

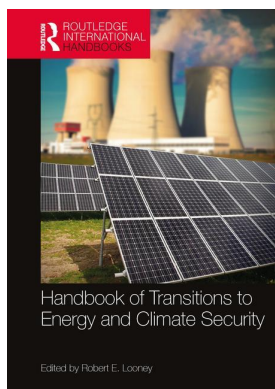
This article was downloaded by: 10.3.97.143

On: 11 Dec 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



Handbook of Transitions to Energy and Climate Security

Robert E. Looney

Frameworks for regional co-operation

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9781315723617-6>

Benjamin Görlach, Matthias Duwe, Nick Evans

Published online on: 29 Nov 2016

How to cite :- Benjamin Görlach, Matthias Duwe, Nick Evans. 29 Nov 2016, *Frameworks for regional co-operation from: Handbook of Transitions to Energy and Climate Security* Routledge
Accessed on: 11 Dec 2023

<https://www.routledgehandbooks.com/doi/10.4324/9781315723617-6>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://www.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

6

Frameworks for regional co-operation

The EU

Benjamin Görlach, Matthias Duwe and Nick Evans

The European Union

Current status of the European Union

Almost 60 years after its inception as the European Economic Community, the European Union of today is a peculiar construction. It shares common markets for goods and services, capital and labor, freedom of movement for its 500 million citizens, common institutions and an extensive body of common legislation. Several of its Members share the euro as a common currency as well as open borders within the Schengen Area. In these regards, the EU is far more than just an organization to enhance regional cooperation.

At the same time, faced with the rise of nationalist and populist policies and an anti-EU sentiment in several Member States, the question of what the EU is or what it should become is more pressing than ever. The answers range from those that see the EU primarily as a common market (with some complementary policies to improve the functioning of the common market) to those that want to see the “ever closer union among the peoples of Europe” achieved through a full political union, or even a European confederation.

In addition, the EU faces a number of internal and external challenges, which also cast doubt on the prospects for further European integration. The financial and economic crisis beginning in 2008, and the ensuing sovereign debt crisis, have raised questions about the future of the common currency, the euro, and highlighted the need for a more coordinated economic policy among the eurozone members. Rising tensions with Russia since 2013 over the Ukraine conflict and the annexation of Crimea have shed light on differences among the EU Member States, testing the limits of the EU’s Common Foreign and Security Policy. And finally, the recent unprecedented levels of migration to Europe have exposed the EU’s difficulties in reaching a coordinated response, and continue to challenge the policy of open borders within the Schengen area. Thus, some of the landmark achievements of economic and political integration in Europe – the common currency, open borders under the Schengen agreement and the Common Foreign and Security Policy – currently face an uncertain future.

Yet at the same time, the day-to-day processes of policy making and policy implementation continue to function well. In the area of climate and energy policy, the EU continues to exert a significant influence, both in terms of domestic EU policies – where many of the national policies are shaped by EU-level policy frameworks – but also at the international level. Regarding domestic efforts, the EU has set itself a number of fairly ambitious climate and energy targets for the short, medium and long term (2020, 2030 and 2050). It is currently well on track towards achieving the 2020 targets (or has already achieved them) and with additional efforts may also achieve the more demanding 2030 targets.¹ The current set of climate and energy targets is complemented by a suite of policy instruments and governance mechanisms tailored to achieve the EU's emissions reduction targets, including tools for greenhouse gas (GHG) emissions monitoring, improving energy efficiency, promoting renewable energy sources and emissions trading.² At the international level, the EU successfully employed its soft power and its esteemed climate leadership to make an agreement possible at the 21st Conference of the Parties to the UN Framework Convention on Climate Change in Paris (COP21). While there are of course plenty of fathers and mothers to the Paris Agreement, it is fair to say that the EU played an important and positive role in forming the coalitions and forging the compromises that made the agreement possible.³

The historical roots of EU energy and climate policy

Energy has historically been at the heart of EU policy making. Two of the founding treaties of what is today the European Union were meant to promote cooperation and mutual control in energy-related sectors: the 1951 Treaty of Paris establishing the European Coal and Steel Community (ECSC) and the 1957 Treaty establishing the European Atomic Energy Community (Euratom).⁴ Following the adoption of the Paris Treaty in 1951, a mere six years after the end of World War II, the formal entry into force of the ECSC in 1952 marked the very first step towards European integration. The ECSC was set up to promote cooperation between the former adversaries, France, Germany and Italy as well as Belgium, the Netherlands and Luxembourg, by creating common markets for coal and steel and thus establishing mutual control over two sectors that had been critical for the war effort. While the ECSC formally existed until 2002, its institutions and functions were eventually merged with the European Economic Community, which was formed under the Treaty of Rome in 1957.

The year 1957 also saw the establishment of another European Community, the European Atomic Energy Community (Euratom), which was tasked with promoting peaceful uses for nuclear energy. While the executive functions of the Euratom treaty were taken over by the European Economic Community in 1965, the Euratom Treaty formally continues to exist until today. Given the controversial and divided views on nuclear energy among the current EU Member States, however, the treaty has little practical impact, aside from providing a source of funding for nuclear fusion research.

Despite the fact that two of the founding treaties of the current EU were energy-related, the EU as such for a long time lacked the competence to become active in the area of energy policy.⁵ Shared competence between the EU and its Member States on energy policy matters was only established with the entry into force of the Lisbon Treaty in 2009. However, while the Lisbon Treaty established shared competence for energy, Article 194 also enshrined the right of each Member State to “determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply.”⁶

The historical roots of EU climate policy are much younger and appear only in the late 1980s, corresponding to growing international awareness of the challenges and threats posed by

human interference with the climate. Indeed, when charting the emergence of European climate policy, it is helpful to think of the EU and international climate measures as developing in “tandem,” i.e., as a co-evolution in policy-making.⁷

Moreover, from the very beginning, there are many ways in which the EU sought to influence the UN climate regime but was also influenced itself by international developments in turn. The global nature of the climate problem lent itself to the EU taking it on as an issue on which the EU could engage in “regime building”⁸ – one specific example being the EU carbon/energy tax proposed in May 1992, at the time of the adoption of the UN Framework Convention on Climate Change (UNFCCC) and in anticipation of the Rio Earth Summit. This formative period in EU climate policy was also key in identifying the three major fields of action that remain the pillars of European climate policy today – emissions reduction, renewable energy promotion and energy efficiency.

The 1990s are generally seen as an era of consolidation and strengthening of European Environmental Policy, following the adoption of the Single European Act of 1987, which provided more formal competencies for environmental protection to the European Commission.⁹ Since the Single European Act, the European Council and the European Parliament can determine climate policy, as part of environmental policy, on the basis of a qualified majority, a factor that has strongly aided the evolution of a common EU-wide climate policy.¹⁰ And yet, initially little progress was made on individual climate policy instruments, with the tax proposal failing due to opposition from a group of Member States led by the UK, which deemed it overreach on the part of the EU into national fiscal policy.¹¹ As a result, the further development of specific policies and measures was largely put on hold, until the Kyoto Protocol in 1997 spurred the EU into a renewed phase of dynamic policy-making. In 2000, the European Climate Change Programme was launched, as a process to identify policies that would enable the EU to meet its goal of reducing greenhouse gas emissions 8% below 1990 levels. Being negotiated in parallel to the European Climate Change Programme, the Renewable Energy Directive (2001/77/EC) was adopted, which saw the introduction of indicative quantitative targets for share of energy from renewable sources in each Member State.

As a replacement for the failed tax proposal, the focus had shifted to discussions of a cap and trade system for large CO₂ point sources – which could be agreed under the rules for environmental, not tax policies. With the Kyoto obligation in mind and the concept of “tradeable emission permits” enshrined under the Kyoto system, the EU Emissions Trading Scheme (EU ETS) was finally adopted in 2003, as a central pillar of European greenhouse gas reduction policies.¹²

Over the next half a decade these fledgling EU instruments would lay the groundwork and provide the necessary learning opportunities for future developments in climate policy. All the while, shared competencies between the EU and its constituent Member States in regards to climate issues were largely unchanged until the adoption of the Lisbon Treaty in 2009, which placed a clear emphasis on the supranational level in implementing international climate agreements.¹³

Traditional and new objectives in EU climate and energy policy

Climate and energy policy in the EU is guided by a multitude of goals, objectives and associated targets, which differ in their legal nature – ranging from mere political declarations to objectives enshrined in primary EU law, to internationally binding obligations. Likewise, while some of the policy aims can be clearly identified as chiefly energy or climate-related, most of them are relevant in both fields.

In terms of primary EU law, Article 194 of the 2009 Lisbon Treaty, establishing the shared competence for energy, defines the four core objectives of EU energy policy as (a) ensuring the functioning of the energy market, (b) ensuring security of energy supply in the Union, (c) promoting energy efficiency and energy saving and the development of new and renewable forms of energy and (d) promoting the interconnection of energy networks.

Building on these core objectives, the different successive frameworks, strategies and roadmaps that have come to define EU energy policy generally incorporate a triad of objectives, combining – with varying emphases – (a) the security of supply, (b) affordability for households and competitiveness of energy-using industries and (c) environmental sustainability, in particular through low-carbon or climate-friendly types of energy. These three objectives are often complemented with more procedural objectives, such as the completion of the single market for energy through the removal of technical and regulatory barriers.

Since 2007, the third, environmental dimension has been formally structured around three separate but interdependent climate targets – building on the three pillars of EU climate policy since the 1990s.¹⁴ The current targets for 2020 consist of 1) at least a 20% reduction of greenhouse gas emissions below 1990 levels – a target which the EU in fact achieved five years ahead of time,¹⁵ 2) a 20% share of renewable energy in EU gross final energy consumption and 3) a reduction of primary energy consumption by 20% below the projected levels for 2020.¹⁶ For the latter two targets, a continuation of current trends will be sufficient to achieve the 2020 targets with a comfortable margin.¹⁷

The 2020 climate target triad, known collectively as the “20–20–20” strategy, was mainly implemented via legislative measures at the EU level through the Climate and Energy Package, which was formally adopted in the spring of 2009. The package marked a novel turn towards the integration of climate and energy policy and was seen as a beacon of EU climate ambition in the lead up to the UN Climate Conference in Copenhagen.¹⁸

While the target triad adopted in 2007 referred to 2020, they were embedded in a broader long-term strategy, with the objective of much more substantive emission reductions by 2050. This objective, specified by the EU Heads of State in 2009 as emission reductions of 80–95% below 1990 levels by 2050, is in line with, and was explicitly linked to, IPCC emissions reduction corridors required to meet a 2°C target and thereby avoid the worst effects of human-induced climate change.¹⁹ The objective was reinforced in 2011 with the publication of a forward-looking Roadmap, describing the path towards a low-carbon economy in Europe.²⁰ Long-term EU aims have been reiterated multiple times in subsequent papers and Council Conclusions, and adopted by EU Heads of State and Government, indicating ample political support for decarbonization in the EU.²¹

While the first ten years of the new millennium thus saw rapid developments in EU climate policy, culminating in the robust 2008/09 package, the dynamic slowed down considerably in the aftermath of the economic crisis since 2008, and the lacklustre outcome from the UN Climate Summit in Copenhagen.²² Part of the slowdown can also be attributed to the longer-term effects of the EU enlargement of 2004: several of the new Member States rely heavily on coal in their national energy mix, and public as well as political support for ambitious climate policies are by and large weaker in most of the new Member States.²³

The 2008/9 package was and continues to be implemented, and some provisions have actually been strengthened or added, such as a Directive for energy efficiency (2012/27/EU) or regulations for transport vehicles. However, further reinforcement of the central pillars of the package – fostering renewable energy, the EU ETS and effort-sharing – has failed to find much legislative footing in recent years and instead most political attention was taken up with short-term measures to address the oversupply of allowances in a floundering EU ETS. Moreover,

although it became evident that the EU was set to overachieve its 2020 target by a considerable margin, efforts to increase the emissions reduction ambition set in 2007 for the remainder of the current period (until 2020), as foreseen in 2007 in the case of a global climate change agreement, were not successful in part due to significant opposition from Central and Eastern European Member States, concerned about impacts to their largely coal-based energy structures.²⁴

In the light of the prolonged economic crisis in since 2008, and the heightening Russia-Ukraine conflict, the emphasis of EU energy policy has shifted away from climate ambition and to the other two objectives that form the traditional triad of energy policy objectives, i.e., security of supply and competitiveness. This led to a substantially different political and economic atmosphere when it came time to decide on a post-2020 EU climate and energy framework.²⁵ As a result, the political process was contentious and highlighted critical gaps in ambition, objectives and goals between EU member states, which, as some observers argued, led to indistinct wording in the final conclusions.²⁶ Adopted in October 2014, the 2030 climate and energy framework continues to follow the familiar three-pronged approach of the “20–20–20” targets – increasing ambition in emissions reduction (40% by 2030 over 1990 levels), renewable energy shares (27% by 2030) and energy efficiency (27% by 2030 compared to projections of future energy consumption). But unlike its predecessor for 2020, the 2030 renewable energy target is binding only at the EU level – a sign of the slightly less favorable political climate. And as an echo of the concerns over energy security, the three-target structure was expanded with a fourth quantitative target on interconnection in the energy system. The 2030 framework represented the EU position towards the UN Climate Conference in Paris in December 2015, even though its legislative implementation – in the form of a new and revised climate and energy package – is still being deliberated, with many proposals expected in 2016 and discussions likely to take 1–2 years to finalize after that. See Table 6.1 for an overview of EU targets over time.

Trends and challenges in EU climate and energy policy

Going forward, there are a number of dynamics at work in EU climate and energy policy, which are not necessarily aligned. Thus, the institutional and political challenges the EU currently faces, and the debate about the desirability of further European integration, also affect the EU’s climate and energy policies. This debate is also fuelled by tension between unified EU targets on the one hand, and starkly different views of EU Member States about their future energy supply on the other hand. Furthermore, the integration of energy and climate policies in the EU remains a challenge, closely linked to the question of whether these policies should become more or less centralized. More recently, the renewed emphasis on energy security in the wake of the Russia-Ukraine crisis has begun to change the dynamics of EU energy and climate policy, and will continue to do so. And finally, it remains to be seen how the climate agreement adopted in Paris in December 2015 will add new momentum to EU climate and energy policy, and if it will possibly swing the pendulum back to place greater emphasis on climate objectives. The following sections discuss some of these trends and dynamics in greater detail.

Centralization vs. decentralization of climate and energy policies

The struggle between centralized and decentralized EU governance is as old as the EU itself. Centralized governance, understood as the concentration of legal and administrative competencies at the EU level, offers the promise of greater efficiency in implementation and a

Table 6.1 Overview of EU greenhouse gas emission targets over time

Target time horizon	2000	2010 (2008–12)	2020	2030
Time the target was set	1990	1997	2007	2014
EU target ambition	Stabilize at (return to) 1990 levels	–8% from 1990 levels (original proposal 15%)	At least –20% from 1990 (unilaterally), –30% if others join as part of a global deal	At least –40% domestic from 1990 levels
Enshrined at UN level	The general ambition was included in the UNFCCC (Article 4) in text format (not as a quantified target)	–8% from 1990 levels	–20% from 1990 levels	At least –40% domestic from 1990 levels
Break down of targets to the national level	All MS (EU15) subscribed to UNFCCC goals	Internal EU15 burden sharing (from +28% to –27%)	Internal EU28 effort sharing for non-ETS emissions only (based on 2005 levels)	Internal differentiation into national binding targets for non-ETS sectors (based on 2005 levels)

“levelling of the playing field” all across the EU, thus minimizing distortions of competitiveness and the resulting economic inefficiency. Decentralized governance, understood as the delegation of legal and administrative competencies to national, regional and local levels, is seen to offer the advantage of a more flexible, responsive and accountable way of setting and implementing rules, which is then more easily adapted to different local circumstances or political preferences.

In the field of climate and energy policy, different factors are at work that influence the level of centralization of EU governance:²⁷

- The degree to which a policy initiative is linked to the single market (including the single energy market). The single market is a central pillar of EU policies and a strong driving force for centralization, in order to eliminate barriers to competitiveness and level the playing field between producers across Europe. One important way in which single market rules affect climate policy is through the European state aid rules, which have been applied inter alia to certain design choices of support schemes for renewables or nuclear power.
- The applicable decision rules and associated voting thresholds: for instance, issues related to taxation, requiring unanimous support at the EU level, are not strongly centralized, since unanimity is nearly impossible to achieve.²⁸
- Whether the policy issue is framed primarily as a matter of environmental policy (where EU competence is well established and accepted) or whether it is framed as a matter of, e.g., energy or transport policy (where EU competence is more contested).²⁹
- The transboundary dimension of a policy and the benefits of cross-border cooperation in its implementation, e.g., where the effects of policy choices regarding the national energy mix are transmitted through shared gas or electricity grids.

- The existence of international obligations of the EU (with more comprehensive obligations supporting a higher degree of centralization).
- The role of contentious technological choices, e.g., related to the role of nuclear power or the use of coal. In light of the vastly different attitudes towards certain technologies, Member States have been adamant about their right to determine their energy supply.

The degree of centralization differs between climate and energy policy. Climate policy in the EU is largely centralized through a number of factors. To begin with, there is a common, internationally binding emission reduction target at the EU level (8% below 1990 levels in the 1st commitment period of the Kyoto Protocol, 20% in the 2nd commitment period, and 40% by 2030 as per the EU's Nationally Determined Contribution (NDC) under the Paris Agreement). This common EU obligation is shared by all Member States through the so-called "bubble" arrangement (allowed under Article 4 of the Kyoto Protocol) under which the target is broken down to different national shares.³⁰ Second, the European Council and the European Parliament can determine climate policy, as part of environmental policy, on the basis of a qualified majority rather than requiring unanimity. And third, there are a number of policy instruments and governance mechanisms in the area of climate policy, connected with the climate targets, which provide for a greater harmonization of approaches across the EU. The degree of harmonization ranges from energy efficiency and renewables policies – where the EU sets the targets and increasingly the frameworks for policy design but where implementation is still predominantly national – to the EU ETS, where both the rule-making and the implementation are increasingly centralized at the EU level.

By contrast, energy policy in the EU continues to be predominantly determined at the national level.³¹ There are some driving forces for a greater centralization of EU energy policy: the historical roots of the current EU (Euratom, ECSC), in which energy-related questions played a central role; the internal market for energy among the Member States, which remains part reality and part aspiration; a body of shared regulation for the energy sector (e.g. through state aid rules or regarding nuclear safety) as well as EU-funded infrastructure for greater inter-connection (the Trans-European Networks for Energy, TEN-E). And yet, the shared competence of the EU and its Member States is still a fairly recent evolution in European energy policy, having been introduced through the 2009 Lisbon Treaty.³²

Diverging views among the Member States

At the same time, there are also very strong drivers to keep control over energy policies at the national level. Historically, the EU Member States have made very different technology choices for their energy supply. These choices reflect strongly diverging views on the risks and the benefits of different technologies, different weightings of the priorities of energy policy (environmental protection and decarbonization vs. security of supply and reduced import dependence vs. affordability and competitiveness), but also the different domestic endowments of natural resources. As a result, the structure of energy supply differs considerably between EU Member States – and hence decarbonization of energy supply entails different payoffs for each Member State. Some Member States are already well advanced, with renewables accounting for half of the energy used in heating and cooling in Finland and Latvia or two-thirds of the power generation in Austria and Sweden.³³ Nevertheless, for other countries, the challenge is considerably greater: in Estonia and Poland, coal accounts for half of the domestic energy consumption and still more than a third in Bulgaria and the Czech Republic.³⁴

The discrepancy between EU Member States is also evident when it comes to the most contentious technologies, i.e., nuclear power. Half of the 28 EU Member States have at least one nuclear power plant in operation. Moreover, while some of the countries that operate nuclear power plants have started to phase them out (most notably Germany), others have plans to increase their nuclear capacity (such as the UK). The vast discrepancies in resource endowments and general attitudes are one main reason why Member States have always defended their prerogative to choose their own energy sources and determine the general structure of their domestic energy supply, which is enshrined in Article 194 of the EU Treaty.

In recent years, some observers have pointed to a re-nationalization of energy policies in recent years.³⁵ Most fundamentally, this re-nationalization can be explained through disagreements about the priority afforded to the different objectives of energy policy – most notably the German “Energiewende,” which is driven by the desire to phase out nuclear and transition to renewable energy as opposed to concerns about import dependence on Russian gas taking central stage in Central European EU Member States.³⁶ The fundamental disagreement about political priorities is mirrored by a lack of coordination at the operational level: in a shared electricity grid, national energy policies are bound to be felt in neighboring countries, through transboundary electricity flows and the resulting effect on electricity prices.³⁷ Since regional cooperation on the management of such transboundary effects is only just beginning to emerge, some Member States have effectively taken steps to limit their integration into the European electricity grid. A further factor contributing to re-nationalization is the absence of European solutions. This is apparent in the case of electricity market design and capacity mechanisms, where several Member States are pursuing different options that are not necessarily compatible.³⁸ Another case in point is the failure of the EU ETS to generate a meaningful carbon price, which has led several EU Member States to implement complementary national policies – such as the UK carbon price floor, or Germany’s decision to mothball 2.7 GW of lignite-fired power generation by transferring eight units into a “capacity reserve.” To some extent, the EU initiative of creating an Energy Union (discussed in greater detail below) can also be seen as an attempt to reverse the re-nationalization of energy policy.

Diverging perspectives on energy policy among Member States also have critical implications for EU climate policy. The last few years can be characterized by a “trend towards polarization” in discussions surrounding EU climate and energy legislation, with most notably Germany and Denmark pushing for heightened ambition and the Visegrad countries, headed by Poland, strongly resisting.³⁹ Moreover, backed by a coalition of Central and Eastern European countries, Poland threatened to veto the 2008 climate and energy package, arguing that it did not adequately address the varying energy circumstances in each MS.⁴⁰ Finally in 2011 and 2012, Poland made good on this threat, effectively blocking the Commission’s Roadmap to a Low Carbon Economy for 2050.⁴¹ Seemingly averse to any mention of long-term emissions cuts or “decarbonization” in EU legislation, Poland’s stance is that European action on climate change should not surpass international ambition. As has been argued, Poland’s inflexibility in EU climate policy-making is due to a mismatch between EU objectives, current domestic policies and the country’s “energy-economic situation” and correspondingly the strength of incumbent energy actors.⁴²

Integration of climate and energy policies

Over the years, the fields of climate and energy policy have become increasingly intertwined, to the point where they are effectively inseparable. To achieve the EU’s long-term climate objective of an 80–95% emission reduction by mid-century requires a decarbonization of the

European economy, i.e., an almost complete phase-out of fossil fuels.⁴³ While this entails challenges for most parts of the economy, it requires a revolution of the energy sector in particular, which needs to be transformed nearly completely to zero-carbon energy sources. Within the energy sector, electricity generation has a pivotal role to play: first, because of the emissions already associated with electricity generation in today's energy mix and second because of the role of electricity for the decarbonization of other sectors, such as the electrification of transport and space heating. Which, of course, will only be compatible with the decarbonization objective if the electricity used for transport and space heating comes from zero-carbon sources.

The interaction between climate and energy policies is increasingly also felt in the operation of the energy system: renewables have evolved from a niche energy source to a significant share of energy supply, now accounting for a sixth of gross final energy consumption and more than a quarter of all energy generation in the EU.⁴⁴ This is being felt in different ways: first, the electricity grid has to accommodate a growing share of intermittent generation from renewables that fluctuates in time and space. This requires greater flexibility on the demand side (implementing solutions to adjust the demand to fluctuations in generation, and corresponding mechanisms to reward such flexibility), but also on the supply side (maintaining sufficient flexible, dispatchable generation capacity that can be ramped up and down quickly to make up for shortfalls in renewables). And finally, energy storage technologies may have a crucial role to play in aligning supply and demand, provided that they become economically feasible.⁴⁵ All of these challenges are linked through electricity markets: as such, rewarding flexibility on the side of electricity consumers or generators, providing incentives for investment in renewables and coordinating the different efforts, should be genuine tasks for the market, and correspondingly guided by the electricity price.

Unfortunately, the way in which traditional electricity markets operate is not well suited to accommodating a high share of renewables; as they do not have to pay fuel costs, electricity from renewables will enter the market at a marginal cost of nearly zero. In an electricity market based on marginal cost pricing, this suppresses wholesale prices, via a mechanism known as the merit order effect.⁴⁶ However, in a market where non-dispatchable renewables such as wind and solar dominate power generation, an electricity price purely based on marginal cost pricing would fall to nearly zero for most of the year. This means that operators of conventional power plants will find it increasingly difficult to recover the capital cost of their investment – or would only be able to do so if the price is allowed to rise to very high levels in the periods where renewable generation capacity is not available. Part of the solution to this problem could be the establishment of some type of capacity mechanism, which rewards electricity generators for maintaining dispatchable backup capacity.

For the EU, the rise of renewable energy has several implications. First, the example goes to show how a policy – promoting renewable energy sources – originally considered as primarily climate-related is now affecting the operation and design of the electricity market – both issues that would have normally fallen under the auspices of energy policy. Second, the need for a new market design adds greater complexity to the already complex task of integrating electricity markets across the EU. Efforts to enhance energy integration are already trailing behind in reaching their stated objectives. A lack of physical interconnection capacity, as well as regulatory and economic barriers such as regulated tariffs or market dominance by incumbents, hinder the formation of an EU-wide integrated market.⁴⁷ As there is, as of now, no agreement on an EU-wide harmonized capacity mechanism, France and the UK have recently adopted their own, national solutions; other countries including Germany are contemplating different options.⁴⁸ However, since these solutions operate in physically and economically connected electricity

markets diverging national decisions on how to solve the problem risk adding further barriers to the full integration of power markets.

The overlap between climate and energy policies is reflected in a growing number of joint policy developments at EU level, both in terms of substantive policies, but also in terms of institutional arrangements. In substantive terms, the 2008/09 Climate and Energy Package marked a step towards greater integration, defining climate and energy targets for 2020 as well as (most of) the corresponding legislation for both policy areas in the frame of one coordinated package. This approach was subsequently repeated in the EU Climate and Energy Framework for 2030, adopted in 2014, and the development of the “Energy Union” concept (see more below) – as the traditional climate related energy policy aspects were specifically complemented with energy market integration elements (such as the interconnection target). In institutional terms, with the establishment of the new Commission in 2014, the Commission President Jean-Claude Juncker decided to restructure the institutional responsibilities by having a single Commissioner for Climate Action and Energy (in the person of Miguel Arias Cañete), overseeing the two Directorates-General of Climate Action and Energy. The jury is still out whether this institutional integration has resulted in a strengthening or a weakening of the two policy areas – experts point both to the potential for a more integrated, streamlined approach, but also to the risk of sidelining climate policy ambition in cases where climate and energy objectives are in conflict.⁴⁹

Going forward with a joint EU climate and energy policy, one of several challenges that remain is the different legal bases for energy and climate policies in the EU governance system – and, as a result, different voting rules and different degrees of centralization (see above). As this situation is unlikely to change significantly in the near future, the particular challenge of formulating policy solutions that can straddle the divide between decentralized energy policies and more centralized climate policies remains an important art to master for effective and sustainable EU policy-making in the area.

Renewed attention to security of supply

Security of supply did not always feature prominently in EU energy policy. In the 1990s, in a time of generally low energy prices and geopolitical optimism, energy relations in Europe were seen as a normal part of trade relations. Import dependence and security of supply were not seen as major concerns – despite the fact that Europe’s dependence on Russian gas imports was much higher in 1990 (with 55% of gas imports from Russia) than in 2013 (39%).⁵⁰

At a time when security of supply was less of a concern, climate concerns had a stronger effect on EU climate and energy policy. The Climate and Energy Package of 2008/9, adopted in the run-up to the Copenhagen climate summit, was very much a climate-driven package.⁵¹ In the following years, enthusiasm for ambitious climate policies cooled down considerably, as explained in section 2 above.

As attention to climate policy declined, the security of energy supply and dependence on fuel imports from politically unstable regions received growing attention. In 2012, the EU depended on imports for more than half of its energy supply; it imported 86% of the oil and two-thirds of the gas consumed in the EU. All these shares have been increasing over recent decades and are expected to increase further.⁵² At the same time, imports are concentrated on a small number of supplier countries. In particular, for natural gas, Russia, Norway and Algeria alone accounted for more than 80% of EU imports. Several EU Member States – especially smaller ones in Northern and Eastern Europe – depend entirely on a single supplier of natural gas, and often on one supply route.⁵³

Import dependence makes a country vulnerable, certainly if it is exacerbated by the physical dependence on a single connection to a single supplier. Yet whether this import dependence also translates into a threat to the security of supply depends on the perceived (political) reliability of the supplier country in question, and whether it is conceivable that the supplier country will exploit the vulnerability to leverage power,⁵⁴ in the sense that depending on Norwegian gas imports entails a different risk than depending on Russia. In Europe, the risks of import dependence became a concern in the winters of 2006, 2008 and 2009, when Russia disrupted natural gas supplies to Ukraine and thereby also to the EU. In the light of rising tensions between the EU and Russia since 2013 over the Russia-Ukraine conflict and the annexation of Crimea, concerns about the security of supply in Europe grew further, raising the issue on the political agenda. The renewed political uncertainty in the MENA region since the Arab Spring further added to these concerns.

As an immediate response to the heightened concerns about energy security, the EU adopted the European Energy Security Strategy in May 2014.⁵⁵ The strategy represents a mix of urgent and immediate measures to reduce the exposure of the most vulnerable Member States, as well as longer-term elements to reduce Europe's dependence on energy imports. The immediate actions included preparedness for possible disruptions of (Russian) gas supply to Europe, to take effect already in the winter of 2014/2015, as well as strengthened emergency mechanisms to improve the coordination among Member States in the case of supply disruptions and shortages. Longer-term elements include the reduction of energy demand, diversification of supply, increasing domestic energy production and completion of the single market for energy. The 2014 strategy thereby intensified prior efforts – already in 2011, Member States had decided to establish a mechanism to exchange information on existing intergovernmental agreements on energy supply, concluded between EU Member States and supplier countries.

In parallel, the role of energy security has also grown in the EU's Common Foreign and Security Policy. Since 2011, the EU Commission has been seeking to develop its activities in the field of energy diplomacy, with a view to developing an External Energy Policy for the EU. Part of these efforts was to deepen the dialogue with supplier countries: such energy dialogues had been established with Russia (since 2000), OPEC (since 2005), Norway, Ukraine, the Gulf Cooperation Council, the Caspian Sea Region, and several other countries or regional bodies. These dialogues are institutionalized to different degrees, conducted at different intensity, and are often combined with other dialogue and exchange processes. In addition, energy security has become an established element of the European Neighbourhood Policy, the principal tool through which the EU seeks to enhance economic, political and regulatory cooperation with its Eastern and Southern periphery. The European Neighbourhood Policy includes both some of the most important suppliers of oil and gas to Europe (such as Russia and Algeria), as well as pivotal transit countries (such as Ukraine and Turkey).

And yet, in substance, achieving greater coordination and cooperation remains a challenge. Thus, progress remains limited on the completion of a single market for energy, a measure that is supposed to make Europe's energy system more integrated, more unified and thereby more resilient against external shocks. Progress is uneven in terms of infrastructure measures: while the Member States have acted swiftly to enable reverse flow in gas pipelines (i.e. from West to East) in an effort to hedge against disruptions of supply from Russia, progress is more limited when it comes to increasing interconnection capacity between European countries (such as between France and Spain), or connecting energy islands to the European grids (such as the Baltic countries).⁵⁶ By contrast, the major pipeline projects connecting the EU to Russia and the Caspian Region – the North Stream connecting Russia and Germany through the Baltic Sea, and the failed Nabucco and South Stream pipeline projects that were supposed to connect

Russia/Turkey with Southeastern Europe – turned out to be highly controversial and divisive projects, revealing the difficulties for EU Member States of agreeing to a common position. Thus, one of the ultimate goals of a European External Energy Policy – an EU that speaks with one voice vis-à-vis third parties – remains elusive for the time being.

3.5 The “Energy Union” as the solution?

Faced with tendencies towards a re-nationalization of energy policies, and in light of the renewed attention to energy security in the wake of the Russian-Ukrainian conflict, the EU in 2015 launched the Energy Union as a new framework for its energy policy.⁵⁷ The concept of the Energy Union is not entirely new: over recent years, different political actors put forward several proposals on how to strengthen, better coordinate and re-politicize EU energy policy. In 2010, the then-president of the European Parliament Jerzey Buzek and the former EU Commission President Jacques Delors had proposed the creation of a “European Energy Community,” with a strong emphasis on a system that would guarantee security of supply and inter-European solidarity. Yet, while their proposal received some attention, it failed to gain political traction.⁵⁸ This changed in 2014, when the then Polish Prime Minister Donald Tusk, in an opinion piece in the *Financial Times*, proposed the creation of an “Energy Union” as a direct response to the Russian-Ukrainian conflict, with the aim of establishing a unified EU as a counterpart to Russian dominance. Elements of his proposal included a mechanism for jointly negotiating energy contracts with Russia, solidarity mechanisms between Member States in case of supply disruptions, EU support for the diversification of gas infrastructure – but also making full use of the fossil fuels available within the EU.⁵⁹ Thus, Tusk’s original proposal for the Energy Union was motivated predominantly by the Russia-Ukraine crisis, focusing exclusively on security of supply, with particular emphasis on gas supplies.⁶⁰ With this push, Tusk also sought to rectify a perceived imbalance in EU energy policy, in which – in the views of some Central European Member States – climate and environmental considerations had taken undue precedence over matters important to them, above all security of supply and affordability.⁶¹ In his article, Tusk made clear where he thought priorities ought to lie: “We need to fight for a cleaner planet but we must have safe access to energy resources and jobs to finance it.”

The break-through for the Tusk proposal came when the incoming President of the European Commission, Jean-Claude Juncker, took up Tusk’s proposal and made the Energy Union one of the core elements of his political agenda, and installed with Maroš Šefčovič a separate Commission Vice-President for the Energy Union. But for the concept to be politically acceptable to all Member States, and for it to succeed as an overarching framework for energy and climate policy, the Energy Union had to incorporate all key areas of climate and energy policy, and align the objectives in a more balanced way. Thus, the Strategy for a “Resilient Energy Union with a Forward-Looking Climate Change Policy” which the European Commission proposed in 2015 follows a much broader approach than the original Tusk proposal. This strategy is structured around five dimensions:⁶²

- 1 Energy security, solidarity and trust (including the issues of diversification of supply, solidarity between MS, a stronger role for the EU in global energy markets, and more transparency on gas supply).
- 2 A fully integrated energy market (including the issues of interconnections, market rules and state aid guidelines, regional cooperation, energy poverty, and empowering consumers).
- 3 Energy efficiency to moderate demand (with a focus on the buildings sector and on transport).

- 4 Decarbonizing the economy (including an ambitious EU climate policy, and the target of becoming the world leader in renewable energy).
- 5 Research, innovation and competitiveness.

As a result, the new, now much broader focus of the Energy Union fully encompasses the existing targets laid out in the EU's 2030 climate and energy framework (reducing greenhouse gas emissions, expanding renewable energy sources, improving energy efficiency), as well as the target for increasing interconnections adopted by the October 2014 European Council.⁶³ Thus, in an effort to bring everyone on board and to ensure compatibility with other strands of EU energy and climate policy, the European Commission has greatly broadened the scope of the Energy Union and expanded the number of targets it is expected to achieve. But this greater acceptance comes at a cost of greater ambiguity on what the Energy Union stands for, especially since the underlying (perceived) conflicts between climate ambition and security of supply have not been resolved.

One novel element of the Energy Union is that it comes with a new means of monitoring and measuring progress – and of interaction between the Commission and the Member States. The new governance structure is supposed to help integrate information from different policy areas and place them in the context of individual, nationally specific energy policy – and in doing so, help streamline existing processes and reduce administrative efforts. As per the process currently foreseen, so-called “National Climate and Energy Plans” would form the backbone, largely replacing existing, separate planning strands for renewables, efficiency, etc. These plans are expected to form a central part of an EU energy governance system, in which the Commission supports Member States in defining national contributions and measuring progress through a set of key indicators.⁶⁴ Starting in November 2015, the European Commission itself issues an annual “State of the Energy Union” report.⁶⁵ Thus, the governance mechanism on the one hand would keep Member States in charge of defining national climate and energy policies and measures in the context of their respective individual circumstances, while also keeping them accountable for the fulfilment of the common objectives set at the EU level.

Going forward, it thus remains to be seen how much concrete impact the Energy Union will have. The European Commission is firmly committed to the Energy Union, and politically invested in its success. The EU Member States are overall supportive of the Energy Union – but this may also be explained through the ambiguity of the concept, which allows every Member State to emphasize the aspects that are most in line with domestic priorities and interests. It is an open bet whether, in the current political climate, EU Member States would maintain their support for the Energy Union if that involves giving up some of the domestic priorities and interests in exchange for more coordination and solidarity. In any case, it is quite possible that the greater impact of the Energy Union will not come from the targets it embodies – which represent, by and large, a summary of existing targets – but rather through the new governance structure it implements.

The Paris effect?

With the adoption of the Paris Agreement in December 2015, there is a new impulse that has the potential to influence EU climate and energy policy significantly. Its full impact cannot yet be properly assessed at the time of writing, as it will depend to a large extent on a) the broader political narrative about “what Paris means” that becomes dominant in the EU and globally and b) the actual decisions on remaining technical details that will be the subject of follow up negotiations (including on the stringency of the monitoring system, etc.) and their subsequent

implementation in practice. This section, is therefore, largely a collection of substantiated possibilities.

The European Union was heavily engaged and invested in the preparations for Paris and the global diplomatic effort aimed at brokering a compromise. The EU was not in a comfortable spot for Paris. Its 2030 emission target compromise had been hard won internally, and many Member States remained sceptical about the degree and timing of more ambitious climate action. On top of that, it did not have much to bring to the table in terms of explicit financial commitments, which could have won the EU more support from developing countries. Still, the Paris Agreement is also, to some extent, a success of EU climate diplomacy, which had an important and positive role in forming the coalitions and forging the compromises that made the agreement possible.⁶⁶

So what can be said at this point in time about the potential effect of the Paris Agreement on EU climate policy? Remembering the negative impact of the 2009 Copenhagen summit on the further development of EU climate policy, there can be no doubt that the successful conclusion of the Paris talks will provide a supportive impulse for the completion of the broad and complex legislative process that is going to take place in the EU in 2016–2018 – as it attempts to put into legislation the detailed measures through which the 2030 Framework and its targets shall be achieved.

Paris may lend more weight to the climate change concerns in the broader climate and energy framework/Energy Union approach and may further strengthen the superior role of the greenhouse gas reduction target within the 2030 framework. This could in turn, mean more focus on the EU ETS and the non-ETS target sharing among Member States (maybe provide a basis for advancing stronger sectoral climate policy, on transport or agriculture), but less focus and political backing from Paris for renewable energy and efficiency as “secondary” targets. In this way, Paris could re-emphasize the tendency of a prioritization of targets that is visible in how the 2030 framework compares to 2020.

There is also the chance that after Paris a debate will start on reopening the GHG target. The formulation of “at least” 40% domestic emission cuts chosen in October 2014 could be interpreted to mean that now is the time to talk about a higher target. The fact that the Paris Agreement sets the long-term target for a temperature increase at “well below” 2°, with an aspiration to even aim for 1.5°, whereas the current EU long-term target was defined on the basis of the 2° target, could further support the case for a more ambitious EU 2030 target.

Certainly, the request for five-year updates on national contributions in the Paris Agreement represents a hook to potentially revise the target upwards in the not too distant future. A dedicated target review clause of such frequency does not exist in EU climate legislation and would thus need to be integrated (with several options as to how that could be achieved). Such an innovation, prompted by Paris, could, through the new governance tool of National Climate and Energy Plans for 2030, be extended from GHGs only to broader energy policy goals also, specifically renewables and efficiency.

Another potentially significant impulse could arise from the combination of explicit long-term goals and the request to develop “long-term low greenhouse gas emission development strategies” towards 2050 (and submit them by 2020). While the UNFCCC regime had talked about such strategies before, this explicit reference in the new Agreement could serve to revive this process and have it be integrated into the new governance structure under the Energy Union (as, for example, a 2050 dimension of the National Plans). An organized EU process to formulate a long-term decarbonization strategy would imply an explicit discussion of the implications for all sectors of the economy – with the likely greatest effect for the energy sector. In this way, Paris could strengthen the case for an integrated European energy policy aimed at decarbonization.

But it is also clear that, once the euphoria following the successful conclusion of the Paris conference has subsided, the underlying political realities and conflicts in the EU will still be around. The lasting strength of any Paris effects is thus to be seen only over time.

Outlook: energy and climate policies as a lighthouse project in troubled times?

For the future of Europe's energy and climate policy, one thing is sure: there is no lack of ambitious goals. While inhibiting clarity, the multitude of goals has created enough wiggle-room to accommodate the diverse interests of the EU Member States – with their diverging energy mixes, diverging resource endowments, diverging political priorities, and path dependencies in terms of investment, technologies and infrastructure. The multitude of goals has also made it possible to flag up different subsets of goals, responding to shifts in the political agenda – be they caused by changing political fashions or by external developments, or both.

And yet the multitude of goals can mask the fact that, when push comes to shove, Member States still have very different ideas about the relative importance of the different goals, the best ways of achieving them, and who should bear responsibility for the process. In a Europe of 28 separate energy systems, Member States still enjoyed great freedom to pursue their own energy policies. But as energy systems in Europe become more and more interconnected both physically and economically, and as external pressures remind Europe of the need for greater integration and better coordination, the limits of national approaches become evident. And with increasing integration, the conflict lines become clearer.

The use of coal is a case in point here. On the one hand, especially those Member States with significant domestic coal resources consider coal as essential to guarantee their energy independence and a secure energy supply. On the other hand, if the EU takes the decarbonization of its energy supply seriously, the Member States that rely on coal for a significant part of their energy mix will either need to invest massively into the (technologically and economically) highly uncertain prospect of carbon capture and storage, or will have to start preparing for a phase-out of coal in the coming decades.

In the current political climate, with multiple political crises rocking the EU, key achievements of European integration under fire, and the rise of populist anti-EU platforms in several Member States, the question is whether the EU is unified enough to assume a stronger role in energy policy, both internally and externally. To be sure, a foreign energy policy could be a field where the benefit of a unified EU, negotiating with one voice, would seem obvious in the current geopolitical climate – yet this is also true of the common currency or an EU without internal border controls, and in neither of these cases do the obvious benefits of a common approach trump the strong attachment to national sovereignty over European solutions.

To frame the matter differently, it could be asked whether energy policy could (once more) be the issue that re-invigorates European integration, 60 years after the European Coal and Steel Community, in the face of a common threat of supply disruptions from Russia, and the common challenge of decarbonizing Europe's energy system. After all, one facet of the debate that remains woefully under-explored is the link between decarbonization and energy security. Of course, the relevant European strategies and roadmaps dutifully mention the (near-obvious) fact that energy efficiency and the use of renewables will help to reduce the dependence on imported fossil fuels. But the full economic and political implications of connecting the two targets remain insufficiently explored. Thus, for instance, while, overall, decarbonizing its economy will reduce the EU's dependency on fossil fuel imports, this process proceeds at different speeds for different fuel types. Whereas oil imports are expected to go down soon and

substantially, the EU expects gas to continue playing a role for a longer time still. And as fossil fuel imports decline, there will be increasing imports of low-carbon energy – in the form of (solid, liquid or gaseous) biofuels, or as electricity produced from renewable sources. Since the latter depends on the availability of infrastructure to transmit electricity into the EU, import dependence is expected to become more regional than global, and will increasingly be defined by the supply grid.⁶⁷ Yet what this means in terms of changing roles for old and new energy suppliers, and the EU's role in managing this transition, is only beginning to emerge.

Finally, it remains to be seen to what extent the Paris Agreement will be able to re-invigorate the climate and energy debate in Europe. In the short term, the Paris effect may not be strong enough to reopen a hard won compromise on the EU's 2030 target. And yet over time, the Agreement might help to turn “decarbonization” from a lofty, long-term aspiration into a concrete strategy. The combined impact of the frequent target review and the need to develop a long-term strategy could thus move the debate, and provide space to talk about the practical implications of going low carbon in the space of 30 years in a more serious fashion – including the need for a more integrated European energy system.

Notes

- 1 European Environment Agency, *Trends and Projections in Europe 2015: Tracking Progress towards Europe's Climate and Energy Targets* (EEA Report 4/2015) (Copenhagen: European Environment Agency, 2015).
- 2 Andrew Jordan, and Tim Rayner, “The Evolution of Climate Policy in the European Union: A Historical Overview,” in *Climate Change Policy in the European Union: Confronting the Dilemmas of Mitigation and Adaptation?*, ed. Andrew Jordan et al. (Cambridge: Cambridge University Press, 2011).
- 3 “Foie Gras, Oysters and a Climate Deal: How the Paris Pact Was Won,” *Climate Change News*, December 14, 2015, www.climatechangenews.com/2015/12/14/foie-gras-oysters-and-a-climate-deal-how-the-paris-pact-was-won/.
- 4 Benjamin Görlach, and Nils Meyer-Ohlendorf, *Energy Policy in the Constitutional Treaty: Future Options for a European Energy Policy and Implications for the Environment* (Berlin: Ecologic Institute for International and European Environmental Policy, 2003), 6.
- 5 *Ibid.*, 13.
- 6 European Union, “Treaty of Lisbon Amending the Treaty on European Union and the Treaty Establishing the European Community” (OJ C 306), 2007, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2007:306:FULL&from=EN>.
- 7 Sebastian Oberthür, and Marc Pallemmaerts, “The EU's Internal and External Climate Policies: An Historical Overview,” in *The New Climate Policies of the European Union: International Legislation and Climate Diplomacy* (Institute for European Studies 15) (Brussels: VUB Press and Brussels University Press, 2010), 27.
- 8 Christian Hey, “EU Environmental Policies: A Short History of the Policy Strategies,” in *European Union Environmental Policy Handbook: A Critical Analysis of EU Environmental Legislation*, ed. Stefan Scheuer (New York: International Books, 2006).
- 9 Pamela M. Barnes, “The Role of the Commission of the European Union: Creating External Coherence from Internal Diversity,” in *The European Union as a Leader in International Climate Change Politics*, ed. K. Rüdiger, W. Wurzel, and James Connelly, Routledge/UACES Contemporary European Studies 15 (London: Routledge, 2011).
- 10 Jordan, and Rayner, “The Evolution of Climate Policy,” 53; Jos Delbeke, and Peter Vis, eds, “EU Climate Leadership in a Rapidly Changing World,” in *EU Climate Policy Explained* (New York: Routledge, 2015), 12.
- 11 Oberthür, and Pallemmaerts, “The EU's Internal and External Climate Policies,” 27.
- 12 Frank Convery, “Origins and Development of the EU ETS,” *Environmental and Resource Economics* 43, no. 3 (2009): 391–412; Benjamin Görlach, “Emissions Trading in the Climate Policy Mix: Understanding and Managing Interactions with Other Policy Instruments,” *Energy & Environment* 25, no. 3 (2014): 733–750, doi: 10.1260/0958–305X.25.3–4.733.
- 13 Barnes, “The Role of the Commission,” 44.

- 14 At their spring meeting of that year, EU Heads of State and Government agreed on a specific formula of three targets of 20% by 2020, which had been presented by the European Commission at the beginning of the same year. European Commission, *Limiting Global Climate Change to 2 Degrees Celsius – The Way Ahead for 2020 and Beyond* (COM(2007)2) (Brussels: European Commission, 2007). This move was intended to send an early signal about the EU's resolve and ambition also to non-European partners in the international negotiations, which were moving towards discussing a framework for the time after 2012, when the original commitment period of the Kyoto Protocol ended. At the time, European leaders made an explicit link to the adoption of a broad and ambitious global climate deal and put forth the option of raising their greenhouse gas target to 30% in case such an agreement was concluded. European Council, *Presidency Conclusions 8/9 March 2007*, 2007, <http://register.consilium.europa.eu/pdf/en/07/st07/st07224-re01.en07.pdf>.
- 15 European Environment Agency, *Trends and Projections in Europe 2015*, 17.
- 16 European Council, *Presidency Conclusions 8/9 March 2007*; Barbara Schломann, and Wolfgang Eichhammer, "Interaction between Climate, Emissions Trading and Energy Efficiency Targets," *Energy & Environment* 25, no. 3–4 (2014): 709–32, doi: 10.1260/0958–305X.25.3–4.709.
- 17 European Environment Agency, *Trends and Projections in Europe 2015*.
- 18 Claire Dupont, and Sebastian Oberthür, "Decarbonization in the EU: Setting the Scene," in *Decarbonization in the European Union: Internal Policies and External Strategies* (Basingstoke: Palgrave Macmillan, 2015), 4.
- 19 Intergovernmental Panel on Climate Change [IPCC], "IPCC Fourth Assessment Report: Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability (Glossary A–D)," IPCC, 2007, www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-a-d.html.
- 20 European Commission, *A Roadmap for Moving to a Competitive Low Carbon Economy in 2050*, 2011, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF>.
- 21 European Council, *Presidency Conclusions 15265/1/09*, 2009; Dupont, and Oberthür, "Decarbonization in the EU"; Severin Fischer, and Oliver Geden, *Updating the EU's Energy and Climate Policy New Targets for the Post-2020 Period* (Berlin: Friedrich-Ebert-Stiftung, International Policy Analysis, 2013).
- 22 Severin Fischer, "The EU's New Energy and Climate Policy Framework for 2030: Implications for the German Energy Transition," *SWP Comments* 55 (Berlin: Stiftung Wissenschaft und Politik, 2014).
- 23 European Commission, *Climate Change* (Special Eurobarometer Report 409) (Brussels: European Commission, 2014).
- 24 Fischer, and Geden, *Updating the EU's Energy and Climate Policy*.
- 25 Nils Meyer-Ohlendorf, Matthias Duwe, Katharina Umpfenbach, et al., *The Next EU Climate and Energy Package: EU Climate Policies after 2020* (Berlin: Ecologic Institute, 2014).
- 26 Fischer, "The EU's New Energy and Climate Policy Framework," 3.
- 27 Camilla Bausch, Benjamin Görlach, and Michael Mehling, "Ambitious Climate Policy through Centralization? Evidence from the European Union," *Climate Policy* (forthcoming).
- 28 Jordan, and Rayner, "The Evolution of Climate Policy," 60; Delbeke, and Vis, "EU Climate Leadership in a Rapidly Changing World," 12; Convery, "Origins and Development of the EU ETS," 393.
- 29 Andrew Jordan, Dave Huitema, Tim Rayner, and Harro van Asselt, "Governing the European Union: Policy Choices and Governance Dilemmas," in *Climate Change Policy in the European Union: Confronting the Dilemmas of Mitigation and Adaptation?* (Cambridge: Cambridge University Press, 2010), 37.
- 30 Jordan, and Rayner, "The Evolution of Climate Policy," 65.
- 31 Jos Delbeke, Ger Klaassen, and Stefaan Vergote, "Climate-Related Energy Policies," in *EU Climate Policy Explained*, ed. Jos Delbeke, and Peter Vis (New York: Routledge, 2015), 62.
- 32 *Ibid.*, 61.
- 33 European Environment Agency, *Trends and Projections in Europe 2015*, 98.
- 34 Eurostat, *EU Energy in Figures: Statistical Pocketbook 2015* (Luxembourg: Publications Office of the European Union, 2015), 23.
- 35 Camilla Bausch, Ennid Roberts, Lena Donat, et al., *European Governance and the Low-Carbon Pathway: Analysis of Challenges and Opportunities Arising from Overlaps between Climate and Energy Policy as Well as from Centralisation of Climate Policies* (CECILIA 2050 Project Deliverable D 4.2) (Berlin: Ecologic Institute, 2015), 62; Severin Fischer, and Oliver Geden, "Limits of an 'Energy Union': Only Pragmatic Progress on EU Energy Market Regulation Expected in the Coming Months," *SWP Comments* 28 (Berlin: Stiftung Wissenschaft und Politik, 2015).
- 36 Fischer, "The EU's New Energy and Climate Policy Framework."

- 37 Jakob Schlandt, "Germany's Energy Transition in the European Context," *Clean Energy Wire*, June 25, 2015, www.cleanenergywire.org/dossiers/germanys-energy-transition-european-context.
- 38 Ibid.
- 39 Fischer, "The EU's New Energy and Climate Policy Framework," 2.
- 40 Jon Birger Skjærseth, *Implementing EU Climate and Energy Policies in Poland: From Europeanization to Polonization?* (8/2014) (Lysaker, Norway: Fridtjof Nansen Institute, 2014).
- 41 European Commission, *A Roadmap for Moving*.
- 42 Skjærseth, *Implementing EU Climate and Energy Policies*, 5.
- 43 Dupont, and Oberthür, "Decarbonization in the EU," 2.
- 44 European Environment Agency, *Trends and Projections in Europe 2015*, 43.
- 45 Stefan Lechtenböhrer, and Sascha Samadi, "The Power Sector: Pioneer and Workhorse of Decarbonization," in *Decarbonization in the European Union: Internal Policies and External Strategies*, ed. Claire Dupont, and Sebastian Oberthür (New York: Macmillan Press, 2015), 61.
- 46 Frank Sensfuß, Mario Ragwitz, and Massimo Genoese, "The Merit-Order Effect: A Detailed Analysis of the Price Effect of Renewable Electricity Generation on Spot Market Prices in Germany" (working paper, Sustainability and Innovation No. S 7/2007, Karlsruhe, 2007).
- 47 Delbeke, Klaassen, and Vergote, "Climate-Related Energy Policies," 63.
- 48 Schlandt, "Germany's Energy Transition."
- 49 Bausch et al., *European Governance and the Low-Carbon Pathway*, 31.
- 50 Tom Casier, "The Geopolitics of the EU's Decarbonization Strategy," in *Decarbonization in the European Union: Internal Policies and External Strategies*, ed. Claire Dupont, and Sebastian Oberthür (New York: Macmillan Press, 2015), 161; European Commission, *European Energy Security Strategy* (COM (2014) 330) (Brussels: European Commission, 2014), 2.
- 51 Jordan, and Rayner, "The Evolution of Climate Policy," 76; Dupont, and Oberthür, "Decarbonization in the EU," 4.
- 52 Delbeke, Klaassen, and Vergote, "Climate-Related Energy Policies," 62.
- 53 European Commission, *In-depth Study of European Energy Security* (SWD(2014) 330 final/3) (Brussels: European Commission, 2014), 44.
- 54 Casier, "The Geopolitics of the EU's Decarbonization Strategy," 163.
- 55 European Commission, *European Energy Security Strategy*.
- 56 European Commission, *State of the Energy Union 2015* (COM(2015) 572) (Brussels: European Commission, 2015).
- 57 European Commission, *Energy Union Package: A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy* (COM(2015) 80) (Brussels: European Commission, 2015).
- 58 Fischer, and Geden, "Limits of an 'Energy Union,'" 2.
- 59 Donald Tusk, "A United Europe Can End Russia's Energy Stranglehold," *Financial Times*, April 21, 2014, www.ft.com/cms/s/0/91508464-c661-11e3-ba0e-00144feabd0.html#axzz3xnVfjM8P.
- 60 Katharina Umpfenbach, *Streamlining Planning and Reporting Requirements in the EU Energy Union Framework: An Opportunity for Building Consistent and Transparent Strategies* (Berlin: Ecologic Institute, 2015), 8.
- 61 Fischer, and Geden, "Limits of an 'Energy Union,'" 2.
- 62 European Commission, *Energy Union Package*.
- 63 Umpfenbach, *Streamlining Planning and Reporting Requirements*, 8.
- 64 Ibid.
- 65 European Commission, *State of the Energy Union 2015*.
- 66 "Foie Gras, Oysters and a Climate Deal," *Climate Change News*.
- 67 Casier, "The Geopolitics of the EU's Decarbonization Strategy," 167.