' EU policy overlaps somewhat with what we call Europeanization as constrained creativity. Thomann understands customization as 'the degree to which the domestic regulations complement the EU directive with more or stricter rules than required' (Thomann 2015: 1370). Thomann explores situations where EU policies can have significant effects that goes beyond mere compliance. Hence, national actors use their leeway to adapt EU rules to domestic particularities and 'countries reinterpret EU directives depending on the 'fit' of EU regulatory modes with domestic, sectoral interventionist styles' (Thomann 2015: 1370).

Europeanization as 'constrained creativity' may also result from situations where national actors deploy various entrepreneurial tools to ensure that the EU rules are implemented in a certain way (Boasson 2015). Elin Lerum Boasson (2015) argues that entrepreneurs can act as 'importers' of EU rules, but still make a considerable contribution to conceptualizing and shaping how the EU rules are understood and applied nationally. They may remove or portions of the EU impulse that the actor dislikes, or otherwise actively alter the EU rules so that it fits better with the actor's preferences and objectives (Boasson 2015: 70-71; Sahlin and Wedlin 2008). National actors may also argue that it is

important that the national solutions are and stay better than the EU rules (Boasson 2015: 73-74). In this case, the EU relationship is like following the latest fashion: actors aim to conform to the dominant trends, but they also want to be somewhat better than the 'common masses', i.e. other EU member states (Sahlin and Wedlin 2008: 223). Here, the national policy makers aim to act differently in order to act in the same way as prescribed by the EU.

While Thoman and Boasson both regard the EU influence as exogenous to the national policy development, we regard the national and EU developments to be interlinked. We do not merely focus on the implementation of one directive at one point in time. When national policy makers customize, imports or actively aim to adopt 'better' policies than prescribed by the EU, this may eventually lead to changes in EU level policies. Moreover, the focus on the EU may be lower at the national level, than indicated by the former research of Thoman and Boasson. In these cases, national actors may be inspired by the EU to a lesser or larger degree, but it is the national actors that are the prime movers of change at the national level, not the EU developments.

### ***Europeanization as hard bargaining***

Here, the national policy development is actively constrained by developments at the EU level, but at the same time the country in question is so powerful in the EU that the policy developments here also constrains the EU policy processes relating to this issue area. The relationship between the two levels of decision making is characterized by hard bargains, with some similarities to Moravcsik's liberal intergovernmentalism (1993; 1998). In contrast to liberal intergovernmentalism, 'Europeanization as hard bargaining' does not aim to explain outcomes of policy development processes at the EU level, but rather aim to conceptualize the inter-relationship between the EU and a particular member state relating to a specific issue area. The relationship between the nation state in question, and the EU organizations and processes is, however, characterized by strategic deployment of power resources.

This mode of Europeanization will probably only be found between the EU level and a member state which is large and dominant within the issue area (see Moravcsik and Schimmelfennig 2009: 68). However, the country in question is only one out of several large member state, and hence it will not be dominant enough to ensure that the EU policy is fully in line with the national practices. On the other hand, it is large enough to hinder the development of EU policies that dramatically contradicts its preferences. If this mode of Europeanization dominates, we need to take into account the power and preferences of the key organizations at the EU level as well as the key national policy makers in order to understand policy change at the national level.

Since the European Commission has the role of initiating policy revisions and adoption of new rules, as well as supervising national implementation of EU rules, the Commission plays a key role in this mode of Europeanization. Hard bargains will play out when the EU policy is revised, as well as in the implementation phase. The national government in question will probably use every occasion they have to influence EU policy development and the reverse; while the European Commission will probably use its powers to supervise implementation to exert pressure towards the member state. This includes launching court cases as responses to perceived infringements at the national level. We have relaxed the Liberal Intergovernmentalist assumption that member-state preferences are shaped solely through a bottom-up process at the national level. While it may be true that governments act as instruments for their national industries, the national government as well as national industry actors are constrained and influenced by developments at the EU level.

Here, national policy development reflects the rational actions of national governments, but these will be constrained at home by domestic societal pressures and abroad by EU rules and practices (see Moravcsik 1993: 474). The EU rules create severe constraints to national developments, but at the same time, the member state in question is so powerful at the EU level that the national developments in turn will constrain how the EU level policies may develop.

In the policy revisions as well as relating to the implementation procedures, the Commission as well as the national governments will supply information that strengthen their arguments, and they will aim to mobilize domestic as well as EU level support for their arguments (see Moravcsik 1999: 272). Moreover, both entities will use the occasions they have to initiate new compromises and policy rules that contributes to reduce the conflicts and discrepancies between the two levels of policy development.

When hard bargains dominate a Europeanization process, important negotiations tend to play out between closed doors and it can be hard to say clearly how EU rules and interventions actually influenced a specific national decision-making process. Moreover, the EU level and national processes may be closely aligned, contributing to making the picture murky.

### ***Frozen Europeanization***

Here, a country at some stage in time experienced an impulse for policy change that partly or fully stemmed from the EU, but later the policy development has hardly been affected by the developments at the EU level. The initial change impulse can be coercive, in the sense that the country adopted a policy it was required to implement, or it may be that the EU exerted a softer policy impulse, that was received by national actors that were looking for new ideas (Börzel and Risse 2012). In any case, the national policy was changed as a result of EU-influence, but later this change became institutionalized, and taken for granted as the natural way to regulate and steer an issue. As the practice is not strongly contested at the national level, later shifts and turns in rules at the EU level does not register at the national level. Rather, the original EU impulse has become frozen at the national level, and resistant to external change impulses. Hence, the EU developments become external to the extent that they are no longer hardly in dialogue with the EU-level developments at all.

Given that the EU has 28 (27) member states, not all of them will be equally interwoven into the EU level developments at all times. It is probably more likely that a small member state will experience frozen Europeanization than a big member state. A structurally dominant member state that fails to change its policy in line with the EU development, will probably either be able to influence the EU policy development or gain so much attention for its deviant practice that conflicts are due to arise. A small member state may however slip through the cracks.

Given that it actually has adopted some EU signal at one point in time, it will probably take very long before its policy appears as a radical violation of EU laws. If the EU policy develops so much that the national practice becomes in clear violation of the EU rules, the period of Frozen Europeanization will probably end.

### ***Coercive Europeanization***

Coercive implementation is the mode of Europeanization that is the closest to the standard top-down perspective on implementation of EU rules in the literature. Many contributions in this literature

assume (implicitly or explicitly) that domestic change will stem from EU policies (see for instance Börzel and Risse 2003; Haverland 2000; Risse et al. 2001: 2). And with coercive Europeanization, the EU really *is* the main source of domestic change (Börzel and Risse 2012:2). The EU rules are external factors, that national actors aim to circumvent to the degree it is possible. Hence, the national actors are not really interested in what goes on in Brussels; they only pay attention to the EU to the extent they have to avoid infringement procedures. Hence, EU developments are only influential to the extent that the rules are binding and the compliance regime is stringent.

Very few national actors are eager to implement the EU policies; they have not been socialized into a common European understanding of the issue area, neither have they been persuaded to change opinion. Rather, they follow an instrumental rationality, selecting their course of action according to cost–benefit calculations, and only comply to the EU rules and policies to the extent that the formal rules require (Börzel and Risse 2012:5). Hence, the national governments will aim to exploit the leeway in the EU rules to the largest extent possible, and never over-achieve or ‘customize’ their national policies.

National governments that aim to comply with EU law, but nothing beyond that, will probably engage in what Elin Lerum Boasson has coined ‘Shrewd Lawyer’ entrepreneurship; ‘[b]ecause formal regulations always offer some leeway for interpretation, and because EU regulations tend to be particularly ambiguous, entrepreneurs may succeed in redirecting the steering.’ (Boasson 2015:75). Indeed, policy makers will often happen to find themselves in a situation in which they need to be creative in order to ensure that the EU impulse lead to as little changes in the national practices as possible. The bigger the degree of ‘misfit’ between the national practices and the EU rules, the more likely it will be that the EU rules creates significant national changes (Risse et al. 2001: 7). However, shrewd national policy makers may succeed in altering the EU impulses in ways that hinder the implementation of the EU rules to render the consequences envisioned by the EU policy makers (Boasson 2015).

If a country that resist EU implementation is powerful in the EU setting, the situation may escalate to hard bargains. But countries that are smaller, or for some other reason simply is not very visible at the EU level, the coercive mode of Europeanization can remain stable over rather long periods of time. However, as other countries are however probably more active and able to influence the EU policy development starker conflicts between the reluctant implementer and EU level actors may however arise over time.

**Table 1. Key aspects of the four modes of Europeanization.**

	<b>Constrained creativity</b>	<b>Hard bargaining</b>	<b>Frozen</b>	<b>Coercive</b>
<b>EU – national policy relationship</b>	Bottom-up	Indistinguishable	Can start as either top-down or bottom-up, but becomes de-coupled	Top-down
<b>The role of EU policy for national policy developments</b>	Uncontested inspiration and/or constrain	Contested constraints	Uncontested constraint	Constraint
<b>The role of national policy for EU policy development</b>	Expands EU policy options by creating and testing potentially new EU policy ideas	Constrains EU policy developments	Of little importance	Of little importance

<b>Structural power of country in question</b>	Large	Large	Small	Small
<b>Key explanations to national policy output</b>	National factors	The nature of the interrelationship between EU and national factors	National factors	EU developments

Table 1 summarizes the key aspects of the four modes of Europeanization. All of the modes represents EU-national relationships that lasts for longer than one particular decision-making processes. In the following, we assess which mode of Europeanization that dominates for the development of renewable energy support schemes in France, Germany, Norway, Poland, Sweden and the UK. However, as we are interested in the effect of such Europeanization modes on policy development, we first present the renewable energy support schemes in the six countries in 2016. For all countries, the support scheme mix at this point in time resulted from longer periods where the national policies had developed in tandem with the EU policy developments.

Conceptualizing support scheme portfolios

Most EU member states have encompassing and complex mixes of renewables support schemes, combining different designs (Kitzing et al 2012). We have considered this complexity when having developed two main categories of renewables policy mixes: one ‘technology-specific’ and one ‘technology-neutral’ approach.

The literature classifies support schemes for renewable energy in various ways. There have been fierce disputes about which type of schemes are market-based and whether some schemes should or could be called command-and-control instruments. Initially, the promoters of certificate schemes labelled these as market-based and fixed feed-in as command-and-control schemes (see Toke and Lauber 2007:677). Also, in the scientific literature, it has become commonplace to call certificate schemes market-based (see Boasson and Wettestad 2013; Darmani et al. 2016: 373; Linnerud and Simonsen 2017:560) while feed-in schemes have been labelled in many different ways.

In 2005, the European Commission argued that ‘both instruments are equally market-based in that the regulatory body sets either the price or the quantity and leaves the determination of the other to the market’ (European Commission, 2005b, p. 54). Similar views have been presented in scientific debate. For instance, Reinhard Haas (2011:2188) and colleagues point out that both feed-in schemes and certificate schemes

‘rely on a command & control approach of a planned economy. In one case the price is set, in another case the quantity is set;[...]Yet on the other hand all of these systems are market-based: the goods are produced in a competitive market [...] it is important to note that this market in all cases is created by some kind of artificial demand.’

Rather than relating to the very general, ambiguous and normatively charged term market, we have developed concepts that capture key differences between the different approaches to promotion of renewables that we have identified in our case study analysis. Moreover, as we compare the mix of schemes and not only single instruments, it becomes even harder to rely on such a broad term as ‘market’.

The 'technology-specific' approach to climate and energy transitions favours relatively new technologies and small-scale renewables, while also allowing for diverse large-scale renewables development in certain geographical areas. This approach fosters a broad variety of renewables technologies, underpins new industry development as well as regional energy security and undermines incumbent electricity industry actors' ability to continue to be the key players in national stationary energy production markets.

This approach relies on combinations of fixed feed-in tariffs, feed-in premium and tendering procedures. Fixed feed-in tariffs guarantee a fixed electricity price for a fixed period. Feed-in subsidies tend to differentiate between different technologies, paying a different subsidy per unit of generation for different renewables technologies (Buckman 2010: 4105). A tariff is determined for each technology and the guaranteed price can only be changed as a result of governmental decisions (Kitzing et al 2012: 194). In addition, the electricity is given priority dispatch to the grid, guaranteeing that the electricity from the renewables plant is bought (source). Feed-in premiums are guaranteed add-ons to the electricity market price, given for a fixed period or a pre-determined production (Kitzing et al 2012: 194). While producers of certain technologies tend to be given a right to receive fixed feed-in tariffs, feed-in premium are more often granted as a result of a tendering procedure where only the winner of the auction are granted support (source). The technology specificity tends to be very high schemes based on fixed feed-in tariffs, while tendering can be organized in a technology specific way, with different auctions for different technologies. Moreover, governments can develop rules for how feed-in premium levels are calculated that ensure different premium levels for different technologies.

In contrast, the 'technology-neutral' approach aligns to the business models of large electricity producers operating in liberalized electricity markets. The same support is offered to all renewables projects, irrespective of technology or geographic location. It favours large-scale investments in the most profitable technologies and offer limited support for small-scale renewables sources. This approach favours large electricity utilities and underpins continued liberalization of energy markets.

Technology neutral approaches tend to rely on combinations of certificate schemes and investment support. Certificate schemes mandate that a certain quota of the electricity consumed shall come from renewables (Darmani et al. 2016:373). For every megawatt hour (MWh) of their production, certificates are allocated to electricity producers. Certificates can be traded on a market, where the price is set by supply and demand. The price for the certificates comes on top of the electricity price. Because of significant uncertainty relating to electricity prices as well as certificate prices, renewables producers are exposed to rather high investment risks. Certificate schemes tend to be technology-neutral, meaning that a broad range of renewables are eligible for the same level of subsidies (Darmani et al. 2016:376). In theory, one could include design elements that favored certain technologies, for instance issuing more certificates for some technologies than others, or creating submarkets for specific technologies (Buckman 2010; Rabe 2007). Certificate systems are referred to by different labels in different countries, for instance renewables electricity standards or portfolio standards in the USA and Australia, green certificates in EU documents and electricity certificates in Norway and Sweden (Darmani et al. 2016: 373). In our studies, certificates are combined with investment grants, where investors are granted non-reimbursable payments at the construction phase of a project (Kitzing et al. 2012: 195).

Technology specificity can vary between support schemes for the same type. For instance, it is possible to design auctioning as close to technology neutral, in cases where all technologies compete against each other. Auctions can also have high technology specificity; this will be the situation if there are separate auctions for different technologies. For instance, Germany first introduced technology specific auctioning, but is expected to move towards more technology neutral auctions in the future. Moreover, while electricity certificate schemes in their initial versions (both in the US and Europe) were technology neutral, technology specific elements have eventually been introduced, especially in the US (Buckman 2010; Rabe 2007). The Norwegian-Swedish green electricity scheme is close to technology neutral, including close to all renewables technologies, with the exception of large hydro. That does not mean that it fosters a broad range of technologies, but rather that they all are offered the same level of support. Most countries have highly technology specific support for micro and small-scale technologies, for instance with diversified feed-in tariffs or investment support rules that only includes some technologies, such as solar. However, it is also possible to have rather technology neutral schemes for small-scale developments, for instance if a country includes many technologies in one investment support regime.

When we have categorized the support scheme mixes in our six countries, we have only included schemes that were open for new projects in 2016, and not only schemes that still provided support to old renewables project, in accordance with the rules that had applied when the projects were included in the schemes. This distinction is important, given that most EU countries offer support to older renewables projects, based on how the support scheme was designed when the projects were constructed/granted support. It is common that projects included in a scheme is quarantined support for some 15 or 20 years (although the level of the support varies with what kind of scheme it is).

Two main categories of renewables support are included: the dominant support scheme, understood as the scheme that offers support to relatively large new renewables project, and the scheme designed for small-scale projects or micro-production. The former is named ‘Main’ in the table, and the latter in named ‘Small’. In some countries, such as Sweden and Norway, small projects are also included in the main scheme, but this is not highlighted in the table. The main schemes are illustrated with an X in the table and the schemes for smaller projects with a Y.

**Table 2: Comparing renewables support schemes in the six countries in 2016**

		Technology specificity		Exposed to electricity price		Eligibility for support	
		Low	High	Fully	Some/little	Rights	Competition
<b>France</b>	Main		X		X		X
	Small		Y		Y	Y	
<b>Germany</b>	Main		X	X			X
	Small		Y		Y	Y	
<b>Poland</b>	Main		X		X		X
	Small				Y	Y	
<b>United Kingdom</b>	Main		X		Y		X

	Small		Y		Y	Y	
<b>Norway</b>	Main	X*		X		X	
	Small	Y		Y		Y	
<b>Sweden</b>	Main	X		X		X	
	Small		Y	Y		X	

\* Only until 2021 – after that new Norwegian projects will not be included in the green certificate scheme.

Table 2 shows that there are significant differences between the two groups of countries when it comes to technology specificity. France, Germany, Poland and the UK have technology specific schemes for large as well as small renewables, with the exception Poland not having a traditional support scheme for small renewables. All these countries operate with many different RES categories and primarily have separate auctions for each specific technology.

In contrast, the main scheme for renewables in Norway and Sweden, the electricity certificate scheme is technology neutral. Norway also has a rather technology neutral investments support scheme for small scale renewables investment (where small scales solar and wind power investment are granted the same level of support as a range of energy efficiency technologies) while Sweden's countries have investment support schemes for small scale renewables only covering solar PV. The support in Norway is marginal, as it only covers installations in private houses. Hence, it is clear that overall the technology specificity of the support instruments for renewables is stronger in France, Germany, Poland and the UK than in Sweden and in Norway.

Second, the support schemes differ when it comes to whether renewables projects are exposed to electricity prices. Feed-in premiums, certificates and investment support are awarded on top of the regular electricity price, while fixed feed-in tariffs ensure that renewables projects are not at all exposed to the electricity price. Electricity price contribute to create more equal competition between energy sources, and hence exposure to electricity price creates a more level playing field for renewables compared to conventional energy sources.

Interestingly, in 2016 Germany was the country in the technology specificity group that exposed its large-scale renewables projects the most to the electricity price. Sweden and Norway expose all new renewables projects to electricity prices, the certificates and/or investment support is in all cases an add-on to the electricity price. From 2021, Norway will not include new projects in the green certificate scheme, and hence investors in large new renewables projects will not be granted any support on top of the market price.

Third, the support schemes differ with respect to the criteria applied to distinguish actors eligible for support. Schemes based on auctioning include a competition element in the procedure of awarding the support, while green certificate, fixed feed-in tariffs, investment support does not include any competitive element when the support is issued. All the latter support schemes give all producers of certain renewable energy technologies the right to obtain support. For instance, producers of all kinds of renewables, excluding large hydro, is included in the Norwegian-Swedish certificate scheme; and all small-scale renewables and all PV-installations of the building types that are included in the Norwegian and Swedish investment support schemes. Fixed feed-in tariff schemes typically specify which technologies they are valid for. Technologies covered in the feed-in tariff in the UK are PV panels, wind

turbines, hydro turbines, biogas energy and micro combined heat with power peak output of no more than 5 megawatts (MW) or 2 kilowatts (kW) for micro combined heat.

In contrast, auctioning only provides support for actors that win the competitive tendering; hence, only actors that have the best offers in the competitive auctions are granted support. In some instances the government set the price that will be offered in the different auctioning rounds. In such instances most actors that take part in the auctions are granted support. Still, they will need to actively take part in the auction to be rewarded support - they are not eligible just because produce renewable electricity.

While all the support schemes in Norway and Sweden provide support based on actors' legal rights, the eligibility criteria are mixed in France, Germany, Poland and the UK. In most of these countries the main scheme, grants support based on competitive procurements. In France the authorities may choose to use auctions.

By 2016, France, Germany, Poland and UK have introduced auctions for large-scale electricity generation, but the auctioning schemes differ. For example, the UK has a contracts-for-difference instrument where the generators, who have won contracts with the public authorities, are only exposed to market prices when the market price is higher than the strike price in the contract. Poland does not have any support scheme for small renewables installations, but rather rely on net-metering. Sweden and Norway on the other hand, differ with respect to both main scheme and micro schemes. Interestingly, Norway will withdraw from the common green certificate scheme in 2020 (but continue to offer support for the projects included before this date).

Let us now turn to explore which modes of Europeanization that dominates the relationships between EU and the six different countries. Is it so that similarity in policy output in 2016 reflects similarity in the relationship to the EU, or are differences and similarities between the six countries a consequence of other factors?

## EU Policy developments

In the early 1980s, the EU prudently started to promote renewables, through symbolic statements and miniscule financial support. During the 1990s, EU member states started to notify the EU that their renewables support schemes were designed in line with the EU state aid regulations. European states developed three different renewables strategies. First, Germany, Denmark and eventually Spain launched feed-in schemes, relying on fixed support levels, differentiated for various technologies (Boasson and Wettstad 2013: 82). This led to the emergence of small-scale renewable energy industries. In Germany, an alliance of engineering research communities, small-scale cooperative ventures and the Green Party (and eventually the Social Democrats) took the lead (Meyer 2003, Jacobsson and Lauber 2006). This alliance ensured a feed-in scheme, offering reliable support for various technologies, with no incentives towards development of the most profitable projects (Meyer 2003: 671, Reiche and Bechberger 2004: 248). The Commission found that the German scheme constituted state aid, but approved it swiftly (Rushe 2015:82). The German Ministry of Economics, and the German utilities called for a market scheme that would favour the development of the least costly renewable technologies, but were not heard (Jacobsson and Lauber 2006).

In a second group of countries, the traditional electricity producers were more central in the development of renewables. Finland, the Netherlands and Sweden strengthened R&D support and other measures, and did not develop feed-in schemes (Meyer 2003, Jacobsson and Bergek 2004). The utilities took the lead in renewable energy development, and no substantial small-scale renewable energy industry emerged. The Commission endorsed the schemes without further ado (Rusche 2015: 82). The UK can also be placed in this group, although it did not offer much investment support. Instead, it launched a competitive bidding scheme in 1990 (Mitchell and Connor 2004: 1936). The rest of the EU member states belonged to the third and largest group of countries that hardly did anything (European Commission 1992a, Reiche and Bechberger 2004).

In the late 1990s, the Commission started to argue that national support schemes may no longer be compatible with State aid rules and that the support schemes ought to be harmonised (Rusche 2015:30). In parallel, market-based support scheme design ideas started to gain hold in countries where the utilities had the prime role in renewable energy development in the first era, particularly in the Netherlands, Sweden and the UK (Boasson and Wettestad 2013). In 1999, the Commission presented a draft renewables directive, aiming for a shift to more market-based support schemes, to harmonize the rules for national schemes within five years, as well as procedures for detailed EU monitoring of national progress. This resulted in stark protests from the many small, but well coordinated renewables industry actors, and certain governments, and particularly Germany.

In the midst of the heated discussion about the renewables directive, the advocate general of the Court of Justice of the EU (CJEU) published an opinion where he concluded that Germany's feed-in law did not constitute state aid (Kuhn 2001). The decision created severe doubt over what kind of renewables support that constituted state aid. Hence, the Commission learned that its ability to steer the design of national level renewables support schemes through state aid rulings were limited. In a parallel development, the Energy Council accepted most of the Commission's renewable directive proposals, although it watered down the monitoring mechanism and the Parliament had rejected a deadline for harmonization of support schemes (European Parliament 2000, 2001). In the early 2000s, several green certificate support cases (for instance from Sweden) was notified to the Commission, and DG Competition reasoned that these schemes did not fall under the definition of state aid (Rusche 2015:100).

In the 2005 – 2009 period, climate change climbed to the top of the EU agenda, as the union prepared for the global climate summit in Copenhagen in 2009 (Boasson and Wettestad 2013). This led to the revision of the renewables directive. Rather quickly Germany, the UK and France joined forces in promotion of ambitious, national renewables targets for 2020. However, they disagreed on what support schemes the EU should promote. Market promoters in the Commission now produced a rough draft of a full-fledged pan-European certificate scheme (European Commission 2007c). This proposal was supported by the largest European electricity utilities, several of which were German. By now, the renewable energy industry had developed an exceptionally strong Brussels community and together with Danish, German and Spanish governments they were able to hinder the adoption of a renewables directive that promoted harmonization and marketization of renewables support schemes. The launching of a joint compromise proposal from the UK, Poland and Germany in June 2008 was a major breakthrough for the tactic of the renewables actors (Boasson and Wettestad 2013). The proposal clearly stated that member states should remain in control as regards designing their national support schemes and the Commission was not granted any role with respect to the design of national schemes.

Although the promoters of a pan-European certificate scheme in the Commission had lost in 2009, they continued to repeatedly call for member states to ‘work together and produce renewable energy where it costs less, companies and consumers and the tax payer will benefit from this’ (Europa 2011). Eventually, it became clear that the traditional European electricity industry faced major economic challenges. Few foresaw the magnitude of the price decline and hence the utilities kept investing in fossil fuels long after it stopped making economic sense (Newberry et al. 2017: 6).

Changes in EU state-aid practice tend to result from new rulings from the Commission and the European Court of Justice of the European Union (CJEU). The Commission regularly publish state aid guidelines. These shall be aligned to the practice of the Commission and the CJEU, but the Commission also have some leeway to develop new steering signals in this process. In 2013, DG Competition (a part of the European Commission) issued draft state aid guidelines for consultation in 2013 they suggested to radically ratchet up EU steering. There was no mentioning of a pan-European certificate scheme. Rather, they suggested competitive tendering combined with feed-in premium. In December 2013, the French, German, British and Italian governments wrote a letter where they voiced their concerns about the draft guidelines (Bundesministerium für Wirtschaft und Energie 2013). They argued that the guidelines would hamper implementation of the renewables directive and particularly their ability to meet their 2020 objectives.

Formally, it is the Commission that adopts state aid guidelines, but still they engaged in negotiations with national governments and interview information indicates that the dialogue with Germany was particularly important.

The final guidelines were adopted by the Commission in plenary on 9 April 2014. According to several interviewees, the college of Commissioners cast formal votes, which is a very rare event, tending to happen only once or twice a year. The 2014 state-aid guidelines for environment and energy represent a radical shift. They contain far stricter and more detailed requirements, pushing member states to adopt support schemes that expose renewables more to market forces and include some features aimed at softening the technology-specific approaches at member-state level. This shift has provided the EU with far greater authority to steer renewable energy schemes than previously. In addition, competence at the EU level has moved from the Council and Parliament to the Commission, and within the Commission from DG Energy to DG Competition.

### Six case studies: Germany, France, Norway, Poland, Sweden and the UK

This section describes the development of the national support instruments for renewable electricity generation in the six countries, focusing on the relationship with the EU.

#### Sweden<sup>2</sup>

Sweden introduced a green certificate system in 2003 and decided, in 2016, to continue to provide support via green certificates until 2030. Electricity certificates are market-based; the amount of

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<sup>2</sup> This information is based on a case study by Boasson, Faber and Bäckstrand (2017).

renewables in the scheme is politically negotiated, but the supply and demand of certificates determines the certificate price.

When Sweden became a member of the EU in 1996, the Commission questioned whether the support policy that Sweden had for wind was illegal state aid. At the time Sweden gave producers of wind power an amount equal to the electricity tax paid by consumers. The Swedish government therefore initiated an investigation to look at alternative support policies for renewables.

It was Swedish civil servants, who first brought the idea of green certificates to Sweden. These civil servants were engaged in ongoing discussions in the EU about liberalisation of energy markets and the development of a pan-European certificate scheme – ideas, which were promoted by the European Commission and the European confederation of the electricity industry (Eurlectric).

Because of the financial crisis that Sweden was facing in the mid-1990s, the government had instructed all ministries to help reduce state spending. Discussing renewables with officials in the EU, Swedish civil servants working in the energy unit thought – and this is a quote: ‘Oh my God, we can apply the [certificate] idea’. That way they didn’t have to fund renewables via the state budget and they did not have to worry about legal procedures related to state aid.

In 2000 the civil servants therefore recommended that the government should introduce a green certificate scheme. Officials in the European Commission were actually directly involved in writing the draft of the report that recommended green certificates. This has been resilient to changing attitudes to green certificates elsewhere in Europe, including in the European Commission. In 2016 Swedish politicians decided to prolong the green certificate scheme until 2030.

After becoming operative in 2003, the certificate scheme quickly became institutionalized among public authorities and utilities as well as in the political discourse. Particularly in the period 2010 to 2016, political steering was an important independent determinant for the design of the renewables support mix. By then, Sweden’s electricity utilities had turned against the scheme, partly because it had spurred considerable new renewables production that reduced their profits from old nuclear and hydro-plants. However, the utilities failed to influence the decision to prolong the scheme to 2030; that outcome was primarily a result of political competition.

Interestingly, the EU has influenced the Swedish renewable support instrument more when Brussels had little formal authority over renewables issues (i.e. in the 1990s). After 2000, the EU did *not* exert significant influence on the Swedish renewables schemes, except for some adjustments in the investment scheme for small-scale renewables, even though EU steering became more forceful. The effect of Europeanization has *not* been determined by the strength of coercive signals from the EU nor by the diffusion of practices in the European environment, but has been conditioned by the situation of the affected national organizational field and the national political field. The Swedish case illustrates that Europeanization at one point may ‘freeze’, remaining effective many decades after the EU itself has shifted its policies.

## Norway

Norway cooperates with Sweden about the certificate scheme, but has – in contrast to Sweden – decided to phase-out the green certificates in 2021. Like Sweden, Norway offers direct investment support for small-scale renewables, but only private individuals are eligible for support, not

commercial actors. It also has a small investment support scheme for small scale energy installations on buildings, that primarily offer support to PV.

Inspired by Brussels discussions on a pan-European certificate scheme, Norwegian utilities in the late 1990s started to promote the development of a certificate scheme. Renewable energy has seldom gained salience in political discussions in Norway: most political parties have had shifting preferences, a shallow understanding of how green certificates work, and have primarily showed a positive attitude towards renewables in a symbolic way. However, when the Norwegian government failed to get Norway included in the Swedish scheme in 2006, brief politicization occurred. Initially, the government aimed to develop a compromise scheme aligning the arguments of the Ministry of Petroleum and Energy and the dominant utility Statkraft. Yet when it became clear that it would take time to bring this in line with EU state-aid rules, the government initiated new negotiations with Sweden and eventually reached agreement.

Later, the Norwegian electricity utilities turned against the scheme, partly because it had spurred new renewables production that reduced the profits from their large-scale hydro-plants. Increasing consensus between the ministry and the dominant utility strengthened their control over the Norwegian renewable support mix. Interestingly, public officials have at various stages interpreted the EU state aid guidelines in ways that have resulted in these being more constraining than in many EU Member States.

Apart from adhering to the state aid guidelines, Norwegian support-scheme developments have come about independently of the European environment. Neither the harmonization towards feed-in schemes 2000–2010 nor the shift to auctioning and feed-in premiums have affected policy developments in Norway.

### The United Kingdom<sup>3</sup>

Like Sweden and Norway, the UK has had a green certificate system since 2002, but decided to phase-out this quota system and instead introduce an auction-based Contracts-for-Difference instrument. Auctioning was implemented in the Energy Act in 2013. In addition, it has had a feed-in tariff for small-scale electricity generation since 2010 (decided on in 2008). In the UK importance of EU-level policy in explaining the shifts is varying. In 2002 it replaced the first bidding system that the UK had to support nuclear and renewables. This was necessitated by new targets associated with the 2001 Renewable Energy Directive, but the government's choice of instrument, a green certificate, was largely domestic in origin (de Lovinfosse 2008). In the negotiation of the 2009 Directive the EU dimension gave much greater importance, when the British Prime Minister allowed ambitious, nationally binding targets to be set at EU level. The UK adopted targets mainly in response to EU climate and energy policy commitments. The targets created significant pressure on succeeding UK politicians and civil servants to find measures to deliver.

The UK support policies for renewables corresponds well with the European Commission's preferences. At first sight, it therefore seems that the EU has been influential in affecting the introduction of auctions in the UK: UK government lawyers addressed state aid implications fairly early;

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<sup>3</sup> This information is based on the case study by Rayner, Leiren and Inderberg (2018).

and the design of the auctioning system was discussed in many meetings between the UK government and the Commission.

However, the introduction and design of auctioning in the UK was primarily driven by domestic concerns: Politicians and bureaucrats have to a large extent aligned with the Big Six power utilities. These big companies have been pushing for instruments that would provide support for nuclear power. While officials from the Commission were directly involved in writing the Swedish recommendation, staff seconded from the Big Six energy companies were part of the team working on the reform that introduced auctioning in the UK. This contributed to increased influence by the big utilities. The auctioning system was developed primarily to facilitate nuclear expansion, while saving political face. The 2010 coalition agreement between the conservatives and liberals stated that the government would not fund nuclear. But introducing auctions, the government could have a support instrument that would go across different types of low carbon technologies, that is: It should not only support renewable energy, but also nuclear and carbon capture and storage. In contrast to Germany, grassroots movements fighting against nuclear power has never been heard to the same extent in the UK.

Further, we find that the experience in other Member States, particularly Germany, has had important influence on the adoption of the small-scale feed-in tariff. Germany “proved” that feed-in-tariffs were effective, and many green NGOs promoted them as the primary support instrument in the UK.

#### Germany<sup>4</sup>

Both the EU renewables directive and the state aid guidelines are important for understanding the context of the German renewable support schemes. First, the EU renewables directives from 2001 and 2009 have promoted the member states to increase the share of renewables in their energy mix, but did not require the member states to design their support schemes in particular ways. This has been in line with Germany’s interest. As a Council Presidency in 2007 Germany played a key role in making member states agree on ambitious climate and renewable energy targets. Germany did not want the EU to harmonise the instruments used to achieve such goals.

Second, in Germany there has been much more controversy related to the Commission’s state aid guidelines. DG Competition in the Commission never approved of the feed-in tariff and has threatened with litigation also after the Court of Justice of the EU in 2001 decided that the German feed-in tariff did not constitute as state aid. As Germany had made changes to its support scheme, the Commission notified the German government in 2013 that it would open an inquiry looking at compliance of the EEG with the state aid guidelines. While attacking the exceptions from the EEG-levy for energy-intensive industries in the opening letter (European Commission 2013), the final letter accepts such exceptions as long as Germany has introduced procurements by tender (European Commission 2016). In 2014, shortly after many discussions with the German Minister of Economics and after the introduction of pilot auctions in EEG 2014, the Commission adopted its 2014 state aid guidelines, which makes procurements by tender mandatory.

However, there was already increasing political will to radically change the support scheme and the grand coalition elected in 2013 preferred procurements by tender. Informants argue that auctions

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<sup>4</sup> This information is based on a case study by Leiren and Inken (2018).

would have been introduced even in the absence of the Commission. Germany as a federal system has many veto players and policy-making is typically slow in order to cater for bargaining. The Commission's threat of litigation helped promoters of auctions to speed up the process (see also Fischer 2017, p. 336). The possibility to blame Brussels – more specifically the Commission, which served as a 'shadow negotiator' during the EEG policy-making process – made it possible for the government to overcome the decision-making trap much sooner than otherwise would have been expected.

In terms of diffusion other authors argue that Germany's feed-in tariff scheme has served as a model for other European countries (Jacobs 2012). The data suggests that for the renewable energy support scheme, it was important for Germany to remain a renewable energy leader. Its commitment to the *Energiewende* made politicians look for ways to improve its position. The evidence shows that the fact that other countries would not be able to afford a generous feed-in tariff such as the German and that other countries would not copy a model, where the existing utilities would go bankrupt have been part of the discussions.

### Poland<sup>5</sup>

Polish authorities have been dominated by coal interests, and never really been concerned with increasing the share of renewables in electricity generation. The EU has therefore been decisive in pushing for stronger support policy for renewable energy. In particular, this was clear when Poland became an EU member in 2004. During the negotiations to become a member of the EU, Poland was under severe pressure to introduce renewal targets; and also set renewal targets, which became binding when Poland became EU member. The European environment has therefore been crucial in pushing for establishment and change in Polish renewables support schemes.

To achieve this goal, Poland introduced a green certificate system in 2005. The large state coal companies had a major influence on the design. In line with their interests, biomass was given support in the coal power plants through this scheme. The strong position of Poland's state-owned energy companies in shaping energy policy has led to a situation in which support mechanisms for renewables – first Green Certificates in 2005; then tenders in 2015 – have been designed in such a way that they do not to create additional competition for the utilities.

However, there is a legislative instability in Poland. A large number of drafts, new plans, amendments etc. have been presented in a conflict-filled political field. Yet although initiating many reforms, the public authorities have restricted their choice of particular instruments to options that have been acceptable to the EU. This is best explained by the stable and strong ties between the public authorities and the large public utilities, dominated by the professional logic of the centralized, engineer-led coal sector, which in turn is tied to Poland's resource endowments.

Gradually the government expressed that it wanted to increase its control of the energy price and the deployment of renewables to a larger extent. The renewal target (15% for 2020) should be achieved in the cheapest possible way. This was the main reason for Poland's choice to introduce auctions –

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<sup>5</sup> This information is based on a case study by Szulecki (2017).

auctions give the authorities increased opportunities to control the energy price and development of renewables as compared to the certificate scheme.

## France<sup>6</sup>

France has gone from having a feed-in tariff scheme to introduce a two-tier support system, where the authorities either provide support in the form of (1) a feed-in premium, that is a bonus that varies with the market price, or (2) conducts an auction.

Historically, renewable energy has received little attention in France, because of the dominance of nuclear power. France is therefore considered to be a “latecomer”. The government first introduced a scheme, a highly technology specific feed-in tariffs system in the early 2000s. Since then, renewables ambitions and activities have increased markedly. Moreover, France has changed its system several times, and in 2016 its main scheme was a rather technology specific auctioning scheme with feed-in premiums, but it had maintained a fixed feed-in tariff for small scale developments. Despite that the French centralist regulatory style (often referred to as ‘Jacobin/Colbertist’) tends to favour state led, industry development, it eventually ensured that the installations included in the main support scheme were exposed to market prices on electricity.

Due to the slow development of renewable energy, France has experienced pressure to try “catch up” with other European countries. The Green political party and green interest groups have campaigned to reduce the nuclear power share and increase the share of renewables in the French electricity production. This, along with the fact that France wanted to show activeness and ambition when being the EU presidency in 2008 – which was around the time when the EU's climate and energy package was terminated – made the government come up with a more ambitious renewal policy.

In recent times, the main reason why France has introduced more market-based schemes has been the change in state aid rules, which has more competition than France had.

Renewables support schemes have never been a salient political issue in France. The domestic drive has been inconsistent and slow, not least because of the dominant position of the electricity utility EDF, with its huge nuclear portfolio. In general, the EU influence has been moderate, but gradually increasing. The 2014 revision of the EU state aid rules emerges as the most important single factor (but not the sole one) in shaping the recent turn to more market-based renewables governance in France.

## Comparison and discussion

Table 3 summarizes how the EU policies have developed and when, how and what extent the EU have influenced the different countries:

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<sup>6</sup> This information is based on a case study by Wettestad and Banet (2018).

**Table 3. Comparison of EU-national relations over time**

Phase	Phase 1 Prior to 1999	Phase 2 2000 – 2004	Phase 3 2005 – 2009	Phase 4 2010 – 2016
<b>Social system</b>				
<b>The broad picture of EU developments</b>	<i>Commission and electricity utilities promote certificate schemes, now significant coercive measures. All national support schemes are accepted.</i>	<i>Certificate advocates lose at the EU level, feed-in measure starts to diffuse in the EU.</i>	<i>Feed-in continue to diffuse in the EU, coercive EU steering towards more national renewables investments, but not strong requirements regarding support scheme design.</i>	<i>Commission no longer promotes certificates. Actors promoting fixed feed-in in Brussels reduces their activities. Coercive steering towards feed-in premium and auctioning after 2013/14.</i>
<b>France</b>	Not affected	Adopts its first support scheme	Adopts a feed-in scheme	Changes its scheme in line with the shifts in coercive EU steering, exploits all exceptions to the maximum.
<b>Germany</b>	Develops a support scheme rather independently from the EU.	Legal procedures, avoid EU influence due to good legal work.	Strongly engaged in uploading its model to the EU level.	Shifts in legal precedents and shifts in national politics spur negotiations.
<b>Norway</b>	Adopts a support scheme rather independently from the EU. Electricity industry actors adopts certificate idea.	The certificate idea gains hold, despite lack of EU level success.	Parliament decides to join the Swedish certificate scheme. Underpinned by coercive state aid rulings.	Sw-No certificate scheme in operation. Changes in national conditions leads to removal of certificates after 2021.
<b>Poland</b>	No renewables policy and no EU influence.	Influenced by the Commission's certificate idea, adopts it because of legal requirements relating to EU accession.		Changes its scheme seemingly in line with the shifts in coercive EU steering.
<b>Sweden</b>	Civil servants adopts certificate idea. This influences revision of existing schemes.	Parliament adopts certificate scheme, unaffected by EU level developments.	Certificate scheme in operation, no influence from EU level development.	Introduces investment support for solar (?). Sw-No certificate scheme in operation. Prolongs Swedish scheme to 2020.
<b>UK</b>	Develops a support scheme rather independently from the EU.	Shifts to a certificate like scheme, unaffected by EU level developments.	An inspiration of the Commissions promotion of certificate schemes.	A template for the 2014 revision of the state aid guidelines.

The renewables policy developments at the EU level have influenced the six case countries in radically different ways. The relational approach to Europeanization that we have developed in this paper, allows us to understand how it can be that the EU have had so different consequences for the countries. We find that even though the renewables policy mixes in France, Germany, Poland and the UK share similarities, the relationship between the EU and the national policy developments have been different in the cases. However, Norway and Sweden have ended up with a rather similar support scheme portfolio, and they have also had similar relationships to the policy processes at the EU level. Swedish

public authorities have worked closer with the Commission than Norwegian authorities, but the ideas that were being discussed at the EU level met resonance in both countries.

We find that the UK-EU relationship is dominated by 'Constrained Creativity'. The policy developments in the EU appear as being rather unrelated to the EU developments, with clear bottom-up characteristics UK actors have *not* lobbied intensively to protect its national practices, rather the UK has hardly developed policies that conflicts with the legal constraints in EU renewables directives and state aid regulations. The UK has shifted and changed its policies rather often in this policy area, but the explanations to the instabilities are not found in the EU developments. Rather, this results from national developments. Moreover, at several occasions the UK developments have inspired new twists and turns in the renewables policy steering signals from the EU.

The German-EU relationship has radically different characteristics. When it comes to the reform that introduced auctioning as the key support instrument for large-scale electricity generation, it is somewhat difficult to distinguish EU policy developments from German developments, because the EU acted as a "shadow negotiator". The relationship between Germany and the Commission has been conflictual. While German actors have engaged strongly to influence the development of the EU steering, and EU actors, the Commission has deployed much resources trying to influence German developments. The Commission has put the German government under pressure to introduce more market-oriented support instruments than the fixed feed-in-tariffs. At the same time there has been a growing resistance against the feed-in-tariff domestically. Moreover, changes at the German national level, have to some extent enabled new shifts at the EU level, this is particularly clear for the 2014 shift in EU steering. The turns in the German support scheme from a feed-in-tariff to auctioning was influenced by pressures from the Commission. At the same time Germany have succeeded at halting many radical policy proposals at the EU level.

Coercive Europeanization has been dominant in the Polish case, in particular in the period when Poland was an accession country. At that time the first EU renewables directive was about to be implemented. The renewable policies in Poland have been unstable with several radical changes. EU-policies, in particular the renewables directive, have been instrumental in inducing several of these changes. However, Poland has often interpreted the EU rules in ways that makes it less profitable to invest in renewables than what was intended by the EU.

Also, the France-EU relationship seems to largely fit within the coercive Europeanization category. France has been a latecomer in this issue area, not responding to the EU policy until after the EU steering signals became clearer. However, France has not interpreted the EU steering signals as creatively as Poland.

Lastly, Norway and Sweden have been subject to 'frozen Europeanization' for several decades. Important actors in both countries responded to the European Commissions' campaign for green certificate schemes in the late 1990s. At the time Swedish civil servants was looking for new policy solutions that allowed the Swedish state to support renewables without increasing the spending over the state budget. Hence the idea was quickly taken up, refined, developed into an actual idea and it became entrenched as a taken for given way to support renewables. Interestingly, it is the politicians that holds on to this idea, also after key Swedish industry actors have started to question the design. In Norway it took much longer time from the idea had become known and until the country actually adopted the scheme. But also in Norway the change signal came from Brussels. The fact that the green

certificates promoters later have lost several political battles in Brussels has hardly affected Norwegian renewables policy developments.

It can be discussed whether Norway shifted to the ‘Constrained Creativity’ category when it decided to abolish a support scheme for new large renewables plants after 2021. In a way this fits the ideal hailed by the Commission, but it is too early to see whether this developments in Norway will influence the future policy developments at the EU level.

## Conclusions

The cases show that the EU has influenced the support policies for renewables in different ways and to various extent. Among the two countries with technology-neutral support policy, green certificates as an idea came from the EU and fitted the liberalization approach that was dominating among politicians and civil servants. This happened first in Sweden and was transferred to Norway. These countries have been placed within the category of frozen Europeanization because the EU has provided a change signal back in time. This policy signal has been picked up nationally and where it has become entrenched and remained unaffected by newer EU policy developments and recommendations.

Among the countries with technology-specific support policy mixes it varies to what extent the EU has been important in influencing the policies. In the UK, where the relationship to the Commission is dominated by constrained creativity, there was essentially a desire to support nuclear power and not only renewables, which made the government introduce auctions. The EU was not important for the decision to introduce auctioning. It is therefore unlikely that the UK will change the main features of its support policy after Brexit. Similarly, the feed-in tariff was introduced to win green electorates, yet it was picked up via learning from Germany, which showed great success in terms of deployment of renewables. We place the UK within the mode of constrained creativity because the UK has been a frontrunner for EU level developments, and the EU rules represent rather uncontested constraints in the national policy process. This might be surprising given how contested EU membership is in the UK, but is a consequence of the role that the UK has had within EU renewable energy policy, where the UK has made policy choices that have been picked up at the EU level and been in line with the preferences of the Commission.

In Germany, the feed-in tariff became such a success that it became too costly. A tendering system was introduced to control the volume and increasing costs. The EU played an important role as a ‘shadow negotiator’ in the discussions. Hard Bargaining dominates the German-EU relationship.

Like Germany, Poland introduced auctions to control the deployment of renewables and the energy price. It chose a design that was in line with EU law and the state aid guidelines. Coercive Europeanization has been dominant in the Polish-EU case, in particular because of the large coercive pressure towards Poland in the accession to the EU period.

Similarly, the relationship between France and the EU is dominated by coercive Europeanization. France adopted a more market-oriented option in order to control the deployment of renewables and the costs to a larger extent – like Germany and Poland also did. However, the introduction of auctions is primarily to adjust the support instrument to be in line with the state aid guidelines.

The findings suggest that EU-national relations that are dominated by constrained creativity, hard bargaining and coercive pressures have been most likely to move towards a technology-specific

policy mix, while the relations characterized by frozen Europeanization have chosen technology-neutral support policies. However, while the different modes of Europeanization increase the understanding of how the EU has affected the countries' policies in different ways and to various extent, they only partly explain why the countries have introduced the policy mixes for renewable energy that they have.

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