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Governance for the European Energy Union

Options for coordinating EU climate and energy policy up to 2030

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Governance for the European Energy Union

Options for coordinating EU climate and energy policy up to 2030

Preface

The European Union has set itself the mission of strengthening economic, social and territorial cohesion whilst simultaneously emphasising sustainable development and protection of the environment. However, challenges such as the conflicts over European migration policy or the Euro crisis clearly show that European unity is fragile and needs to be constantly worked upon.

The tension between globalisation and resurgent nationalist tendencies is also evident in climate and energy policy. Nevertheless, the EU Member States share a common climate policy target: to restrict global warming to well below 2 degrees Celsius over the long term and to achieve greenhouse gas emissions neutrality in the second half of the century. Germany and the European Union have ratified the Paris Climate Agreement and are obliged to contribute towards achieving its goals. The EU is trying to do this through a legislative framework entitled *Clean Energy for All Europeans* (also known as the "Winter Package"). Yet this requires a balancing act: uniting the efforts of all the Member States in order to achieve the Paris targets whilst also respecting the freedom of the national governments to determine their own energy mix.

A key component of the "Winter Package" is the Regulation on the Governance of the Energy Union. This offers the EU Member States a great deal of flexibility – there is little in the way of sanctions for insufficient ambition in climate policy. But how can progressive Member States, constituent territories such as the German federal states (*Bundesländer*), regions, municipalities and local authorities make best use of their opportunities for taking an ambitious approach to climate protection? What options are available to the EU legislature or the European Commission for promoting and supporting achievement of the EU climate targets for 2030? A working group of the Academies' Project "Energy Systems of the Future" has investigated these issues.

The aim of the working group was to outline a number of options that stand a good chance of being politically realisable. Rather than treating optimum long-term climate strategies and practicable short-term measures as mutually exclusive, they have sought to co-ordinate both approaches. We should like to thank the researchers and the authors of the Position Paper for their dedication and hard work.

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Abbreviations

AC	Aarhus Convention
Art.	Article
BBH	Becker Büttner Held
BEIS	Department of Business, Energy & Industrial Strategy of the UK Government
BImSchG	Bundes-Immissionsschutzgesetz (Federal Immission Control Act)
BMWi	Bundesministerium für Wirtschaft und Energie (Federal Ministry for Economic Affairs and Energy)
BVerfG	Bundesverfassungsgericht (Federal Constitutional Court)
°C	Degrees Celsius
Cf.	Compare
CO_2	Carbon dioxide
COP	Conference of the Parties (UN Climate Conference)
Council	Council of the European Union
CPF	Carbon Price Floor (minimum carbon price)
DFBEW	Deutsch-französisches Büro für die Energiewende (Franco-German Office for the Clean Energy Transition)
DLR	Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Centre)
Doc.	Document
EAGGF	European Agricultural Guidance and Guarantee Fund
EC	European Commission
ECJ	European Court of Justice
EEC	European Economic Community
EEG	Erneuerbare-Energien-Gesetz (Renewable Energy Sources Act)
EEWärmeG	Erneuerbare-Energien-Wärme-Gesetz (Renewable Energy Heat Act)
EP	European Parliament
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF	European Structural and Investment Funds
et al.	and others
ETC	European Territorial Cooperation
ETS	Emissions Trading System
EU	European Union
f.	and following page
ff.	and following pages
GDP	Gross Domestic Product
GG	Grundgesetz (German Basic Law)
INTERREG	Interregional cooperation programme of the EU
KSG	Klimaschutzgesetz (Climate Protection Act)

lit.	littera (letter)
LULUCF	Land Use, Land-Use Change and Forestry
MMR	Climate Monitoring Mechanism Regulation
NAPEE	National Action Plan for Energy Efficiency
NECP	National Energy and Climate Plan
No.	Number
OECD	Organisation for Economic Co-operation and Development
OJ	Official Journal of the European Union
p./pp.	Page/pages
para.	Paragraph
SEA	Strategic Environmental Assessment
SRU	Sachverständigenrat für Umweltfragen (German Advisory Council on the Environment)
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
TOE	Tonnes of oil equivalent
UBA	Umweltbundesamt (Federal Environment Agency)
UmwRG	Gesetz über ergänzende Vorschriften zu Rechtsbehelfen in Umweltangelegenheiten (Law on Supplementary Regulations concerning Appeals in Environmental Matters)
UN	United Nations
UNFCCC	UN Framework Convention on Climate Change
UVPG	Gesetz zur Umweltverträglichkeitsprüfung (Environmental Impact Assessment Act)
VO	Verordnung (Regulation)
WBGU	Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (German Advisory Council on Global Change)
WWF	World Wide Fund for Nature

Glossary

Aarhus Convention	Convention concerning access to information, public participation in decision-making and access to justice in environmental matters, which has been ratified by the European Union. The convention came into force in 2001.
Decarbonisation	Decarbonisation refers to the process of technological, social and economic transformation with the general aim of reducing carbon dioxide emissions. This requires, in particular, a reduction in the consumption of fossil fuels, so that the term "defossilisation" is sometimes used.
Diffusion	In political science the term "(policy) diffusion" refers to a process in which political innovations are implemented by one or more policy frontrunners and are then gradually adopted voluntarily by more and more actors (such as states).[b] Similar political circumstances as well as close communication between the states, for example within the European Union, can promote such diffusion and learning processes.[c]
ETS	Emissions Trading System, also referred to as cap-and-trade system. In such a system an upper limit ("cap") for the emission of certain pollutants is laid down and a corresponding number of allowances for emission of the specified pollutant is prepared. These allowances can then be bought and sold among the polluters (hence, "trade"). The so-called EU-ETS is such a cap-and-trade system for the emission of greenhouse gases for certain sectors within the EU.
ETS sectors	Sectors covered by the EU-ETS, primarily energy generating plants and energy-intensive industries, as well as intra-European air transport since 2012.
European Semester	Procedures for monitoring the budgetary and economic policies of the EU Member States. This coordinating mechanism was introduced in 2011 under the shadow of the worsening European public debt and financial crisis.
Governance	Governance embraces forms of regulating, coordinating and guiding public and private actors. As well as traditional government action in the form of "hierarchically organised state regulation"[d], it also involves a wide range of control mechanisms extending from more or less hierarchical top-down approaches to instruments that are designed for broad participation.
Governance Regulation	The Governance Regulation[e] is a European regulation establishing a new system for monitoring energy and climate policy, aiming primarily to ensure achievement of the EU's 2030 targets and to consolidate the existing sectoral reporting obligations of the Member States.
Gross final energy consumption	Final energy consumption refers to the demand for energy from industry, transport, households and small-scale consumers (trade, services, agriculture, forestry and fisheries). Gross final energy consumption refers to the final energy consumption plus any losses incurred during transport or through consumption by the generating units.[a]

Leadership alliances	Leadership alliances are intergovernmental coalitions within which states come together in order to agree on common goals and to coordinate measures designed to achieve them and thus forge ahead in a particular policy area.
Lock-in effects	Lock-in effects are economic, technological, institutional and social consequences that cause existing technology trajectories to be maintained over a long period of time, thus slowing down transformation. This applies particularly to power plants, which have high initial investment costs and low operating costs. Once such a (coal-fired) power plant has been financed and constructed, there are strong incentives to keep it in operation even if better alternatives exist from the point of view of climate policy.[f]
National Energy and Climate Plan (NECP)	Every 10 years the Member States are obliged to submit a National Energy and Climate Plan setting out their objectives, targets and contributions, as well as their strategies and measures relating to the five dimensions of the European Energy Union. The NECPs form a central monitoring and control element of the Governance Regulation (Art. 3 Governance Regulation).
Non-ETS sectors	Sectors not covered by the EU-ETS. These include the agriculture, construction and transport sectors.
Pledge and Review	Procedure based on the bottom-up principle whereby states make voluntary pledges regarding climate policy and these are then subjected to a review process.
Primary energy consumption	Primary energy consumption refers to the energy content of all the energy sources used in a country.[h]
Primary energy sources	Energy sources that have not yet undergone any conversion process. These include fossil-based energy sources like lignite, hard coal, mineral oil and natural gas, as well as renewable primary energy sources such as wind, solar and biomass. These are either used directly or converted into what are called secondary energy sources, such as refined fuels, electricity or district heating.[g]
Primary law	The primary law of the European Union consists mainly of the founding treaties including their annexes and protocols, as well as all subsequent treaties and legal acts revising and amending them. The primary law has precedence over all other sources of law in the EU. The Treaty on European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU) are of key importance.
Secondary law	Secondary law refers to all legal acts adopted by EU institutions on the basis of primary law. According to Art. 288 of the Treaty on the Functioning of the European Union (TFEU), this includes regulations, directives, resolutions, recommendations and opinions.
Tertiary law	Tertiary law refers to legislation enacted on the basis of secondary law. This includes delegated acts (Art. 290 TFEU) and implementing acts (Art. 291 TFEU), which explain, for example, directives and regulations in greater detail.

Trilogue procedure	Interinstitutional negotiations between the legislative bodies of the European Union, i. e. the Council of Europe, the European Parliament and the European Commission.
Waterbed effect	This refers to the effects that occur in "pure" emissions trading systems, where additional climate protection measures, such as shutting down coal-fired power plants, do not actually contribute to climate protection because the emissions saved are discharged elsewhere. In the EU-ETS the waterbed effect was mitigated by the reforms introduced in ETS Directive (EU) 2018/410 of 14 March 2018 (OJ LV 19.03.2018, 3) since allowances can now be permanently withdrawn if electricity generating capacities are shut down.

a Directive 2009/28/EC.
b Busch/Jörgens 2005, p. 865.
c Cf. Matisoff/Edwards 2014.
d See Knodt/Hüttmann 2005, p. 223.
e Regulation on the Governance of the Energy Union and Climate Action Regulation (EU) 2018/1999.
f Cf. Erickson et al. 2015.
g UBA 2018-2.
h UBA 2018-2.

Summary

Following the 2014 European Council resolution to grant Member States the greatest possible degree of sovereignty and flexibility as regards energy policy, and pursuant to the Paris Agreement signed by the European Union in 2015, the European Union (EU) has proposed a new type of governance system for the European Energy Union. The key elements of the legislative package presented in November 2016 under the title *Clean Energy for All Europeans* is the Regulation on Governance No. (EU) 2018/1999 of 11 December 2018, which for the first time provides for shared governance in matters of climate and energy policy throughout the EU. Responsibility for implementing climate policy targets is primarily assigned to the Member States.

With this in mind, the present position paper will first consider the existing governance and coordination mechanisms in EU climate and energy policy. These are the result of political negotiation processes within the complex multilevel system of the EU. A European governance system combining EU-wide climate targets with a European Emissions Trading System (EU-ETS) as a joint instrument would certainly be conducive to achieving the targets. However, the political majorities required for the swift realisation of such a system are currently not at hand. In consequence, this position paper sets out politically feasible options that enable the EU and ambitious Member States wishing to forge ahead with climate protection to make effective use of existing opportunities. The options can be combined as both decentralised and centralised governance instruments, so as to meet the challenges of a multilevel political system.

Four configurations of European climate and energy governance

Four "governance configurations"[1] with varying levels of binding force and incorporating different instruments demonstrate the existing structures in the EU for the governance of climate and energy policy.

The **first configuration** describes the most closely harmonised and centralised form of governance, in which the EU sets a quantifiable target and works towards this by employing a common instrument. An example of this is the reduction of emissions in electricity generation and the energy-intensive industrial sectors, which is being implemented by means of the EU-ETS. In the **second configuration** there are binding, quantifiable targets at EU and Member State level. How these targets are implemented lies within the responsibility of the Member States. This certainly provides them with a greater scope for designing their own approaches. However, as the Member States are each pursuing different climate strategies, there is a risk that the EU-wide targets will not be achieved at the lowest possible cost. The **third configuration** is characterised

1 In the following, the term "governance" is used to refer to the regulation, coordination and management of public and private actors.

by binding, quantifiable targets at EU level, but not for the individual Member States. The target achievement is therefore based on the voluntary contributions of each state. Examples of this configuration can be seen in the expansion of renewable energy and the increase in energy efficiency up to 2030. In the **fourth configuration** qualitative targets are formulated at EU level, so that no binding quantifiable targets exist in the Member States. This is the case, for example, regarding the target of securing energy supplies in Europe.

Governance deficits and weaknesses

The weaknesses of all four governance configurations derive, for one thing, from the fact that there is no common European consensus about targets and instruments in climate and energy policy. Efficient and effective governance is partly hindered by the fact that the EU has **insufficient competences based on primary law**. Due to the principle of subsidiarity, the EU does not have the competence to legislate on unional energetic matters, for example to decide to phase out lignite or hard coal throughout the EU. Amending the Treaty in favour of a majority principle for decisions on energy policy measures is politically unrealistic as such an amendment would require unanimous approval.

Whereas the Climate and Energy Package 2020 contained national targets for increasing the share of renewables in the energy mix – in this case in binding form – and also for improving energy efficiency (an example of the second of the aforesaid governance configurations), the *2030 climate and energy framework* **lacks** any binding, **quantified targets for the Member States**. Although the EU agreed in June 2018 to raise the share of renewables in gross final energy consumption to at least 32 percent by 2030 and to improve energy efficiency by at least 32.5 percent, the national contributions to this overall target are to be set by the Member States themselves. This means that there is no pressure to act for the EU Member States and there is also a lack of planning security for companies who wish to invest in the development of renewable energy technologies.

The absence of uniform carbon pricing within the European Union also reveals governance weaknesses. The introduction of a uniform minimum price for carbon emissions for all Member States and all economic sectors would be an important lever for reducing greenhouse gas emissions in a cost-efficient way. This significant economic potential could be used by comprehensively overhauling the EU-ETS, by extending it to further sectors, such as road transport and the construction sector, by introducing a minimum price for emission allowances and by directing the energy tax system towards achieving the energy and climate policy objectives. However, there is currently no political majority in favour of this in the EU.

Governance for a European Energy Union

In its “Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy” presented on the basis of resolutions adopted by the European Council in 2014, the EU has realigned its climate and energy policies, outlining five dimensions of a European Energy Union. These are: securing energy supplies, fully

integrating the European energy market, improving energy efficiency, reducing CO_2 emissions and promoting research, innovation and competitiveness. A "Regulation on the Governance of the Energy Union and Climate Action" is also intended to improve the EU's climate and energy policy and better coordinate the strategies of the individual Member States. At the same time, the freedom of the individual Member States to determine their own energy mix is to be retained.

Core components of the Regulation are **integrated National Energy and Climate Plans (NECPs)**, to be drawn up and regularly updated by the Member States, along with long-term emission reduction strategies designed for at least 30 years, as well as a comprehensive **monitoring process** between the Commission and the Member States. This monitoring is intended to ensure that the EU targets in the sphere of renewable energy sources and energy efficiency are achieved, even in the absence of binding national targets. If the targets set by the Member States are not ambitious enough or are insufficient, the Commission can recommend that the Member States adopt more challenging strategies and measures (known as a **gap-filling mechanism**).

Options for European climate and energy policy up to 2030

The following options demonstrate the scope for action presented by the new governance system and outline additional backup measures. They are intended for the EU and for ambitious (pioneering) Member States.

1. Effective implementation of the Governance Regulation

When drawing up their NECPs, Member States should use the various options provided for in the Governance Regulation in an effective way. This is legally permissible, politically feasible and economically beneficial. To ensure the plans are effective, they should be anchored in the domestic legal order of the country concerned. In Germany, for example, it would be possible to make the NECP a core instrument of the forthcoming Federal Climate Protection Act proposed in the Coalition Agreement. In this way, the national contributions towards climate protection could be directly linked with the contributions to the European Energy Union. After being approved by the Bundestag, the NECP could become directly mandatory or it could be incorporated into the new federal law as a binding annex. The Federal Climate Protection Act would thus create an overarching framework while existing federal-state level climate protection laws would remain in force. It is also to be recommended that measures for phasing out coal should be included in the German NECP.

The Governance Regulation requires that the public be involved in drawing up the NECPs. However, this requirement is formulated very vaguely. The Member States should therefore specify participation opportunities in a binding way, for example as an additional element of the planned national-level Climate Protection Act. Although the local level is necessary as an enforcement authority for implementing the strategies and measures set out in the NECP, it plays an extremely minor role in the governance system. Criteria should be elaborated as to how the "Platform for Multilevel Energy Dialogue", which is envisaged by the EU, is to be established, and how the participation of local and regional stakeholders is to be organised in concrete terms. Already established EU participation formats such as the "Covenant of Mayors" could serve as a model.

2. Funding the achievement of the targets

Without nationally binding targets being set, it is to be feared that the targets of the Member States or their collective attainment will be insufficient for the EU's overall target to be achieved. It is also doubtful whether the voluntary funding platform for renewable energy projects that is provided for in the Governance Regulation will be effective. Therefore, financial incentives for effective emissions reduction should be created above and beyond the Regulation, for example by allocating resources from the European Structural and Investment Funds (ESIF).

In order to encourage the efforts of the Member States towards improving climate protection, the objectives of the European Energy Union can be more closely aligned with those of European structural policy. For example, the latest draft of a new umbrella regulation for the ESIF already provides for a contribution to the Paris climate targets and the linking of fund allocations for low-carbon investments to the targets set out in the NECPs. The new version of the Regulation for the European Regional Development Fund (ERDF) should also include, among other aspects, support for regions that are particularly affected by the transition to a climate-neutral economy. Another option is opened up by the ESI funding objective of promoting European Territorial Cooperation, which encourages interregional cooperation as set out in the Governance Regulation. If specific cooperation programmes were established in the ERDF and linked to programmes for "European Territorial Cooperation", they could be used for supporting mutual energy and climate protection projects.

3. Sanctioning non-compliance with the Governance Regulation

By linking it with structural policy, the EU could utilise a sanctioning mechanism that extends beyond the Governance Regulation. Such mechanisms are already employed in European budgetary and economic policy within the framework of the European Semester, and a similar approach could be taken in energy policy in order to make them more binding. In this way, the EU could refuse financial assistance from the Structural Funds to a Member State that had failed to achieve its own energy policy objectives or to implement the recommendations of the Commission. This would de facto provide the Commission with a sanctioning instrument. Even though the Governance Regulation hardly contains any sanctioning mechanisms, there is nothing to prevent European legislators providing for supplementary, effective implementation measures in other legal acts, such as the regulations governing the structural funds, as long as this does not create incoherence. A pre-requisite for this is that suitable criteria be developed in order to identify when a Member State has insufficiently complied with recommendations from the Commission.

The binding nature of the national targets can also be enhanced by introducing the right for associations to bring legal action in order to demand an ambitious energy policy in accordance with EU regulations. A number of different variants are conceivable for achieving this. Environmental organisations could be granted the right to bring legal action if Member States fail to draw up an NECP or do not achieve the targets set out in the plan, if national plans are not sufficiently ambitious, or if procedural irregularities are committed by the Member States. This could partly compensate for the lack of sanctions in the Governance Regulation. The Aarhus Convention, which has been ratified by the EU, already includes the right for associations to bring legal action in the case of plans which constitute a verifiable mandatory framework for projects. Thus, what is decisive is that the NECP is formulated in a sufficiently specific way. Germany should

not leave this to interpretation by the judiciary but should take legislative action by expanding the right of associations to bring legal action to include the NECPs.

4. Backing up the Governance Regulation through leadership alliances

Finally, establishing leadership alliances between EU Member States and perhaps even with third parties, would make it possible to initiate decarbonisation measures that would not otherwise be possible due to a lack of relevant competences or majorities. Such leadership alliances are suitable for matters including carbon pricing and the phasing out of coal. In these spheres, some states have the political will to go beyond the targets set at European level and introduce their own measures. International collaboration in these areas provides additional benefits compared with national-level solutions. Of central importance in both cases is coordination with existing regulations, in particular the EU-ETS, so as to avoid merely shifting emissions within the EU ("waterbed effect"). To do this, the states should make greater use of their power under the EU-ETS to permanently withdraw from the market a number of allowances equivalent in value to the emissions saved.

With a carbon price alliance, it would be possible to set a minimum price for carbon emissions that is higher than the current price in the European Emissions Trading System and that applies to all sectors. In the EU sectors already covered by the ETS, a minimum carbon price could be established by setting a price floor for primary auctions in European emissions trading or by creating an additional carbon pricing system that builds on the EU-ETS. In sectors that are not covered by the EU ETS, a minimum carbon price could be established by means of a tax. In Germany, for example, this could be carried out by taxing the primary energy sources according to their carbon content.

The more states participate in a "coal phase-out alliance" and the more coherently the joint plan is formulated, the more cost-effectively the phase-out can be conducted. If a prohibition on new licences for coal-fired power stations were soon to be integrated into the domestic legal orders of the participating states, "lock-in effects" could be prevented and investment and planning security could be improved. By joining such a coal phase-out alliance, the Federal Republic of Germany could send out a political signal and act as a model for other European countries which have a high share of coal in their energy mix. Measures available for this could include, for example, allocating residual electricity volumes or setting shutdown dates for licensed power stations as well as other regulatory and fiscal policy instruments. These instruments must each be considered as regards their constitutionality, economic efficiency and political feasibility. The technical possibility of reusing existing coal-fired power stations – for example as thermal energy storage plants – must be examined, although this is not yet a competitive option.

1 Introduction

Germany and the European Union have committed themselves to the task of creating an energy system that offers long-term sustainability, security and affordability. Similar to nearly all countries of the world, the EU and the EU Member States have pledged their support for the Paris Agreement on Climate Change[2]. They are therefore required to undertake measures to keep the increase in global average temperature well below 2°C – ideally no more than 1.5°C – compared with preindustrial levels. In the second half of the century, greenhouse gas neutrality is to be achieved (net zero emissions target[3]). The net zero emissions target, in particular, implies large-scale decarbonisation[4] of the energy system. Owing to the global nature of this challenge, it should remain a key priority of European climate policy to call for effective international solutions. Since global agreement – for example on such matters as a binding reduction of CO_2 emissions or the setting of a minimum carbon price[5] – has not yet been achieved, the EU is taking a pioneering approach to international climate protection, setting new targets and adopting a new strategy in order to combine climate and energy policy.

This position paper therefore does not discuss models of a (globally agreed) system of carbon pricing,[6] but builds upon current European legal developments towards the establishment of a climate and energy union. The focus is on the question of how European and national measures for achieving international and European climate and energy targets can be specified and coordinated from a legal, political and economic point of view.

The task of ensuring reliable energy supplies in Europe can only be accomplished collectively, at European level. However, European climate and energy policy is characterised by numerous competing objectives which are derived from the superordinate aims of sustainability, competitiveness and energy security. The Member States weight these various objectives differently, putting varied degrees of emphasis on technologies, energy sources and policy instruments. For example, whereas the Central and East European states are particularly concerned about securing energy supplies, the countries of western and northern Europe primarily demand more extensive agreements in the sphere of sustainability and climate protection. Disagreement between Member States about the setting of priorities has frequently led to blockages and low-level compromises, so that there are no ideal solutions which can be referred to as a model. Where the reduction of greenhouse gas emissions is concerned, for example, the European Emissions Trading System, a key instrument of European climate policy,

2 The Paris Agreement on Climate Change came into force on 4 November 2016 and has so far been ratified by 184 states.

3 Cf. Geden 2017.

4 In this position paper the term “decarbonisation” refers to the reduction of carbon dioxide emissions, in particular avoiding the use of fossil energy sources, cf. glossary.

5 On this matter cf. the information about leadership alliances in chapter 4.4 of this position paper.

6 Stern 2007; High-Level Commission on Carbon Prices 2017; Frondel et al. 2011.

has had its scope reformed and strengthened for the fourth trading period from 2021 to 2030. However, emissions trading has not been expanded to other sectors, nor has a minimum price been set, and so the system has not been extended as much as necessary.

In 2014 the European Council succeeded in setting targets at European level for the expansion of renewables and the improvement of energy efficiency for the decade 2021 to 2030;[7] however, an agreement on national targets was not achieved. Hence, responsibility for setting such targets was left to the Member States. For this reason, an EU-level governance system[8] is required in order to efficiently manage the necessary transition of the energy system on a cross-border basis throughout the Union. Alongside traditional government action constituting "hierarchically organised state regulation",[9] we require additional control mechanisms that do justice to the various political levels that exist within the European Union.

Although energy policy was already on the European agenda at the time of the establishment of the European Coal and Steel Community in 1952 and the European Atomic Energy Community in 1957, it was only listed as a specific competence in the EU under the Treaty of Lisbon in 2009. Since 2014, the EU has been seeking to unite the various aspects of climate and energy policy in the concept of a European Energy Union and thus balance and consolidate the interests of the various Member States. The EU Commission has identified five dimensions of the European Energy Union: securing energy supplies, fully integrating the European energy market, improving energy efficiency, reducing CO_2 emissions and promoting research, innovation and competitiveness.[10] In its so-called "Winter Package" entitled "Clean Energy for All Europeans" published in November 2016, the European Commission presented a package of regulations and guidelines that set out a framework for climate and energy policy in the EU up to the year 2030.

At the heart of the Winter Package is the Regulation on the Governance of the Energy Union (Governance Regulation) which entered into force on 24 December 2018.[11] In this document, the EU outlines the future governance of climate and energy policy, a policy area in which it only has limited legislative competence. For this reason, it can only make use of what are known as "soft governance" methods in order to achieve convergence between the policies of the various Member States. For example, the Member States are required to report regularly about progress in implementing their National Economic and Climate Plans (NECPs) in which they set out their energy and climate policy targets, strategies and measures. In the event that a Member State appears likely to fail in meeting its targets, the Commission can issue recommendations, but compliance with these is voluntary, an arrangement similar to that established under the Paris Agreement (Pledge-and-Review mechanism).[12]

7 If reducing greenhouse gas emissions were the sole political objective, additional explicit targets for expanding the use of renewable energy sources and improving energy efficiency would present the risk of counter-productive regulatory overlaps; cf. Böhringer et al. 2016; Böhringer et al. 2009.

8 The term "governance" as used in the following refers to the regulation, coordination and control of public and private stakeholders.

9 See Knodt/Hüttmann 2005, p. 223 ("*hierarchisch angelegte staatliche Steuerung")*

10 EC 2015-1.

11 Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action; Knodt/Ringel 2018-2; Schlacke/Lammers 2018.

12 A system in which the Member States decide on their own contributions and in which the achievement of targets is to be ensured by means of comprehensive monitoring.

This leaves the individual countries plenty of scope for action in achieving the overall European targets.

Against the background of these legal and political factors, this position paper sets out approaches that could be taken in four fields where Germany and the EU can potentially contribute towards achieving the European and, in particular, the international climate protection targets through more carefully targeted control measures. Steps that are desirable but are not politically feasible within the near future, such as the introduction of a comprehensive emissions trading system, are deliberately omitted from closer examination.[13] Rather, the absence of political majorities, the limited competences of the EU, and its focus on soft mechanisms have prompted the authors to point towards options that go beyond the Governance Regulation.

First of all, the Member States are required to bring about the ***effective implementation of the Governance Regulation*** in their domestic legal order. In Germany, for example, a specific starting point could be the Federal Climate Protection Act (*Bundesklimaschutzgesetz*) which has been incorporated into the Coalition Agreement. The national energy and climate targets could be made legally binding by anchoring the NECP, which Germany is required by the Commission to produce, within this Federal Climate Protection Act. At the same time, Member States and the EU can provide ***incentives*** to ***fund*** the achievement of a target. The allocation of resources from the European Structural and Investment Funds should be linked to the targets set out in the NECPs. In this way, support could be provided for specific regions that will have to undergo fundamental structural change as a result of the energy transition. In addition, the Commission and the Member States should implement ***targeted sanctions*** for non-compliance with European recommendations concerning the NECPs. Here, too, one option would be to link these with resources from structural funds, but in this case the other way round. For example, taking the European Semester for budgetary and economic policy as a model, the EU could reject applications for financial support from the structural funds, or payments for ongoing projects could be partially or completely withheld, if targets are not achieved. Beyond the scope of the Regulation, the EU Member States should also ***back up*** the governance of the European Energy Union by forming ***leadership alliances***. Firstly, a major impact could be achieved by a carbon price alliance made up of states which have introduced, or plan to introduce, a national carbon price floor (CPF). Secondly, an international alliance for the phasing out of coal, such as the "Powering Past Coal Alliance" established during COP23 in 2017, should be politically encouraged and preferably anchored in international law. By joining this alliance, Germany would send out an important international signal regarding the phasing out of coal.

This position paper contends that failure to implement the concrete and complementary measures outlined above might, in a worst-case scenario, result in the Governance Regulation for establishing a European Energy Union merely increasing bureaucracy across the EU without contributing towards the goal of creating a European energy system that is largely, or even completely, carbon neutral.

13 On this subject see acatech/Leopoldina/Akademienunion 2015.

2 Governance deficits in European climate and energy policy

2.1 Previous European climate and energy policy

European climate and energy policy is characterised by highly varied, mostly sectoral control and coordination mechanisms. These can be summarised in the form of **four "governance configurations"**, each with its own characteristics as well as its own strengths and weaknesses with regard to its governance capacity (Table 1).

	Configuration 1	Configuration 2	Configuration 3	Configuration 4
Target(s)	EU-wide quantified targets	EU-wide quantified targets and quantified targets for Member States	EU-wide quantified targets and no set targets for Member States	EU-wide qualitative targets and no set targets for Member States
Instrument(s)	common instrument	no common instrument	no common instrument	no common instrument
Example	EU Emissions Trading System	20 percent of energy from renewable sources throughout the EU by 2020, establishment of binding targets for Member States (RE Directive 2009/28/EC)	EU-wide targets up to 2030, no national targets for use of renewable energy and energy efficiency (only independently set national contributions according to the new EU Governance Regulation)	energy security

Table 1: Configurations for the governance of European climate and energy policy. Source: Own diagram.

Establishing binding quantified targets and common instruments for achieving targets has hitherto been an essential form of managing European climate and energy policy. An example of this **first governance configuration** is the EU-ETS established on the basis of the Emissions Trading Directive[14], which sets limits on CO_2 emissions from large-scale energy plants, energy-intensive industries and domestic European aviation. It established an EU-wide reduction target: on the basis of this, during the fourth trading period of the EU-ETS (2021–2030) emissions from the relevant sectors are to be reduced by 43 percent compared with 2005.

Alongside this Europe-wide approach, the EU also coordinates climate and energy policy by setting both quantified targets for the EU as a whole and binding quantified targets for each Member State. In this **second configuration**, however, the choice of policy instruments for achieving the targets is left to the individual Member States. An example is the binding target under EU law for at least 20 percent of gross final

14 Directive 2003/87/EC – the system entered into force on 1 January 2005.

energy consumption in the EU to come from renewable energy sources by 2020. For the achievement of this target, the 2009 Renewable Energy Directive[15] sets out binding national targets for the total share of energy from renewable sources in gross final energy consumption (electricity, heating, cooling and transport). The Directive leaves it up to the Member States to determine how these targets are to be achieved. It only creates the legal framework for funding instruments and for joint projects among the Member States or with third parties.

In addition, the EU coordinates its climate and energy policy by establishing EU-wide targets[16], but without setting quantified targets for the Member States by means of European legal acts (**third configuration**). This configuration is the starting point for the new *2030 climate and energy framework* within the fields of renewable energy sources and energy efficiency.

Finally, the **fourth configuration** is based on a non-quantified but only qualitative European target. An important example is the political drive to secure energy supplies in the Union.[17] As a target governed by primary law, it covers all sectors. An EU-wide instrument for implementing it does not exist, so that there are also no set targets for the Member States.

2.2 Governance deficits and weaknesses

Each of the configurations listed above has various strengths and weaknesses.

The first configuration is characterised by a high level of integration and a high degree of coherence. By linking European targets to a uniform, EU-wide instrument, it is possible to ensure that targets are effectively achieved. With regard to economic efficiency and synergy effects, a common European governance instrument such as the European Emissions Trading System is more useful than a "patchwork" of national and sometimes incoherent instruments.[18] In order to retain its ability to function despite disagreements and blockages between the Member States, however, the EU utilises other forms of governance.

For example, in legal acts belonging to the second configuration, the EU places more emphasis on respecting the sovereignty and national political circumstances of the Member States by not adopting a uniform governance instrument, such as emissions trading, throughout the EU, but by setting binding quantified targets both for the Union as a whole and also for the Member States. As a result, the Member States sometimes choose very different and occasionally conflicting instruments. For instance, the various feed-in and tendering models for renewable energy supplies demonstrate how EU-wide integration and coordination can be made more difficult despite the existence of clear national responsibilities in achieving the collective target.

15 See Art. 1, 3 (1) of Directive 2009/28/EC.

16 Including a binding EU-wide target of increasing the share of renewables in the energy mix to 32 percent as well as an EU-wide non-binding "Headline Target" of 32.5 percent for the improvement of energy efficiency.

17 Art. 194 (1) lit. b) TFEU.

18 Cf. Teyssen 2013; Unteutsch/Lindenberger 2014.

The third configuration, which refers to legal acts with quantified targets for the Union without the setting of corresponding targets for the Member States, upholds the sovereignty of Member States to a very high degree. It can be regarded as a political compromise solution for matters where there is a lack of consensus for more far-reaching EU-wide measures, and it permits targets to be achieved in a way that is adapted to the specific national political conditions. There are nevertheless opportunities for leadership alliances to adopt ambitious targets and measures, as well as opportunities for Member States to learn from one another.[19] Without an effective monitoring system underpinned by the possibility of sanctions under EU law, however, there is no guarantee that the EU-wide quantified targets will be achieved.

In the fourth configuration the EU defines an overarching target such as energy security. In the absence of any clear and binding definition, however, the achievement of targets can hardly be measured or managed. This configuration offers the Member States a maximum of flexibility, but it also presents a higher risk of failure to achieve the targets and may result in a patchwork of Member States with different, potentially contradictory governance instruments.

The various configurations of EU climate and energy policy are the result of political negotiation processes within the complex multilevel system of the EU. As CO_2 emissions, a key cause of anthropogenic greenhouse gas effects, do not stop at national borders, European control incorporating EU-wide targets and a common EU instrument (such as the EU-ETS) can be regarded as beneficial (Configuration 1). However, there are overlaps with national instruments in the electricity sector (Configurations 2 or 3), which can lead to inefficiency.[20] However, the required political majorities among the Member States do not exist at European level for strengthening the first configuration sufficiently in order to achieve the Paris climate targets. Waiting for the best possible elaboration of instruments of the first configuration (such as the EU-ETS) is therefore not conducive to the achievement of the targets. In order to overcome existing deficits, it is necessary to combine both decentralised and centralised governance instruments if the challenges of a multilevel political system like the EU are to be met.

2.2.1 Insufficient climate and energy policy competences of the European Union

The deficits in the governance of EU climate and energy policy are due not only to the lack of political will to unite, but also partly to the limits of Union competences under primary law. Through the European treaties, the EU has been authorised by the Member States to adopt measures relating both to environmental and climate policy[21] and to energy policy.[22] The energy policy objectives are defined very broadly, including ensuring the functioning of the energy market, ensuring security of energy supply, promoting energy efficiency and energy saving, supporting the development of new and renewable forms of energy, and promoting the interconnection of energy networks.

Nevertheless, the Member States have the explicit right to determine the conditions for exploiting their energy resources, their choice between different energy sources

19 The "laboratory federalism" argument (after Oates 1972, Oates 1999) emphasises the benefit of experimenting in individual Member States (see also Gawel et al. 2014; Strunz et al. 2015; Strunz et al. 2017, p. 4).

20 acatech/Leopoldina/Akademienunion 2015.

21 On the basis of Art. 192 (1), 191 (1) TFEU.

22 On the basis of Art. 194 (2) para. 1 and (1) TFEU.

and the general structure of their energy supply.[23] This retention of sovereignty by the Member States restricts the EU's competence with regard to energy policy, for example its ability to decide to phase out lignite or hard coal as a source of energy.[24] If this were to be deemed an environment policy measure, the EU could refer to its competence on environmental matters[25], but this would require a unanimous decision by the Council of the European Union. Therefore, the existing right of Member States to veto common environmental and energy policy measures and the retention of sovereignty over energy policy constitutes a high obstacle for the creation of a coherent and effective European Energy Union and act as a "brake on integration".[26] Owing to the present unanimity requirement[27], amending the Treaty in favour of a majority principle for decisions on energy policy measures is considered to be politically unrealistic.[28]

2.2.2 Lack of quantified targets for the Member States

The Renewable Energy Directive of 2009 obliges the Member States to implement their national plans for expanding the use of renewables, which are binding under EU law, by 2020 in order for the 20 percent target at European level to be achieved.[29] Germany, for example, is obliged to increase the share of renewables in its gross final energy consumption from 5.8 percent (in 2005) to 18 percent. These binding quantified targets for the Member States result from experience with the first *European Directive on Electricity Production from Renewable Energy Source*s issued in 2001[30], which only set non-binding national indicative targets. From the point of view of the Commission[31] these were only pursued to a very unsatisfactory extent. By contrast, the expansion of renewable energy sources is being pushed forward by the setting of binding national targets for 2020: In 2016[32], the EU-wide share of renewables in gross final energy consumption amounted to 17 percent and 11 Member States have already surpassed their national target. In addition, Member States which fail to achieve their targets can face treaty violation proceedings at the European Court of Justice (ECJ) and insufficient political countermeasures can result in the imposition of penalty payments.[33]

In June 2018, the EU agreed to increase the share of renewables in gross final energy consumption in the Union to at least 32 percent by 2030[34] after the Council had pushed for a target of 27 percent and the European Parliament 35 percent. Although this is a binding European target, according to the legislative resolution issued by the European Council in October 2014[35] no binding targets are to be set for the individual Member States, in contrast to the targets that were set for 2020. Instead, the national

23 See Art. 194 (2) para. 2 TFEU.

24 Cf. Hackländer 2010, p. 220 f.; Kahl 2009-1.

25 Art. 192 (2) lit. c) TFEU.

26 Kahl 2009-2, p. 610.

27 Art. 48 TEU.

28 Rodi/Behm 2016; Knodt/Ringel 2017, p. 125.

29 Art. 3 (1) in conjunction with Annex I Part A of Directive 2009/28/EC.

30 Directive 2001/77/EC; there was a European indicative target of 12 percent and non-binding national indicative targets, Art. 3 (2).

31 EC 2009, p. 7.

32 As a share of gross final energy consumption according to a Eurostat query on 1 February 2017 (Eurostat 2017); EC 2017-1, p. 4; EC 2017-2, p. 20.

33 Cf. Müller/Bitsch 2008, p. 221.

34 Art. 3 (1), 2 Directive (EU) 2018/2001. In 2023 the Commission will issue a legislative proposal to increase the target if there are further substantial cost reductions in the production of renewable energy, if it is needed to meet the Union's international commitments for decarbonisation, or if a significant decrease in energy consumption in the Union justifies such an increase.

35 European Council 2014, Conclusion 6.

contributions to the overall target are to be determined independently by the Member States in accordance with the Governance Regulation and backed by an indicative trajectory. This is a step backwards with regard to the integration of European energy policy.[36] For without binding national targets for expansion, the Member States are not under pressure to act.[37] Without legally binding targets, companies have less security for investments in renewable energy technologies. The continuation of nationally binding targets for expansion of the use of renewables to the same extent as previously would be permissible from the point of view of legal competence, but this would require unanimity in the Council, which appears to be unrealistic.[38]

Likewise, the amended Energy Efficiency Directive does not provide for binding national energy efficiency targets but only sets out a European-level, non-binding "headline target" of 32.5 percent.[39] In order to achieve this target, the Member States are again obliged to present indicative national energy efficiency contributions for the year 2030 and establish a corresponding indicative trajectory.[40] However, the annual energy saving quota has been retained and is binding at a level of 0.8 percent of annual final energy consumption. It was previously 1.5 percent, although the application of various exemption clauses meant that it was in fact only around 0.75 percent.[41]

2.2.3 Lack of a CO_2 pricing mechanism conducive to achieving the targets

A governance deficit is evident not only in the aforementioned retrograde steps as regards the binding nature of targets for renewables and energy efficiency, but also in the pricing of CO_2 emissions in the EU, which is not conducive to achievement of the targets. A pricing system covering as many sectors as possible, or ideally all sectors, is of key significance if the climate policy targets are to be achieved in a cost-efficient way (see box).[42]

The pricing of CO_2 emissions in the EU is organised in very different ways by means of sectoral instruments. Whereas the EU-ETS has established a uniform, EU-wide carbon price for approximately 45 percent of the total emissions, reduction targets for carbon emissions in non-ETS sectors, which account for approximately 55 percent of the total emissions[43], are the shared responsibility of the Member States.[44] For the sectors that are not covered by the ETS, there are other regulatory stipulations: in addition to the setting of EU-wide CO_2 emission limits[45] in the transport sector, for example, energy taxes imposed by the individual Member States are intended to exercise a steering function. Under the Council Directive restructuring the Community framework for the

36 See also EP 2014; Kahles et al. 2016, p. 2.

37 The same applies to EC 2015-2, p. 15.

38 Based on Art. 194 (2) para. 2 in conjunction with Art. 192 (2) lit. c) TFEU; on the matter of permissibility see Gundel 2017, marginal notes 31 ff.; Schlacke 2015, p. 125 f.; on the matter of unlikelihood see Ludwigs 2013, marginal notes 71, 230.

39 Art. 1 (1) and Art. 3 (5) Directive (EU) 2018/2002. Here again there is to be a review in 2023 with the possibility that the Commission will propose increasing the target.

40 When setting their contribution, the Member States take into account that primary energy consumption in the EU should be no more than 1,273 million tonnes of oil equivalent and/or final energy consumption should be no more than 956 million tonnes of oil equivalent.

41 Art. 7 Directive (EU) 2018/2002; EC-2016-1.

42 Cf. Böhringer 2014.

43 Cf. EC 2018-4.

44 Until 2020 the Effort Sharing Decision (Decision no. 406/2009/EC) and Decision no. 529/2013/EU for the LULUCF sectors. For the period 2021 to 2030 the new Effort Sharing Regulation (Regulation (EU) 2018/842) and the LULUCF Regulation (Regulation (EU) 2018/841) apply to the non-ETS sectors.

45 For example, the setting of CO_2 caps for vehicle fleets (cf. EC 2017-3). CO_2 caps lead to emissions reductions at certain costs, so that such caps amount to implicit carbon prices. They are, however, not uniform.

How CO_2 pricing works

A uniform price for CO_2 emissions (called "carbon pricing") has a transparent effect on all decisions made by emitters: any measure that results in carbon emissions, or in the avoidance of such emissions, is re-evaluated if there is an explicit price for emitting CO_2. Decisions as to what measures can be taken to reduce emissions and by which emitters, and regarding the technologies employed for that purpose, are made locally, without the government or regulating authority requiring detailed knowledge about specific technologies and consumer preferences. This local market coordination means that emissions are avoided where this can be done at the lowest possible price, so that the emission target is achieved at the least possible cost to the national economy. At the same time, over the long term important incentives are created for investments in low-emissions technologies so as to reduce the costs of achieving the targets in future.

A price for CO_2 emissions can, in principle, be introduced by means of a pricing instrument (taxes, duties) or through a quantitative instrument (emissions trading system). Quantitative instruments offer a high degree of certainty as to the achievement of reductions owing to the setting of a cap on emissions. Over time, pricing instruments offer a stable price signal and thus, for example, a higher degree of reliability (compared with emission trading prices) by means of the future profitability of investments. In a hybrid system, in which emissions trading is backed up by a fixed minimum and maximum price level for allowances, the benefits of both instruments could be combined.

taxation of energy products and electricity[46] the EU obliges its Member States to impose minimum rates of tax on the consumption of energy products such as electricity and combustible fuels. This Directive clearly aims to contribute to the functioning of the internal market and to the avoidance of the distortion of competition through the harmonisation of indirect taxes. Coordination between energy taxation law and climate protection objectives has so far not taken place. This means that minimum tax rates are not based on either the CO_2 content or the energy content of the energy sources, nor are they co-ordinated with the EU-ETS.[47] The Commission's draft amendment to the 2011 Energy Taxation Directive[48], which failed to achieve unanimity in the Council and was therefore rejected in 2013[49], demanded that a distinction be made between energy taxes that specifically relate to the carbon content of the energy sources and taxes relating to their energy content.[50] Energy taxes relating to the carbon content of the energy source could be used to harmonise the pricing of CO_2 emissions[51] and thus incentivise the avoidance of emissions in an efficient way. Tax rates based on energy content, on the other hand, primarily incentivise the saving of energy. By establishing a uniform basis for measuring CO_2 emissions, the energy tax system could have a strong steering effect for improved climate protection in the sectors not covered by the EU-ETS.

46 Directive 2003/96/EC.

47 In Germany the energy taxes are not aligned with the objectives of climate protection, energy efficiency and the promotion of renewables, but are based on a range of distributive, social, industrial and agricultural policy objectives, which results in a complex system of exemptions and reliefs. Depending on the individual energy product, energy tax rates are based on volume, weight or primary energy content. A uniform assessment basis, such as energy content or CO_2 emissions, would reduce distortion between the energy sources and significantly improve the effectiveness and cost efficiency of steering mechanisms in the form of energy taxes for achieving the energy transition goals. Cf. Rodi et al. 2016; Agora 2017.

48 Depending on the focus of interpretation Art. 113, Art. 192 (2) lit. a) or Art. 194 (3) TFEU, cf. Weishaar 2018, pp. 289 ff.

49 EC 2011.

50 Cf. Agora 2017 and Monopolies Commission 2017.

51 If the consumption of energy sources were to be taxed on the basis of CO_2 content, each consumer would pay the same price for the emission of one tonne of CO_2.

The current splitting of carbon pricing leads sometimes to large differences in prices for CO_2 emissions between sectors and countries. This significantly distorts the basis for deciding about the use of energy sources and the adoption of measures to avoid emissions. Hence, energy sources that are taxed at a lower rate than others relative to their CO_2 content are proportionally used too much, while energy sources that are subject to higher rates of tax are not used enough. A stronger link between technical systems and sectors would also mean that various energy sources could be employed more easily. In particular, for example, electricity produced from renewable sources is in direct competition with petrol and diesel in the transport sector and with natural gas and fuel oil in the heating sector. As a result, distortions due to different tax assessment bases between the different energy sources are causing even higher costs.[52]

A carbon pricing system which is conducive to the achievement of the targets could be achieved if the EU-ETS were to be extended to non-ETS sectors and the energy tax system were to be aligned with the climate protection objectives. At Union level, however, a co-ordinated approach to carbon pricing is just as unrealistic as an amendment to the European legislation on energy taxation, which would require unanimous approval in the Council.

2.3 Preliminary conclusion

The basis for competence regarding climate and energy policy under EU law, which can only be described as incoherent and insufficient, means that the EU can hardly undertake any measures to influence the energy mix in the individual Member States, or that it is at least dependent on the achievement of unanimity in the EU Council. Therefore, no binding targets for expanding the use of renewable energy and improving energy efficiency in the Member States have been set for the period up to 2030. It has so far not been possible to establish a carbon pricing system conducive to achievement of the targets by creating a European Emissions Trading System that covers all sectors or by enacting energy taxation legislation in line with climate protection objectives because the necessary majorities or unanimous resolutions required for passing such legal acts have not been forthcoming.

All in all, the divergent interests of the Member States militate against the establishment of a common, EU-wide governance instrument and the adoption of ambitious quantified targets in climate and energy policy.

52 Cf. acatech/Leopoldina/Akademienunion 2017.

3 The Governance Regulation for the European Energy Union

In its *Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*[53], issued in February 2015, the EU Commission set out five dimensions outlining the objectives of the European Energy Union. These dimensions are summarised in Figure 1:

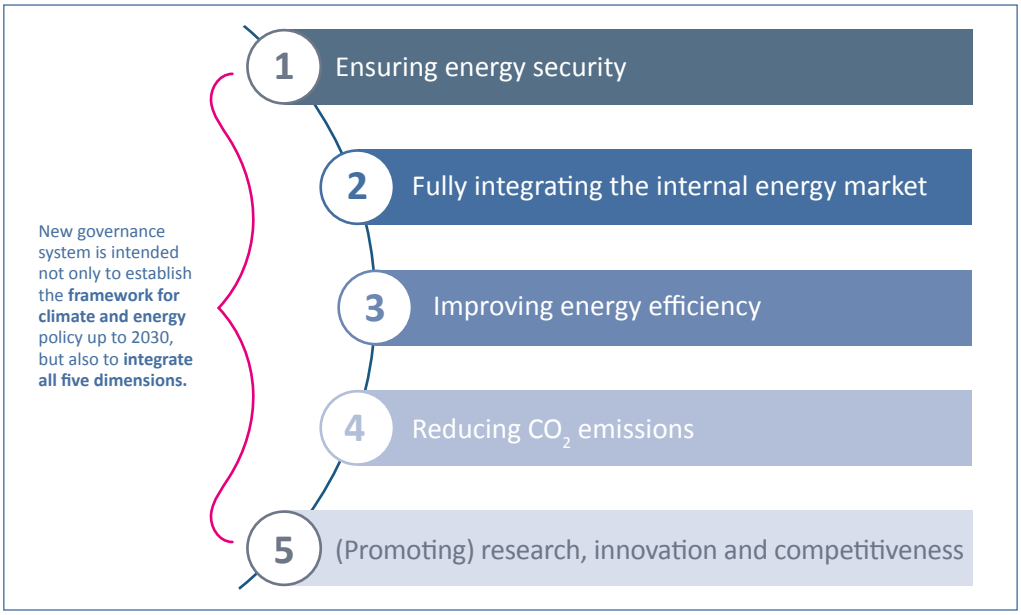

Figure 1: The five dimensions of the European Energy Union. Source: Own diagram.

For the further specification of these five dimensions, the EU Commission published its legislative package entitled *Clean Energy for All Europeans*, also known as the "Winter Package", on 30 November 2016.

A new feature of European climate and energy policy is the *Regulation on the Governance of the Energy Union and Climate Action* (Governance Regulation).[54] It is intended to implement the Conclusion in which the European Council agreed that: *"a reliable and transparent governance system without any unnecessary administrative burden will be developed to help ensure that the EU meets its energy policy goals, with the necessary flexibility for Member States and fully respecting their freedom to determine their energy mix"*.[55]

53 EC 2015-1.

54 Regulation 2018/1999; cf. also Knodt/Ringel 2017, pp. 125 ff.

55 ER 2014, Conclusion 6; Kahles et al. 2016, pp. 7 ff.

3.1 The structure and functioning of the governance system

Through the Governance Regulation, the EU is pursuing a number of objectives: the climate and energy policy strategies of the individual Member States, which have hitherto sometimes been contradictory, are to be more closely integrated to ensure that they are coherent or compatible. This harmonisation should also have a positive effect on investment security. Furthermore, it is intended that an intensive (dialogue) process should take place between the Commission, the Member States and other actors. Of the 91 planning, reporting and monitoring regulations relating to climate and energy policy that are contained in various pieces of EU legislation, more than 50 are integrated, streamlined or repealed through the Governance Regulation, reducing bureaucracy.[56] The *Regulation on a mechanism for monitoring and reporting greenhouse gas emissions* will be integrated into and aligned with the Governance Regulation.[57] Finally, the Regulation should contribute towards the EU's implementation of the Paris Agreement and the UN Climate Change Convention (UNFCCC).

Core instruments of the Governance Regulation are the **National Energy and Climate Plans (NECPs)** which the Member States are required to draw up[58] as well as **long-term strategies**.[59] In the latter, the Member States, with public participation, are required to report on their strategies for achieving the Paris climate goals every 10 years, with a perspective of at least thirty years. They refer to the Paris target of 2°C – or 1.5°C – and also to measures designed to achieve greenhouse gas neutrality "as soon as possible", eventually leading to negative emissions.[60] To this end, the Member States must set out their planned emissions reductions in specific sectors, as well as their strategies for delivering the transition to a low-emissions economy. Furthermore, it is aimed to create a highly efficient energy system based on renewable energy. To help put this strategy into concrete terms, the Annex to the Regulation includes a general framework that should ideally be covered by the strategy. The EU, through the Commission, is also to develop its own long-term strategy.

The integrated NECPs and the mechanism for closing Member States' ambition and implementation gaps are also to be part of a comprehensive monitoring process between the Commission and the Member States, in which the five dimensions of the Energy Union are linked together. This energy and climate monitoring system is intended to ensure that the EU climate targets for 2030[61] are achieved. In view of the absence of nationally binding targets[62], this applies primarily to achieving the overall energy efficiency target of 32.5 percent[63] and expanding the use of renewables to 32 percent of gross final energy consumption.[64] The Member States are obliged to set out

56 EC 2016-3, p. 2 f.; EC 2016-2, p. 2; for an overview of the legal acts that are to be amended by the Governance Regulation, cf. Recital 45.

57 Regulation (EU) No. 525/2013 – alignment relates, among other things, to the monitoring of the Effort Sharing Regulation (Regulation (EU) 2018/842), the "LULUCF" Regulation (Regulation (EU) 2018/841) as well as the Paris Agreement.

58 Art. 3 Governance Regulation.

59 Art. 15 Governance Regulation.

60 i. e. effectively extracting greenhouse gas emissions from the atmosphere.

61 At the heart of this is the EU's collective target of delivering a reduction of greenhouse gas emissions of at least 40 percent by 2030 compared with 1990, improving energy efficiency by at least 32.5 percent, achieving a share of at least 32 percent of renewable sources in energy production as well as an electricity interconnection target of 15 percent, Art. 2 Nr. 11 Governance Regulation.

62 Concerning the political background to this see: Knodt/Ringel 2017, pp. 125 ff.; Fischer 2014.

63 Art. 1 (1) and Art. 3 (5) Directive (EU) 2018/2002.

64 Art. 3 (1), 2 Directive (EU) 2018/2001.

their national contributions towards achieving the collective target. However, these contributions only need to be based on an indicative, i. e. non-binding, trajectory up to 2030. The Governance Regulation contains only very generally formulated parameters that have to be taken into account when Member States determine their contributions towards, for example, increasing the share of energy from renewables, namely gross domestic product (GDP), national funding programmes, potential for or barriers to expansion, as well as the distribution of their deployment within the EU.[65] Where the contribution of Member States towards achieving the energy efficiency target is concerned, it must be taken into account that primary energy consumption in the EU up to 2030 should not exceed 1,273 million TOE[66] and/or final energy consumption should

Integrated National Energy and Climate Plan

The **Integrated National Energy and Climate Plan** summarises the existing reporting and monitoring obligations and supersedes earlier plans relating to the field of renewable energy sources and energy efficiency.[a] All Member States were obliged to submit a **draft** of their plan by 31 December 2018 (and every 10 years thereafter), which they must draw up with involvement of the public and in consultation with neighbouring Member States and other Member States expressing an interest. They are required to seek opportunities for closer cooperation in energy-related matters and may draw up their NECP jointly with other Member States. The Commission will evaluate the Plan and issue recommendations by 30 June 2019. All such recommendations are non-binding. The Member States are only obliged to "take due account" of them.[b] The Member States must submit their final NECP on 31 December 2019. It must cover the period from 2021 until 2030 but should ideally also include a longer-term perspective.

In the Plan the Member States must set out their national objectives, targets and contributions in line with the five dimensions, their strategies and measures, the current situation, as well as prognoses and impact assessments. Annex I of the Governance Regulation contains a detailed list of the reporting obligations as well as a model "general framework" for the Plan, which is intended to ensure the coherence and comparability of the NECPs submitted by the Member States.[c] The reporting obligations are different for each dimension.

As an example, the NECP should contain the following:

- the binding, nationally determined targets set by the Member States in accordance with the Effort Sharing Regulation[d] as well as the assurances in accordance with the Regulation on emissions from land use, land-use change and forestry (LULUCF),[e]
- the national contributions to the binding European target for the production of renewable energy (32 percent by 2030), combined with a trajectory and a breakdown relating to specific sectors and technologies,
- an indicative national contribution to energy efficiency, targets for the renovation of the national building stock, the degree of interconnectivity of electricity networks, targets for dealing with supply shortages, energy poverty as well as market integration and market coupling.

a Cf. Kahles et al. 2016, p. 12 f.
b Recital 54 of the Governance Regulation; for a critical assessment see Duwe et al. 2017, pp. 14 ff.
c Section A (National Plan), Section B (Analytical basis).
d Regulation (EU) 2018/842.
e Regulation (EU) 2018/841.

65 Art. 5 Governance Regulation.

66 Tonne of oil equivalent (TOE) is a unit of energy that is defined as equivalent to the amount of energy released by burning one tonne of crude oil.

not exceed 956 million TOE.[67] Further points to consider are energy-saving potential, changes to the energy mix and measures under the Energy Efficiency Directive.

The Commission will examine the plans and assess whether the formal requirements have been met and whether the objectives, targets and contributions formulated by the Member States in their NECP are sufficient to achieve the targets of the Energy Union – these being, in the first 10-year period, the EU climate targets up to 2030.

In order to be able to evaluate the implementation of the NECPs, the Governance Regulation requires that Member States submit **progress reports** relating to the five dimensions every two years (and concerning some aspects every year).[68] On this basis, the **progress** of the Union and of the Member States can be **evaluated** using an analytical grid. These progress assessments form part of the "Report on the State of the Energy Union" to be submitted by the Commission to the European Parliament and the Council.

An **update of the NECP** is to be submitted by 30 June 2023 and every 10 years thereafter[69], and recommendations can again be made for this. The stated requirement for targets to "reflect only an equal or increased ambition" is intended to prevent a lowering of targets once they have been set, although the setting of a low baseline to begin with, or a declaration that the Plan remains in force, could mean that this requirement may simply come to nothing. In the course of legislative proceedings, the "non-deterioration principle", which used to be universally applicable, has been limited to the areas of renewables and energy efficiency. The Member States can make changes and amendments to their national policies described in their NECPs at any time, provided they are included in each progress report.

As the national contributions are determined by each Member State independently, the matter of imminent gaps or failure to achieve targets at European level (so-called **gap-filling mechanisms**) is of crucial importance.[70] A distinction must be drawn between "ambition gaps" in drawing up the NECPs and "delivery gaps" in the implementation of the NECPs.

If the Commission identifies an **ambition gap**, it can recommend that Member States whose objectives, targets and contributions they consider insufficient should adopt a higher level of ambition. In order to establish responsibility for a gap in the area of renewable energy, there is a uniform but indicative basis for assessment with which the Commission, and also the Member States, can calculate a benchmark.[71] The introduction of this formula partly compensates for the absence of binding national targets.[72] In the field of energy efficiency, however, there is no such transparent procedure for dealing with ambition gaps. Here, no specific criteria have been formulated.[73] If an

67 Art. 6 Governance Regulation.

68 Art. 17 ff. Governance Regulation.

69 Art. 14 Governance Regulation.

70 Art. 31, 32 Governance Regulation.

71 The formula incorporates the following five criteria expressed in percentage points: 1. the national binding target for the year 2020, 2. a flat rate contribution that is equal in amount for all Member States, 3. a GDP-per-capita based contribution, 4. a contribution based on the national potential for expanding the use of renewable energy and 5. a contribution reflecting the interconnection level of the Member State. Cf. Art. 31 (2) and Annex II of the Regulation.

72 Knodt/Ringel 2018-1 and Knodt/Ringel 2018-2.

73 For example, energy-saving potential, GDP, changes in energy imports and exports, as well as the energy mix.

ambition gap is identified during the assessment of the final NECPs, the Commission proposes "measures", such as strengthening climate and energy policy regulations and directives or tertiary legislation. Whether the strengthening of directives and regulations would have binding effects, however, would depend on the existence of the necessary majorities in the EU Council and European Parliament.

In the event of **delivery gaps** in the implementation of the NECPs, there are again considerable differences between the field of renewable energy and that of energy efficiency: in order to ensure that the EU target of achieving a 32 percent share of energy produced from renewable sources by 2030, each Member State and the EU as a whole must have achieved certain reference values: by 2022 18 percent, by 2025 43 percent, and by 2027 65 percent of their expansion targets for the period 2020 to 2030. In the case of energy efficiency, there is only mention of the assessment of progress in the reference years 2022, 2025 and 2027 without establishing any specific degrees to which targets must have been achieved.

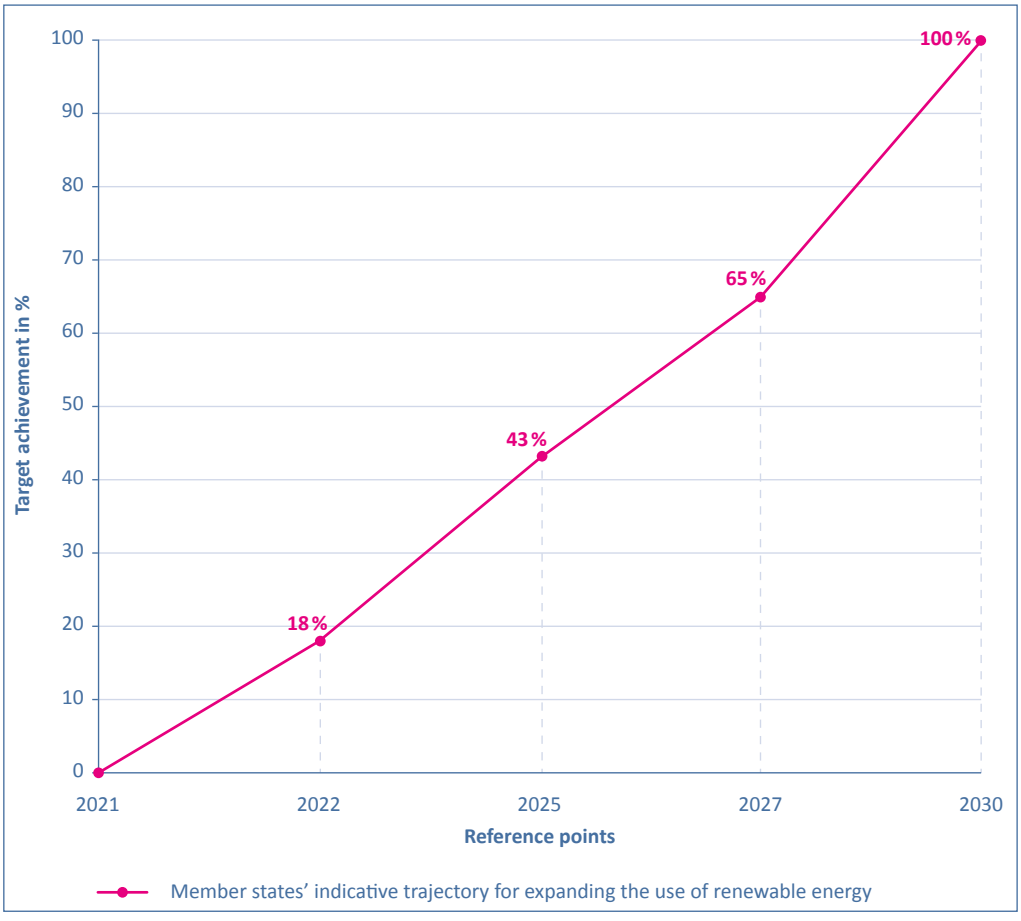

Figure 2: Member states' indicative trajectory for expanding the use of renewable energy, with reference values.[74]
Source: Own diagram.

If a Member State expects to surpass its 2020 target for the share of renewable energy, it can also begin its trajectory as this higher level. Subsequently, all the trajectories of the Member States taken together create the indicative trajectory of the Union, with corresponding reference values for 2022, 2025 and 2027 with regard to achievement of

74 Art. 4 lit. a) Nr. 2 Governance Regulation.

the binding EU target of at least 32 percent renewables by 2030, based on 20 percent in the year 2020. Irrespective of the Governance Regulation, the Member States can also set higher targets for national policy purposes. In the case of a delivery gap, the Commission also has the right to issue recommendations to the Member States.

If the Commission finds that one or more reference values on the trajectory of the EU are not being complied with, the Member States that have failed to achieve the reference values may, within one year after receipt of the Commission's assessment, adopt additional measures to close the national gap and show evidence of having done so in the next progress report. As an example, it is suggested in the Governance Regulation that the national share of renewable energy should be increased in the heating and cooling sector or in the transport sector, or use should be made of the cooperation mechanisms provided for in the Renewable Energy Directive.[75] By way of compensation, a financial contribution can also be made to a funding mechanism for EU-wide renewable energy projects that are to be established at Union level.[76] Contrary to the Commission's original proposal, however, these payments are to be voluntary, so that the effectiveness of this funding instrument is questionable. Funding for these projects is to be allocated by means of a tendering process and the contributions statistically attributed to the participating Member States.[77] The Member States may utilise revenues from the auction of ETS allowances for these payments. If the additional national measures are insufficient, the Commission can again propose measures and exercise its power – for example its authority to substantiate and strengthen existing legal acts by means of so-called tertiary legislation.[78]

In the event that a Member State appears likely to fail in meeting its targets, treaty violation proceedings only come into consideration if that Member State has failed to achieve the reference values for renewables as a result of deviation from its trajectory. As long as the EU's overall target is achieved, for example because some Member States overfulfil their targets, the failure of individual Member States to achieve their targets is largely without consequence, especially in the less bindingly regulated area of energy efficiency.

In the case of a delivery gap in the trajectory for energy efficiency, the Governance Regulation does not prescribe any additional national measures but only provides for the evaluation of progress in the reference years 2022, 2025 and 2027. If this evaluation is negative, the Commission has the opportunity to issue recommendations and propose measures to improve the energy efficiency of products, buildings and transport.[79]

3.2 Opportunities and risks presented by the Governance Regulation

In view of its limited competence framework and the lack of willingness to establish a common instrument, such as a comprehensive and stringent emissions trading system covering all sectors, or to set binding targets for increasing the share of renewable energy and improving energy efficiency for the Member States, the EU, in this Governance

75 Art. 32 Abs. 3 Governance Regulation.

76 Art. 32 Abs. 3, 33 Governance Regulation.

77 Details are set out in implementing legal acts issued by the Commission. The Member States retain the right to decide whether and, if so, under which conditions they allow installations located on their territory to receive support from this financing mechanism, cf. Art. 33 (4) Governance Regulation.

78 Art. 32 (2) para. 2 Governance Regulation, Knodt/Ringel 2018-1.

79 Art. 32 (2) para. 3, 4, (6) Governance Regulation.

Regulation, is now relying on voluntary commitments by the Member States and on a system of "soft" monitoring and control that is not legally binding.[80] The term Energy Union brings together the heterogeneous interests and objectives of the Member States in a common declaration of commitment, but without solving the existing conflicts of interests between the states of Northern and Western Europe, who are striving for decarbonisation of the energy system, and the countries of Central and Eastern Europe, who are keen to ensure energy supply security on the basis of coal.

The Governance Regulation focuses primarily on the fields of renewable energy and energy efficiency, but even in these areas it does not provide for any "harsh" sanctioning mechanisms, and it certainly does not include any sanctions or mechanisms for situations where strategies and measures relating to the other dimensions of the Energy Union are insufficiently implemented. For example, in the event of insufficient progress in developing an interconnected electricity grid, the regulation only proposes "cooperation" with the Member States involved.[81] Even though the method of dealing with delivery gaps in the field of renewable energy has been strengthened over the course of the legislative procedure, there is still an absence of legal and policy instruments in the sphere of energy efficiency through which the Member States would be obliged to achieve the EU-wide targets. Furthermore, the formula for calculating the national contribution to renewable energy is likewise indicative, and hence non-binding, as are the trajectories towards this target. Numerous provisions in the NECPs and progress reports have led to a weakening of the reporting obligations, making them voluntary or removing them altogether, and this has indeed reduced the administrative burden.[82] By the same token, however, it has also diminished the comparability of national strategies, and hence reduced the value of monitoring, which the Governance Regulation was actually intended to reinforce. The publication requirement for the Commission's recommendations and the progress reports of the Member States, in which they must demonstrate the extent to which they have taken "due" account of the non-binding recommendations of the Commission, do constitute a means of political control.[83] Nevertheless, there is no provision for judicial supervision of compliance with the Member States' targets and the implementation of their contributions towards climate protection.

For the first time, the Governance Regulation combines climate and energy policy within the framework of a single legal act. However, taken as a whole, the mechanisms are insufficient to permit the effective sanctioning of violations or insufficient efforts undertaken by the Member States in the field of climate policy. Whether the EU Commission can sufficiently ensure the achievement of the EU's climate targets by 2030 on the basis of a system of non-binding recommendations, from which it is possible to divert at any time, is therefore highly doubtful.[84]

80 Fischer/Geden 2015, p. 4 and Ringel/Knodt 2018-1.

81 Art. 32 (8) Governance Regulation.

82 For example, regarding the subjects of energy poverty, biomass and market integration.

83 Art. 34, 17 (7) Governance Regulation.

84 Ringel/Knodt 2018-1, p. 12.

4 Options for the governance of EU climate and energy policy up to 2030

The following options indicate possible ways in which Germany and the EU Commission can utilise and effectively implement the Governance Regulation in order to achieve the 2030 EU climate targets and the Paris climate targets. They cover four different fields of action:

First of all, the Member States are required to ***implement*** the NECPs and their long-term strategies, with a high level of ambition, by anchoring them in their national legal order and to make systematic use of the existing scope for action provided by the Governance Regulation. For them to be implemented effectively, it is important that these plans and strategies are binding and are ***subject to sanctions*** in the event of non-compliance; equally important is the creation of **positive *financial incentives***, which can be achieved by linking existing structures – including, and above all, at EU level. It is advisable to ***back up*** these options by means of leadership alliances, which can help to overcome policy blockages and forge ahead with climate protection measures.

4.1 Effectively implementing the Governance Regulation

Although it is a legal act that is directly applicable in the Member States, the "bottom-up planning instruments" of the Governance Regulation nevertheless provide a great deal of scope for the Member States to determine their own actions. In order for the NECPs and the long-term strategies to contribute towards achieving the European and international energy and climate targets, the Member States must *implement* them effectively.

4.1.1 Anchoring the Energy and Climate Plans in binding legislation

The Governance Regulation sets out the direct and binding requirement for Member States to draw up an integrated National Energy and Climate Plan, but it does not prescribe the legal mechanisms that are to be used in implementing this Plan. Hence, the Member States are free to decide whether and how to anchor their NECP in their domestic legal order.[85] In order for the NECP at national level to be an effective driving force towards achievement of the European climate targets for 2030, the legally binding nature of the NECP, or least of its contents, is to be welcomed.

In the Coalition Agreement, the German governing parties – CDU, CSU and SPD – have promised to pass legislation "(…), that ensures compliance with the 2030 climate protection targets" and is legally binding, in order to achieve the various emission

85 Both energy and environmental matters are areas of shared competence, Art. 4 (2) lit. e), i); Art. 2 (2) sentence 2 TFEU: "to the extent that the Union has not exercised its competence"; Calliess 2016, Art. 2 AEUV, marginal note 13 f.

reduction targets of different sectors.[86] According to the Coalition Agreement, this legislation is to come into force in 2019. Such a Federal Climate Protection Act could – like the Governance Regulation at European level – constitute an overarching legal framework for the specific legislation applicable to certain sectors (such as the Renewable Energies Heat Act [EEWärmeG], Renewable Energy Sources Act [EEG], Energy-Saving Act [EnEG] and the Federal Immissions Control Act [BImSchG]). By setting legally binding national targets for greenhouse gas emissions reduction and individual targets for specific sectors (regarding, among other things, renewable energy sources and energy efficiency) and by involving the public in drawing up an integrated National Energy and Climate Plan, Germany could contribute transparently and effectively to the achievement of the European targets and increase confidence in the government's climate and energy policy, particularly among the domestic business community. The closer the intervals between interim targets[87], the faster it is possible to respond when there is an imminent risk of failure to achieve targets.[88] Dividing the pursuit of sectoral targets among the various federal ministries, in particular energy, construction, the environment and transport, would reinforce their responsibility for climate policy and create pressure to act.[89]

National monitoring conducted alongside the monitoring performed at European level (biennial progress reports to the Bundestag, legally binding adjustment of the targets every five or ten years) would reduce the administrative burden and improve transparency. The non-deterioration principle with regard to the targets, which is partially to be found in the Governance Regulation, should also be anchored in a German Climate Protection Act, as should also a (delivery) gap-filling mechanism in the form of regulative and non-regulative emergency measures in the event of imminent failure to achieve the targets.[90] The constitutionally-based division of powers does not preclude a Federal Climate Protection Act setting out its own targets.[91] By including a flexibility clause to this effect, it would be possible for the climate protection legislation of the individual federal states[92] to remain in force and be developed further, with the Federal Climate Protection Act forming an overarching framework.[93]

The federal legislature has various options at its disposal for integrating the NECP into the Federal Climate Protection Act:

- The NECP lays down sectoral targets, strategies and measures relating to the five dimensions of the Energy Union, some of which are already included in other national plans and programmes.[94] In particular, the Climate Protection Plan 2050 requires that in 2018 a programme of measures should be drawn up with the

86 Coalition Agreement 2018, line no. 6742 f.

87 For example, annual or ten-year targets.

88 Such as failing to achieve the national climate protection target for 2020.

89 Rodi et al. 2011, p. 520.

90 For an in-depth examination of proposals for a Federal Climate Protection Act see WWF 2018; Saurer 2018, pp. 584 ff.

91 The primary objective is air pollution control (Art. 74 (1) No. 24 Basic Law [GG]), the secondary objective is the law relating to economic matters (Art. 74 (1) No. 11 Basic Law [GG], Erforderlichkeitskompetenz). With regard to land use planning, the federal states have authority to deviate, cf. Stäsche 2018, p. 142 f.

92 Relevant provisions can be found and retrieved via the literature and source references.

93 For a comparative representation of the climate protection legislation of the individual federal states see Stäsche 2018, p. 143; Schlacke 2014.

94 These include the Climate Protection Plan 2050, Energy Transition Progress Reports, the National Action Plan on Energy Efficiency (NAPE), the Green Book of Energy Efficiency, Energy Plan 2010, 6th and 7th Energy Research Programme and Electricity Market 2.0.

participation of stakeholders and the Bundestag, in which specific strategies are to be drawn up for achieving the targets up to 2030.[95] The contents of this programme could be merged into a German NECP. In order to achieve the targets for the whole of Germany, the NECP or parts thereof could be enacted by the Bundestag in the form of legislation or passed by the federal government as a statutory ordinance, thus making them legally binding and providing a higher degree of legitimacy. The NECP could also be included as a binding annex to the new Federal Climate Protection Act.

- Alternatively, the NECP or parts thereof could be declared binding at least for public bodies, for example (sectoral) sub-targets for the use of renewable energy and energy efficiency, or strategies and measures for achieving the targets.[96] The same applies to the targets in the long term strategy, which will have a longer-lasting influence on federal government policy. Regulating only public bodies would not be as broadly effective as placing the entire private sector under the same obligations.

Climate protection legislation in the German federal states

Six of the German federal states – North Rhine-Westphalia (January 2013), Baden-Württemberg (July 2013), Rheinland-Palatinate (August 2014), Bremen (March 2015), Berlin (April 2016) and Schleswig-Holstein (March 2017) – have already enacted legislation incorporating binding climate protection targets. The Hamburg Climate Protection Act (June 1997) and the Hessian Energy Future Act (November 2011) do not include explicit climate protection targets. In Thuringia and Lower Saxony similar legislation is currently under discussion.[a] All six of the first legislative acts mentioned above set climate protection targets for 2020 and 2050 with corresponding sub-targets, for example for expanding the use of renewables and improving energy efficiency, establish monitoring procedures and include commitments to achieve climate neutral administration. This legislation (except that of Schleswig-Holstein) is being substantiated and implemented by means of a climate protection plan (or an instrument that is called by a different name but which is structurally comparable) setting out specific measures for achieving the targets, which are being executed through policy measures.

There are, however, differences in the specific formulation of the legislation, above all in the extent to which public bodies are expected to act as role models, in the details of the monitoring process and the option of declaring parts of the climate protection plan to be binding, in adaption to the consequences of climate change, in the significance of the targets for land use planning, the levels of the overall targets and the precise definition of decade, sectoral and sub-targets. North Rhine-Westphalia, Rheinland-Palatinate and Berlin assess the likelihood of achieving their targets as positive, Baden-Württemberg and Schleswig-Holstein as uncertain and Bremen as negative. Innovative approaches include, for example, specific climate protection agreements between federal state governments and public bodies or public-private entities, sustainable management in the fields of IT and acquisitions, as well as climate-friendly mobility.

a The other federal states have not set out their climate protection targets in statutory form, such as climate protection plans or other conceptual plans, Stäsche 2018, p. 132; Sina 2018, pp. 314 ff.

95 Klimaschutzplan (Climate Protection Plan) 2050, p. 78 f.; WWF 2018, p. 14 f., 23.

96 See Section 6 (6) KSG NRW 2013. The government of North Rhine-Westphalia has not so far made use of this power.

4.1.2 Integrating the phasing out of coal into the national NECP

As well as making the proposed NECP legally binding, the phasing out of coal in Germany could also be taken into account when drawing it up and implementing it. In connection with this, the Commission appointed by the Federal Government on "Growth, Structural Change and Regional Development"[97] developed a programme of action for ending the extraction and use of coal by 2038.[98] This body was made up of 31 individuals from the spheres of politics, business, science and civil society and presented its final report on 25 January 2019. The first federal state to decide to include a legally binding date for the phasing out of coal in its climate protection legislation is Berlin.[99] The Berlin Senate is endeavouring to end the production of energy from hard coal by the end of 2030. Berlin is first the German federal state that already ended energy production from lignite in 2017. The setting of a specific date for the phasing out of coal also takes adequate account of the objective of investment security and achieving a just transition to a low-carbon economy. The phase-out scenario should also play an important role in drawing up the long term strategy. It is important to coordinate the national coal phase-out strategy with its European equivalent through the greater involvement of European stakeholders and partners.

4.1.3 Involving municipalities, local authorities and federal states more closely and increasing public participation

Although municipal and local authorities are of essential importance as enforcement authorities for the implementation of the strategies and measures set out in the NECP, they play an extraordinarily small role in the EU governance system. Annex I of the Governance Regulation briefly mentions the involvement of local and regional authorities, but these are not specified in any detail. This does not do justice to their importance for global climate protection.[100] The same applies to the German federal states. The Governance Regulation stipulates that those Member States who have not yet established such a framework should create a platform for "multilevel climate and energy dialogue"[101] involving local authorities, civil society organisations, the business community, investors and other relevant stakeholders, and intensify the (political) monitoring of the NECPs.[102] In order to ensure that this platform does not become a mere space for debate without any influence, but instead contributes towards effective implementation and enables transparent, constructive dialogue with all participating stakeholders, criteria should be drawn up for the establishment of this platform and for the forms of participation. Tried and tested participation formats such as the "Covenant of Mayors for Climate and Energy"[103] at European level should be more closely involved and taken as role models.

The Governance Regulation is also very vague as regards public participation in the drawing up of the NECPs and long-term strategies, which provides the Member States with broad scope for action. For example, the public is to be given "early" and "effective" opportunities to participate, and the timeframe is to be "reasonable", allowing

97 Also called the "Coal Commission", Federal Ministry for Economic Affairs and Energy (BMWi) 2018.

98 Commission "Growth, Structural Change and Regional Development" 2019.

99 Section 15 (1) of the Berlin Energy Transition Act (Energiewendegesetz).

100 WBGU 2016.

101 Art. 11 Governance Regulation.

102 For an overview of current governance in the field of energy efficiency and a discussion of its impact at local level see Ringel 2018.

103 This is a voluntary alliance of municipal and local authorities who seek to pursue an ambitious climate and energy policy at local level and so contribute towards achieving the EU-wide targets, cf. Covenant of Mayors 2018.

"sufficient" time for consultation.[104] Only a summary of the public's views is to be produced. There is no explicit obligation to show how objections have been taken into account in drawing up the plan, nor to provide justification as to why they have not been taken into account. The Member States must therefore specify these procedural requirements themselves and they should do so in a binding way. In Germany, this would be a further element of the Federal Climate Protection Act.[105] Furthermore, the European Commission could issue non-binding guidelines for the public consultation procedures to be conducted in the Member States. Such communications by the Commission act as powerful political signals and often have a unifying effect.

4.2 Financing achievement of the targets: European Structural and Investment Funds

Owing to the absence of national targets in the Governance Regulation, there is a risk that the sum total of the targets set by the Member States will be insufficient to achieve the collective European target (ambition gap). Another possible obstacle is that the national targets are not sufficiently implemented (delivery gap). Financial incentives can help to close these gaps. The Governance Regulation itself contributes towards this: it lays the foundations for creating a funding platform for Renewable Energy Projects as a gap-filling mechanism.[106] Since the payments are now explicitly voluntary[107] – contrary to the Commission's original proposal – there are doubts as to how effective this instrument can be in practical terms. Therefore, other instruments for the financing of climate and energy policy measures are necessary.

By linking the Governance Regulation more closely with other policy areas – above all with the structural policy of the European Union – additional funding instruments can be created. In this way, the targets of the European Energy Union could be pushed ahead collectively and ambitiously. This can be done by integrating the **ESI Funds** more closely with the Governance Regulation (see box). The promotion of regenerative energy sources is already included in various funds. For example, the development of a "low carbon economy" is one of the four priorities of the European Regional Development Fund (ERDF).[108]

The draft proposal for a new umbrella Regulation for the ESIF, which was submitted by the European Commission at the end of May 2018[109], refers to the potential contribution of the ESIF towards achieving the EU climate targets up to 2030 and the targets of the Paris Climate Agreement.[110] Since this requires a qualified majority and not a unanimous vote in the Council,[111] reform is a politically realistic option. As one of their five key policy objectives, the ESI Funds cite a "greener, low carbon Europe" by promoting "clean and fair energy transition" and "climate adaptation".[112] The draft

104 Art. 10 Governance Regulation.

105 At least the procedural regulations set out in Sections 33 ff. of the Environmental Impact Assessment Act (UVPG) should be applied, since reference is made to the SEA Directive "where applicable".

106 See Section 3.1 above.

107 Art. 32 (3) para. 1 lit. d) Governance Regulation.

108 Regulation (EU) No. 1301/2013.

109 EC 2018-1, pp. 13 ff.

110 EC 2018-1, Art. 4 (1) lit. b) and (3).

111 Art. 177, 322 (1) lit. a) in conjunction with Art. 294 AEUV.

112 EC 2018-1, Art. 4 (1) lit. b).

Regulation of the European Union on the ERDF[113] incorporates more specific objectives. These include (1) promoting energy efficiency measures, (2) promoting renewable energy, (3) developing smart energy systems, grids and storage at local level and (4) promoting climate change adaptation.

European structural policy

Since the formation of the European Economic Community (EEC), one of the declared objectives has been to reduce disparities between individual countries and regions within Europe. At the Paris summit of autumn 1972, the European Council agreed that high priority should be given to the aim of "correcting, in the Community, structural and regional imbalances"[a]. In 1975 the EC officially adopted structural funding and established the European Regional Development Fund (ERDF) as an instrument for that purpose. Alongside this, the existing Social Fund (ESF) and Agricultural Guidance and Guarantee Fund (EAGGF) were likewise structural policy measures. These instruments, which have meanwhile been supplemented by further funds, are now referred to under the collective term "European Structural and Investment Funds" (ESIF). In the EU's Multiannual Financial Framework for the period 2014 to 2020 around €370 billion Euro has been allocated to the ESIF out of a total amount of 1.03 trillion Euro.[b] The ERDF, in particular, is intended to end territorial disparities in the EU. The aim of the fund is "correction of the main regional imbalances in the enlarged Community and particularly those resulting from the preponderance of agriculture and from industrial change and structural under-employment".[c] Hence, the fund aimed to make up for territorial disadvantages, particularly for regions which had little industry or whose economic capacity was under threat due to structural crises. Whereas in 1985 around 12.8 percent of the EU's annual budget was spent on structural funding, this proportion has almost tripled, to around 35 percent in 2018.

a European Community 1972.
b EC 2018-5.
c Regulation (EEC) No. 724/75, p. 1.

The EU Commission has also proposed spending 25 percent of the Union budget for the period 2021 to 2027, which amounts to 1,279 billion Euro, for supporting measures and strategies intended for achieving the climate targets.[114] During the funding period 2014 to 2020, the EU already invested 20 percent of the budget in climate protection. For this purpose, the Member States are required, under the proposed ESI Regulation, to provide information about their support for environmental and climate protection targets in each fund. A prescribed method must be used to demonstrate how and to what extent the specific funds contribute towards the achievement of environmental and climate protection targets.[115]

The financial scope for using the ESI Funds for the Member States' NECPs is clearly evident. The draft ESIF umbrella Regulation supports this linkage. In this draft Regulation, the Commission proposes that the Member States take into account the content of their draft NECP, along with the Union's recommendations concerning it, "in their programmes [...], and also when calculating their required funding allocations for low carbon investments".[116] This would create a direct link between the Governance

113 EC 2018-2.
114 EC 2018-5, p.25.
115 EC 2018-1, Art. 4 (3).
116 Recital 14 to the Draft Regulation, EC 2018-1, p. 16.

Regulation and the structural funds in order to close ambition or delivery gaps. For this purpose, the future ERDF Regulation should contain specific targets, for example for promoting energy efficiency. In addition, support for the regions that are experiencing major structural change owing to the energy transition should be integrated into the ESI Regulation. This would enable increased ESIF resources to be used for dealing with structural change in the German coal mining regions, for example.

Another option is opened up by the ESI funding objective of promoting "European Territorial Cooperation", which supports interregional collaboration (see box). The regional collaboration among the Member States, which is anchored in the Governance Regulation, could be promoted through this. In the Regulation, regional cooperation is regarded as a key to effectively achieving the targets of the Energy Union, and the Commission is called upon to facilitate cooperation between the Member States.[117] If, for example, specific cooperation programmes were to be established in the European Regional Development Fund (ERDF) and linked to the programmes for "European Territorial Cooperation", funding could be provided for the development of joint energy and climate protection projects.

"European Territorial Cooperation"/INTERREG

"European Territorial Cooperation"/INTERREG is part of the structural and investment policy of the European Union. Since 1988 it has been used to support cross-border cooperation between cities and regions, for example in the field of environmental conservation and climate protection. A key element has been the focusing of funding on specific programme objectives. An important instrument has been joint initiatives, enabling the Commission to define priorities in a flexible and short term way. They can be adopted by the Commission as "Communications" and therefore do not need to be passed by the Council in the form of Regulations. This has considerably expanded the Commission's scope for action. From the beginning, the Community made frequent use of this instrument. Starting with the funding period 2007 to 2013, INTERREG was upgraded from a temporary Community initiative into an independent objective of EU structural policy under the name "European Territorial Cooperation" (ETC). With this funding period, however, the instrument of Community initiatives was given up in favour of the five priorities, which means that the EU has lost one of its most flexible instruments.

In view of the high decarbonisation potential and the lack of EU competence[118] to order the phasing out of coal throughout Europe, national measures to enable the phasing out of fossil fuels are to be promoted at European level, and so funding opportunities should be provided for cooperation between regions for the specific purpose of "converting" coal mining areas. For example, the establishment of specific cooperation programmes within the priority field "low carbon economy" in the ERDF, coupled with the programmes for European Territorial Cooperation, would be a desirable option.

The draft Regulation on the functioning of the ESIF provides a suitable starting point. With reference to the success of the earlier INTERREG programme, it is proposed there that cross-border programmes should change from primarily managing and distributing toward acting as institutions of exchange and being a centre for strategic

117 Recitals 31, 32 of the Governance Regulation.

118 See Section 2.2.1 of this position paper.

planning.[119] The Commission intends to remove administrative obstacles to such cooperation. It proposes to "facilitate solutions with an "off-the-shelf" legal instrument to allow the use of one Member State's rules in a neighbouring Member State".[120]

It is important to build upon this in order to link EU structural funding with the field of regional cooperation for the establishment of a European Energy Union, thereby creating financial incentives and organising administrative support. This should be directly included in the new ESIF Regulation. By directly linking the Governance Regulation with the structural funds, new funding opportunities can be created for an ambitious climate and energy policy. In order to reduce the danger of undesirable side-effects,[121] the objectives should be specified as clearly as possible when funding is allocated.

4.3 Effectively sanctioning non-compliance with the Governance Regulation

The Governance Regulation does not contain any effective sanctioning mechanisms in the event of failure to achieve the targets set out in the NECPs. Here again, the Member States or the EU themselves need to create potential sanctions in order to ensure that the Member States make a sufficient contribution towards achieving the European targets.

4.3.1 Enabling review of NECPs: Access to justice

Introducing the right for environmental organisations to bring legal action has in the past proven particularly effective.[122] This enables them to monitor compliance with environmental legislation. In the case of the European Energy Union, various options are conceivable: environmental organisations could be granted the right to bring legal action if Member States fail to develop an integrated NECP or to achieve their stated targets, if national plans are not sufficiently ambitious or procedural errors are made in connection with their development (e.g. failure to provide for public participation). Thus, a right to bring legal action may partially compensate for the lack of sanctions in 'soft governance' elements, such as the non-binding Commission recommendations.

Whether the Member States are obliged under international law to grant associations the right to bring legal action in order to review the NECPs depends on the *Aarhus Convention (AC)*, which the EU and all its Member States have ratified. The Convention obliges every Member State to grant public access to information, provide for public participation in decision-making and guarantee access to justice in environmental matters.[123] According to this Convention, the public must have recourse to justice "to challenge acts and omissions by [...] public authorities which contravene

119 EC 2018-3, p. 4.

120 EC 2018-3, p. 4.

121 Taking the field of economic growth as an example, the effects of the structural funds and their possible undesirable side-effects are analysed in the following studies: Becker et al. 2012; Mohl/Hagen 2010; Breidenbach et al. 2016.

122 Wegener 2018.

123 The Governance Regulation, in Recitals 28 and 29, also refers to this Convention.

provisions of its national law relating to the environment."[124] In this context, "plans"[125] also constitute acts.

The NECPs are only subject to review, however, if they "establish a framework for the future approval of projects".[126] If the NECPs only have a general strategic character, they are classified as policies and are not subject to the provisions of the Aarhus Convention regarding access to justice, as is the case, for example, with the German Climate Plan 2050, which is not legally binding.[127] However, the more specific the strategies and measures set out in the plans, the greater the likelihood that the plans may be regarded as constituting a binding framework for approval decisions based on them,[128] in which case they are subject to review. Since the main aim of the Governance Regulation is climate protection and it was based (among other things) on the environmental competence of the EU, it constitutes an element of the "provisions relating to the environment" referred to in the Aarhus Convention, which are subject to review. There is a risk, however, that Member States will prevent environmental organisations from having access to judicial review procedures by producing NECPs that are as vague as possible. It is also conceivable that an NECP may only partially "establish a framework" and therefore be only partially subject to judicial review. In order to prevent this, the term "acts" as used in the Aarhus Convention must be interpreted in a broad sense, so that the Member States are obliged under international law to grant environmental organisations access to justice in order to bring about reviews of the NECPs. For this purpose, Germany should expand the scope of the so-called Environmental Appeals Act (*Umweltrechtsbehelfsgesetz, UmwRG*), which specifies in detail the rights of associations to bring collective actions, to include the category of National Energy and Climate Plans.[129]

4.3.2 Sanctioning through the attachment of conditions: Linking ESI Funds to the Governance Regulation

A further possible sanctioning mechanism arises at European level through the linking of the Governance Regulation to the ESI funds. The close coupling of these two policy areas could be used to compensate for the lack of sanctioning mechanisms in the Regulation. A model for such a link can be seen in the "attachment of conditions" to Member States' policies by the European Semester system (see box).

By linking the European Semester to support from the structural funds, the Commission has a sanctioning instrument in an area in which the EU does not generally have competence and is dependent on voluntary measures. This form of sanctioning could be transferred to the field of energy policy. Under the Governance Regulation, the EU is likewise dependent on voluntary measures by the Member States where energy policy is concerned. A higher level of bindingness could be achieved by attaching the

124 In the context of Art. 9 (3) AC EU environmental legislation is also regarded as "national law", since the EU is party to the Convention, cf. the Opinion of Advocate General Jääskinen 2014, marginal note 23; for further analysis see Schlacke 2018, pp. 127 ff.; Franzius 2018-1, pp. 219 ff.; Wegener 2018, pp. 217 ff.; Durner 2018.

125 Within the meaning of Art. 7 AC.

126 For interpreting the concept of a "plan", which is not defined in detail, reference can be made to the so-called SEA Directive, cf. Ebbesson et al. 2014, p. 174; Jendroska 2009, p. 501; Epiney et al. 2017, Art. 7 marginal note 5 ff.

127 From the very broad case law of the ECJ concerning Art. 9 (3) AC it may be possible to derive a right to bring legal action against policies, although this has not yet been clarified by the highest court.

128 For example concerning power transmission and gas pipeline infrastructure [2.4.2. i) Annex I Governance Regulation] or infrastructures for district heating and cooling [3.1.2. vi) Annex I Governance Regulation].

129 This can be done either by including the NECP directly in the Environmental Appeals Act (UmwRG) as a new basis for appeal or by listing it in Annex 5 of the Environmental Impact Assessment Act (UVPG). The plan would thereby be capable of review as set out in Section 1 (1) sentence 1 no. 4 UmwRG.

ESI funds to conditions by more closely linking them with the Governance Regulation. Achievement of the energy policy objectives of the Governance Regulation by a Member State would thus be a condition for the allocation of resources from the structural funds (ESIF). There is nothing to prevent the European legislature from providing for supplementary (implementation) measures in other legal acts, such as the structural fund regulations, provided the coherence principle (Article 7 TFEU) is adhered to, i. e. the legal acts must not be contradictory. There is no contradiction because the Governance Regulation is not exhaustive in character and the EU legislature is free to link the achievement of national climate protection targets with other funding instruments. Owing to its supranational competence in the allocation of structural funding, the EU can sanction the deficient implementation of its recommendations by means of a Council Resolution adopted by majority vote.

Model: Link between the ESI Funds and the European Semester

The European Semester[a] is an instrument for coordinating and aligning the budgetary and economic policies of the EU Member States on the basis of the objectives and rules agreed at EU level. Owing to the lack of EU competences in the field of budgetary and economic policy, the European Semester is based on soft governance mechanisms which do not provide for the imposition of sanctions. By linking the European Semester to ESI Funds, however, sanctioning options have been created despite this lack of competence: the ESIF Regulation[b] links the effectiveness of the ESIF to sound economic governance within the framework of the European Semester. The achievement of the objectives of the European Semester by a Member State is a condition for the awarding of ESIF resources. Two mechanisms are used for this:

Firstly, the recommendations set out under the European Semester must be taken into account when Member States draw up new plans in connection with the ESIF. The current ESIF Regulation states that the Commission may request Member States to review their Partnership Agreement with the ESI Funds and propose amendments "where this is necessary to support the implementation of relevant Council Recommendations or to maximise the growth and competitiveness impact of the ESI Funds in Member States receiving financial assistance".[c] If the Member State fails to respond to this request by the Commission and does not take effective action, the Council may, acting on a proposal from the Commission, suspend part or all of the payments for the programmes or priorities concerned, subject to a qualified majority vote.[d] If the Mvember State proposes amendments as requested by the Commission, the Council, acting on a proposal from the Commission, may decide on the lifting of the suspension of payments.[e]

Secondly, such a mechanism for linking the ESI Funds to economic governance is also to be found in current projects. In the cases cited in Article 23 (9) Regulation (EU) No. 1303/2013, the Commission makes a proposal to the Council to suspend part or all of the commitments or payments for the programmes of a Member State if a Member State has not taken effective action to correct its excessive deficit; if the planned corrective measures are insufficient; if the Member State has not taken any measures to implement the adjustment programme in cases where the Member State has received financial support or if it has not complied with the macro-economic adjustment programme. The scope and level of the suspensions is based on the principles of proportionality and equality of treatment and is subject to various ceilings.[f]

a Art. 2a Regulation (EU) No. 1175/2011, grounded in Art. 121 (6) in conjunction with Art. 121 (3) and (4) TFEU.
b Regulation (EU) No. 1303/2013.
c Art. 23 (1) Regulation (EU) No. 1303/2013.
d Art. 23 (6) Regulation (EU) No. 1303/2013.
e Art. 23 (8) VO (EU) No. 1303/2013.
f Art. 23 (11) VO (EU) No. 1303/2013.

So far, the Commission and the Council have not used the sanction of suspending funding payments.[130] Experience has shown that implementation of this instrument has hitherto been unsuccessful because no suitable criteria are formulated in the Regulation as to what is precisely to be understood as constituting "non-compliance" with recommendations. The draft proposal for a new ESI Fund Regulation has responded to this deficit and demands that this link be further developed and improved. For example, the draft states that "Mechanisms to ensure a link between Union funding policies and the economic governance of the Union should be further refined, allowing the Commission to make a proposal to the Council to suspend all or part of the commitments for one or more of the programmes of the Member State concerned where that Member State fails to take effective action in the context of the economic governance process."[131] This makes it clear that the Commission does not reject the aim of close linkage but, on the contrary, wishes to expand it.

To facilitate the adoption of decisions concerning the suspension of funding, the Commission proposes that the European Council should in future use reverse qualified majority voting. According to this method, a measure or sanction proposed by the Commission is deemed to have been approved by the Council unless the Council has decided to reject it by a qualified majority within 10 days.[132] By this means, the Commission seeks to make sanction options more effective through the attachment of conditions.

In principle, the linking of the European Structural and Investment Funds with the Governance Regulation can enhance the EU's opportunities to impose sanctions. This could be a functioning governance element in cases where national targets are insufficient or are not sufficiently implemented. Where the draft Regulation already provides for linkage in reference to the NECPs (see Section 4.2), this should be subject to the same sanction options as in the case of the European Semester. Only through this option of implementing sanctions can the soft governance of the Energy Union be made more effective.

4.4 Backing up the Governance Regulation through leadership alliances

Where EU-wide climate and energy policy is concerned, there are frequent policy blockages owing to the veto rights of the Member States or to the absence of majorities. Given this situation, leadership alliances and strategies of "differentiated integration"[133] can complement EU measures and help to advance the decarbonisation of the energy system. Leadership alliances are intergovernmental partnerships in which several states agree on joint targets and coordinate measures to implement them in order to develop supernational solutions to specific energy policy problems.[134]

130 Interview with representatives of the European Commission, May 2018.

131 Recital 20 of the draft Regulation, EC 2018-1, p. 17.

132 This mechanism, which was introduced along with the "Six-pack" and "Two-pack" sets of legislative measures, is controversial and is regarded by critics as incompatible with the Treaties. "Six-pack" refers to the bundle of regulations and measures to reform the Stability and Growth Pact and the monitoring procedures established in 2011; the "Two-pack", introduced in 2013, describes further regulations to increase fiscal discipline in the Eurozone.

133 With "differentiated integration" joint action is not taken throughout the EU on the basis of the Treaties, but is implemented only in some EU Member States. Furthermore, non-EU states may also participate in such action.

134 Such an alliance is described as a "critical mass of progressive countries" working together to achieve ambitious (climate or energy) policy goals, Oberthuer/Groen 2014.

The formation of leadership alliances is a practical solution if political will exists in some Member States and coordinated action offers considerable advantages over measures taken by individual nation states alone. Within such a leadership alliance, the states can take action without regard to majorities in the EU by drawing up agreements among themselves and even with third-party states outside the EU. In climate and energy policy, leadership alliances could serve to overcome the absence of competences or majorities. Compared with measures at EU level, leadership alliances therefore provide a higher degree of political feasibility, and compared with national initiatives, they provide greater economic efficiency. Leadership alliances can send out strong political signals and stimulate policy-related learning and development processes that may eventually lead to overarching measures at EU level. Within the framework of such leadership alliances, Germany could collaborate with other states and act as an important role model within the EU.

Currently, political momentum for leadership alliances in the field of energy transition exists in two areas: firstly, an international alliance for phasing out coal; and secondly, an alliance for setting a minimum price for carbon emissions to be valid in all sectors of the energy system.

Both proposals affect the key instrument of the EU with regard to European climate policy, the EU-ETS. From a narrower economic perspective, additional measures covered by the ETS, such as setting a carbon price floor or accelerating the phasing out of coal, which can only be introduced by a few Member States, are initially problematic. In the first place, a fundamental advantage of the ETS, namely a uniform price signal for all participants, would be distorted[135], which would result in efficiency losses since carbon emissions would no longer be reduced at the locations where it is most favourable within the geographical scope of the EU-ETS. Furthermore, significant price differences inside and outside the coalition would distort competition, since both measures would lead to higher costs for the production of electricity and thus to higher electricity bills.[136]

Secondly, there is the risk of a "waterbed effect": as the EU-ETS sets the volume of carbon emissions in the sectors covered, additional climate policy measures in the existing system would not lead to a *reduction* of overall emissions, but would merely change *where* and *what kind of* emissions are reduced. This pure "waterbed effect" was mitigated by the reforms introduced in 2018 for future emissions trading.[137] In particular, it is now possible to permanently remove allowances and thus reduce the total volume of emissions if the implementation of additional measures leads to a reduction of production capacities in coal-fired electricity generation.[138]

4.4.1 Forming a carbon pricing alliance

In view of the different carbon prices in various sectors and the current system of carbon pricing, which is not very conducive to achieving the targets[139], setting a national minimum carbon price can act as a reliable and uniform pricing signal for carbon

135 The shutting down of a coal-fired power station is an emissions-reducing measure at a certain cost to the economy and is thus an implicit carbon pricing signal.

136 Owing to concerns regarding the distortion of competition to the detriment of domestic industry, the British "carbon price support mechanism" has been capped at £18 per tonne of CO_2 until 2021 (see box "Minimum carbon pricing: The pioneering role of the UK").

137 Perino 2018; Agora 2018.

138 Art. 12 (4) Directive (EU) 2018/410; Gawel 2016.

139 See Section 2.2.3.

emissions within an alliance. In the sectors covered by the EU-ETS the already existing pricing signal could also be reinforced by a reliable price floor, although reciprocal effects with allowance trading would have to be taken into account. In sectors that are not yet covered by the EU-ETS, uniform carbon pricing could have a steering effect that would be beneficial for climate protection. Several Member States already have national instruments for carbon pricing both inside and outside the ETS. The UK, for example, has introduced a "carbon price floor" (see box) which creates a mechanism for minimum carbon pricing in the ETS sectors even if the price level in the EU-ETS is low.

Other states such as France and Sweden set prices for CO_2 emissions using a national carbon tax, which is also levied in sectors not covered by the EU-ETS.[140]

Minimum carbon pricing: The pioneering role of the UK

An example of the effectiveness of minimum carbon pricing is the "Carbon Price Floor (CPF)" introduced by the British government in 2013 for CO_2 emissions by energy generating companies.[a] The reason given for this was that the EU Emissions Trading System offered too few incentives for investment in climate-friendly electricity generation technologies.[b] The British carbon price floor covers fossil fuels used in the electricity generating industry and was set at £15.70 per tonne of CO_2 for the year 2013.[c] It consists of two components: the (projected) EU-ETS allowance price and an additional, national "Carbon Price Support" (CPS) mechanism. This national CPS is currently (up to 2021) set at £18/tCO_2 and is levied on British electricity generators on top of the carbon price under the EU-ETS.[d] This makes electricity generation from fossil fuels considerably more expensive and thus creates incentives for the transition to more climate-friendly technologies.

Whereas CO_2 emissions from electricity generation in the UK increased between 2009 and 2012, they were almost halved during the period from 2012 to 2016 following the introduction of the national carbon price floor.[e] In particular, after having significantly risen between 2011 (105 terawatt hours) and 2012 (140 terawatt hours), electricity generation from coal decreased sharply (2016: 31 terawatt hours).[f]

a The CPF was announced in the British budget for 2011 and entered into force on 1 April 2013. Cf. HM Treasury 2011, para 1.111.
b Hirst 2018.
c HM Revenues & Customs 2011.
d HM Revenues & Customs 2014 sowie HM Treasury 2016, para 1.191.
e CO_2 emissions in UK electricity generation (in Mt): 151.0 (2009); 157.1 (2010); 144.3 (2011); 157.9 (2012); 146.9 (2013); 123.6 (2014); 103.3 (2015); 81.1 (2016) (BEIS 2018-1).
f BEIS 2018-2.

Through a joint alliance, the pricing of CO_2 in Member States could be co-ordinated and introduced consistently in several countries. The formation of a so-called Carbon Pricing Alliance was proposed by President Macron of France at the end of 2017 during the International Climate Change Conference (COP 23) with the support of the Environment Ministers of France, Germany, Sweden, the Netherlands and the UK.[141] In May

140 Carbon taxes exist in the following EU Member States: Sweden, Finland, Denmark, Netherlands, Ireland, France, Slovenia, Estonia, Latvia and Poland. The level of these carbon taxes varies between 119 Euro (Sweden), approx. 60 Euro (Finland), 30 Euro (France), 22 Euro (Denmark) and less (all other states). The coverage of the different sectors also varies among the states (Zechter et al. 2017).

141 See One Planet Summit 2017-1 as well as the press release of the French Environment Minister (One Planet Summit 2017-2).

2018 the Austrian Minister for Sustainability explicitly called for a minimum carbon price.[142] The support signalled by Ministers in favour of such an alliance still requires approval by the relevant governing coalitions.[143]

The six states which have so far signalled their willingness to form such an alliance are jointly responsible for more than half (51.3 percent) of the EU's greenhouse gas emissions.[144] This alliance could therefore have an important direct effect on climate protection by introducing a common minimum carbon price. Potential additional supporters of a carbon pricing alliance are those states which have already unilaterally introduced a relatively high national carbon price for specific sectors, in particular Denmark and Finland.[145] Over the long term, additional states could be moved to join such an alliance through a process of policy learning[146] or political pressure. The extension of such an alliance beyond the EU could ultimately influence negotiations for a comprehensive international treaty on carbon pricing.

Specific agreements between the states as to how such an alliance could be implemented in practice do not yet exist. When implementing an alliance, three aspects need to be taken into account: the level of the carbon price, the sectors covered by a carbon price and the legal structure of the carbon pricing alliance. As a matter of principle, the level of the carbon price must be compatible with achievement of the Paris climate targets, i. e. restriction of global warming to less than two degrees. Suitable (global) carbon prices that contribute efficiently to achieving the international climate targets are calculated according to different energy-efficiency models. It is generally recommended that the carbon price should increase over time. Relevant studies have recommended a minimum price of between 20 Euro and more than 60 Euro per tonne of CO_2 for the year 2020, increasing to 85 Euro per tonne of CO_2 by 2050, preferably covering all sectors.[147]

A further challenge is establishing a legal basis for the carbon pricing alliance. This leadership alliance can, as one possibility, take the form of loose agreements between the participating states. A higher degree of bindingness would, however, be achieved if treaties under international law were to be concluded between the participating states.[148]

The ETS Directive permits the Member States to use other fiscal measures in addition to emissions trading.[149] The EU Commission, in its subsidy guidelines, also assumes that this will be done.[150] For the minimum carbon price to be implemented in

142 Fischer 2018.

143 In Germany, for example, the topic of carbon pricing is still a matter of controversial debate in the governing coalition despite the support of the then German Federal Minister for the Environment, Nature Conservation and Nuclear Safety, Barbara Hendricks.

144 Source: Own calculation based on data for national CO_2 emissions (UBA 2018).

145 Zechter et al. 2017.

146 "Policy learning" is a mechanism through which policy instruments can be transferred from one jurisdiction to another (cf. Tews et al. 2003). In this way, policymakers can consciously observe how other actors deal with similar problems, analysing their strategies, learning from them and adopting similar policy instruments (cf. Howlett/Ramesh 1993).

147 Cf. Edenhofer et al. 2017 and Knopf et al. 2013. After analysing existing studies, the High-Level Commission on Carbon Prices (2017) headed by J. Stiglitz and N. Stern recommended a carbon price of at least 34 to 68 Euro/tCO_2 up to 2020 and 42 to 85 Euro/tCO_2 up to 2030.

148 An even more formalised (and hence more challenging) option for creating a legal basis for a leadership alliance is the instrument of "enhanced cooperation" written into the EU Treaties (Art. 20 TEU). Since this complex procedure has not yet been used in relation to European energy policy and entails high legal obstacles, it is not discussed further here.

149 See Recital 23 and Art. 30 (2) sentence 1 lit. e) Directive 2003/87/EC; Franzius 2018-2, p. 1587.

150 Kahl/Simmel 2017, pp. 6 ff.; for a critical analysis see Straßburger 2018, p. 276 f.

practice, it needs to be incorporated into the national legislation of the participating Member States. There are different possible ways of setting a minimum carbon price.[151] Within the sectors already covered by the ETS, two options are available:

- An alliance of several Member States could each set a national **minimum price** at primary auctions. In this way, individual Member States could set a reserve price for allowances when conducting auctions, meaning that allowances failing to attract bids at the set minimum price would be withheld. This would reduce the total number of allowances in the system, leading to a corresponding increase in the price of allowances. By reducing the number of allowances available at primary auctions in their respective countries, an alliance consisting of several Member States could thus increase the price of allowances traded under the ETS. This option would keep the carbon price within the EU-ETS uniform and would therefore be advantageous from the point of view of economic efficiency.[152] The introduction of such a mechanism with absolute minimum prices would require a change to the EU auctioning regulations. Unilateral action by Member States could only be carried out in accordance with the conditions set out in Art. 193 TFEU.

- Alternatively, an alliance of Member States could introduce an additional **"sliding" carbon tax** ("Contract for Differences") on top of the ETS. Under this system, an additional payment is required from the emitter for every tonne of CO_2 emitted.[153] The amount of this tax is determined by the difference between the desired minimum carbon price and the current allowance price. The emitter has to pay exactly the desired minimum price for each tonne of CO_2 emitted – as the sum of the allowance price and the sliding tax rate. If, for example, the price for allowances rises above the desired minimum price, the amount of tax payable falls to zero. The "Carbon Price Floor" in the UK is based on this principle (see box). The major disadvantage of this option is a loss of cost efficiency through diverging effective carbon prices in the ETS sectors between states within and outside the alliance. In addition, under this system the members of the alliance would have to remove allowances from the ETS, as otherwise the "waterbed effect" would come into play.

In sectors that are not currently covered by the ETS a carbon price could also be established by means of taxation: in some states a carbon price has already been incorporated into national legislation in the form of a tax on carbon emissions or as an additional tax on the consumption of fossil fuels based on their carbon content, as for example in the French climate and energy package.[154]

151 Cf. UBA 2012.

152 Cf. Section 2.2.3 on carbon pricing.

153 Such a policy mix of emissions trading combined with taxation was already discussed by Gawel 1991, pp. 123 ff.

154 "contribution climat-énergie" cf. DFBEW 2018.

4.4.2 Options for carbon pricing in Germany

There are a number of legal obstacles to the introduction of a national minimum price for CO_2 emissions in Germany.[155] The direct taxation of carbon emissions is currently not constitutionally permissible. This is because it is not a tax on consumption[156] since CO_2 is not a consumable commodity within the meaning of the Deutsche Grundgesetz (German constituttion).[157] Since in the view of the Federal Constitutional Court no "right of tax determination" exists, a tax on carbon emissions would first have to be anchored in the Basic Law before it could be introduced in Germany. Such a constitutional amendment would require a two thirds majority in the German Bundestag (which is politically unrealistic at the present time). Special levies and fees through which the carbon emissions of energy generators could be directly priced are a different legal matter. Introducing this would not require a constitutional amendment. Nevertheless, the Federal Constitutional Court sets stringent requirements for special levies, whose existence is controversial and whose introduction therefore does not provide legal certainty.[158]

There are also legal uncertainties in connection with the introduction of a charge on the use of resources, which is to be paid by ETS industrial plants (such as coal-fired power stations) as compensation for the benefit they obtain from their permission to emit CO_2 into the atmosphere with detrimental climatic effects, this benefit being regarded as constituting a scarce commodity.[159] These legal reservations do not apply, on the other hand, to national taxation of fossil fuels (lignite, hard coal, oil, gas). Coal-fired electricity generation, for example, is only subject to electricity tax (output taxation), but owing to a tax exemption it is mostly not subject to energy tax (input taxation),[160] although this would be logical in addition to electricity tax.[161] With such carbon pricing of fossil fuels, the level of the respective tax rate can be based on environmental policy and be tiered on the basis of the carbon content of the various fuels. Using a second scale based on the energy content, it would also be possible to achieve an additional steering effect by encouraging energy efficiency. Whereas energy taxation law has so far not systematically taken account of either energy efficiency or climate protection, such a reform could bring about a uniform national carbon price with corresponding steering potential as regards climate and energy policy. When using this approach, interactions with existing instruments and policy objectives (including those relating to social, industrial and agricultural policy) would need to be taken into account.[162]

Within the sectors covered by the EU Emissions Trading System, such a tax based on the carbon content of fossil fuels could be designed as a sliding tax, the rate of which

155 From the point of view of European law, there are no fundamental reservations about either direct taxation of carbon emissions or indirect taxation, i. e. based on the carbon content of fossil fuels (lignite, hard coal, oil, gas), Kahl/Simmel 2017; Klinski 2017-2, pp. 29 ff.

156 See Art. 106 (1) No. 2 of the Basic Law (Grundgesetz, GG).

157 See BVerfG 2017; Rodi 2017, p. 202; Klinski 2015-1, p. 60 f.; Heintzen 2012, Art. 105 GG, marginal note 47 plus other notes; this also applies with regard to the consumption of ETS allowances; however, if a harmonised carbon taxation system were to be introduced at European level with the required unanimity, Germany would be obliged to implement it at national level.

158 For critical analysis cf. Rodi 2017, p. 201 f.; Klinski 2015-1, pp. 62 ff.; Seer 2018, Section 2, marginal note 31; for an affirmative view see Kahl/Simmel 2017, pp. 40 ff.

159 Kahl/Simmel 2017, pp. 40 ff.

160 Additional input taxation is permissible under EU law, as set out in Art. 14 (1) lit. a) sentence 2 of Council Directive 2003/96/EC on the taxation of energy products and electricity.

161 Rodi 2017, p. 202; Rodi 2018; Kahl/Simmel 2017, pp. 33 ff. point out the need to comply with the conditions for levying taxes on consumption from energy providers, as derived from the most recent case law adopted by the Federal Constitutional Court (BVerfG 2017).

162 For detailed discussion see Rodi et al. 2016; Gawel/Purkus 2015.

is derived from the difference between the desired minimum carbon price and the current allowance price in the emissions trading system.[163]

The extra state revenues from a tax based on the carbon content of fossil fuels could provide new financial opportunities, for example for supporting structural change in adversely affected coal mining regions. Carbon pricing could also be supplemented by additional measures such as the alliance for the phasing out of coal proposed below.

4.4.3 Giving political priority to establishing an international coal phase-out alliance

In Germany and a few other Member States the phasing out of coal-fired electricity generation is being discussed and in some cases pushed forward as a political issue. Coal-fired power plants are part of the EU-ETS, so an overall reduction of CO_2 emissions through the closure of such plants is only achieved if allowances equivalent to the amount of additional emissions avoided are removed from the ETS. In principle, constantly rising allowance prices or the introduction of a minimum carbon price via the market can lead to a reduction of the use of coal and even to the complete phasing out of coal.[164] From a cost-effectiveness perspective, it would therefore appear that accelerating the coal phase-out by political means is to be seen in a critical light. When viewed more broadly, however, political encouragement of the phasing out of coal may possibly prevent path dependencies[165] and – if it is successful[166] – may send out important signals beyond the leadership alliance. There are both political and legal obstacles in the way of phasing out coal throughout Europe. Many Eastern European Member States wish to continue producing electricity primarily from fossil fuels over the medium term. Since sovereignty over determining the energy mix, and hence over the question of whether to phase out coal, lies with the Member States, they are able to block EU-wide measures in this field by means of their veto rights.[167] Purely national measures for the phasing out of coal, on the other hand, fail to make use of the great potential for coordination among the Member States.

In view of this, leadership alliances of several states offer a suitable alternative. An example of such transnational cooperation is the so-called "Powering Past Coal Alliance".[168] It was initiated in November 2017 during the International Climate Change Conference in Bonn (COP 23), involving the EU Member States France and the UK, as well as non-EU states such as Canada, and it has set itself the target of bringing about the phasing out of coal in all OECD and EU states by 2030. Non-OECD states are requested to cease generating electricity from coal by 2050.

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163 To ensure that the CO_2 emissions saved at national level as a result of the tax in addition to the EU-ETS are not transferred to other states within the European emissions trading system, a corresponding number of CO_2 allowances must be permanently removed from the EU-ETS market.

164 See Section 4.4.1 concerning minimum carbon pricing and the example of the British "Carbon Price Floor".

165 An important role, particularly in the energy and climate field, is played by technological and institutional path dependencies. The development of energy systems takes place in co-evolutionary economic, technological and institutional processes which – due to such factors as long investment cycles, strong infrastructure dependency and lobbying – exhibit positive feedback effects and therefore strong path dependencies. This leads to systemic barriers to the development and use of new technologies and hence to the "inertia" of the system in favour of fossil fuels. In the context of anthropogenic climate change, this is referred to as "carbon lock-in".

166 An important factor in the success of political measures to encourage the phasing out of coal is ensuring the security of power supplies and therefore the enormous expansion of alternative electricity generation capacities.

167 Art. 194 (2) para. 2 TFEU or on the basis of their competence in environmental matters under Art. 192 (2) lit. c) TFEU.

168 In June 2018 its members already included more than 25 nation states and 22 sub-national and non-government members (Powering Past Coal Alliance 2018).

Many of the states that have joined the alliance already have an energy mix in which coal-fired power plants account for only a small proportion of electricity generation. In these cases, the phasing out of coal in the near future is possible without major structural change. Belgium, for example, completely ceased generating electricity from coal in the middle of 2016; France and Sweden have announced that they will do likewise in 2022. The UK succeeded in reducing coal-fired electricity generating capacity by half between 2010 and 2016, from around 60 to 30 gigawatts, by means of political measures such as the aforementioned Carbon Price Floor (see box), and as a member of the "Powering Past Coal Alliance" it is seeking to completely phase out the use of coal by 2025. So far, Germany has not joined this alliance. The Federal Republic still produces a large proportion of its electricity from coal: in 2017 22.5 percent of net electricity generation came from lignite and 14.1 percent from hard coal. The Commission on "Growth, Structural Change and Regional Development", which was set up in the summer of 2018, has been given the task of determining how Germany can gradually phase out the generation of electricity from coal.

The "Powering Past Coal Alliance" is based on declarations of intent by the participating countries, federal states, regions and companies. The members wish to agree on a common timeframe for phasing out coal-fired electricity generation and to prohibit the construction of new coal-fired power stations.[169] This alliance could set more binding standards for the state actors if this loose coalition were to be firmly anchored in an international treaty. A timely prohibition on new licences for coal-fired power stations[170] in the domestic legal orders of the participating states would also prevent "lock-in effects" and strengthen investment and planning security. At the same time, this would also reduce the risk faced by states of having to pay compensation for the shutting down of newer power stations. Coal-dependent states, however, will have an interest in permitting further investments in new plants for a certain transition period. If there is a political desire to integrate these states into the Powering Past Coal Alliance, clear legal requirements must be set for the transition to the ultimate phasing out of coal when new plants are constructed. For example, it could be required that these plants meet certain flexibility demands or can be used as co-generation systems.[171]

The following criteria are of key significance for planning the coal phase-out:

- *The regional effects of structural change*[172]: lignite-fired power stations are of great regional importance[173], and so shutting them down leads to socio-economic change in the affected regions. This includes job losses[174], long-term restructuring costs – which are not completely covered by the operating companies – and the elimination of jobs that are indirectly dependent on the coal sector.[175] This circumstance

169 Powering Past Coal Alliance 2018.

170 As well as substantial alterations to existing plants for the purpose of increasing capacity.

171 Rodi 2017, pp. 198 ff.; Oei 2016, p. 6; Verheyen 2013; flexibility demands such as quick-start capability (short-term minimum operation times and minimum downtimes) and flexible operation (lower minimum power output, higher power gradients).

172 On this subject see SRU 2017, pp. 17 ff.

173 In Germany this applies to the Rhineland, Lusatia and Central Germany.

174 The number of people employed directly in the coal industry is estimated at between 20,100 and 24,500. Two thirds of employees in the lignite industry are over the age of 46, so that – in statistical terms – they could remain in employment (in their present company or in other companies in the same region) until they retire if coal is phased out by 2030. The employees in the hard coal sector are even older, so that fewer jobs will be lost and in a less concentrated way, SRU 2017, p. 23 f.

175 On the effects see SRU 2017, pp. 17 ff.

must be taken into account with regard to the approved operating plans in the mining sector by providing for transition periods.[176] Legislative measures should be taken to prevent operating companies being able to avoid follow-up costs through restructuring or insolvency.[177]

- *The systemic importance of the plants for ensuring the security of power supplies and the special features of the plants:* In this regard, the integration of coal-fired power stations into the existing power grid and the avoidance of power grid congestion must be taken into account when determining transition periods. In a gradual phase-out, the efficiency of the plants and technology-specific differences must be considered as well. This applies to the raw materials (lignite or hard coal), the efficiency of the plants and their cogeneration capability.

- *Possible compensation claims by power station operators:* This could apply, in particular, to investments that have been made in order to comply with or even surpass the latest technical standards in the justified belief that the legal situation would remain unchanged; although there is no obligation to fulfil all investment expectations and proportionality can also be upheld by extending the operating period or some other compensatory measure.[178] Furthermore, it is necessary to ensure compatibility with the numerous bilateral trade defence and investment protection agreements, as well as the Energy Charter Treaty. The latter document places energy investments in other contracting states under particular protection[179] and is intended to facilitate the transit of energy resources. Arbitration proceedings for the protection of investments, which are independent of state jurisdiction and can be initiated by foreign companies against Germany or other participating states, constitute a significant risk to the public budget.[180] This requires careful monitoring and coordination between the participating states.[181]

- *European law on state aid as well as the European fundamental freedoms:* EU law prohibits any aid granted by a Member State or through State resources that may distort competition by favouring certain undertakings or the production of certain goods.[182] State resources may also include indirect financial phase-out instruments or capacity reserves. These may be permissible if they can be justified for environmental or climate protection reasons and fall under an exemption granted by the Commission, or if they do not alter trade conditions in a way that is contrary to the common interest. A limitation or prohibition of coal-fired electricity generation may also infringe upon the European fundamental freedoms (particularly freedom of establishment and the free movement of goods)[183] and in this case it needs to be justified by sufficient reasons.[184]

176 On the details of this see BBH 2017, pp. 38 ff.; Teßmer 2017, p. 221.

177 SRU 2017, p. 21.

178 Cf. BVerfG 2016, marginal note 372, 374, particularly 382; Däuper/Michaels 2017, p. 216.

179 In particular, protection against expropriation without compensation and the requirements of fair and reasonable treatment as well as non-discrimination.

180 Gundel 2016; Krajewski 2014. There has been widespread media coverage of the legal action brought by Vattenfall in protest against environmental restrictions on the coal-fired power plant at Hamburg-Moorburg and against the phasing out of nuclear energy.

181 On the numerous legal issues in this context: Germelmann 2018; Stöbener de Mora 2018.

182 Art. 107 TFEU.

183 Art. 34 ff., 49 ff. TFEU.

184 These may be, for example, health, environmental or climate protection reasons.

- *Harmonisation with the existing EU-ETS*: In order to avoid the occurrence of the "waterbed effect" – i.e. the shifting of emissions to other plants covered by the ETS – allowances corresponding to the amount of emissions saved by the accelerated phasing out of coal must be permanently removed from the ETS.

4.4.4 Organising the coal phase-out in Germany

If Germany were to join the Powering Past Coal Alliance, the Federal Republic could send out a political signal and function as a role model, particularly with regard to other European countries with a high proportion of coal in their energy mix. Germany has a number of direct and indirect governance instruments of a regulatory and fiscal nature at its disposal for achieving an orderly phase-out of coal electricity generation as a member of such an alliance; these have various strengths and weaknesses.[185]

In principle, direct regulatory control of the coal phase-out would be possible by laying down in law the dates for the shutting down of coal-fired power stations, setting stricter CO_2 emission limits or allocating specific CO_2 budgets per power plant.[186] Setting stricter efficiency standards, allocating residual quantities for electricity production similar as during the German phase-out of nuclear energy, or shifting coal-fired power plants to standby status or as capacity reserves, are also conceivable.

The *allocation of fixed CO_2 budgets or residual current per power station on the basis of these budgets* makes sense because what is decisive from the point of view of climate protection policy is the total amount of CO_2 emitted during a specific reference period, and not precisely when each power station is shut down.[187] The budget approach is, however, dependent on economically divergent, sectoral decarbonisation scenarios[188] and would have to be implemented taking account of fair distribution and all constitutionally relevant concerns (basic rights, protection of legitimate expectations). CO_2 emission limits and budgets are in themselves incompatible with EU law since the Industrial Emissions Directive has ruled that power plant permits falling within its scope of application are not to include any emission limit values for direct CO_2 emissions.[189] Nevertheless, much of the legal literature considers action taken at national level in this regard to be permissible.[190] Under German law, such a national approach would only be possible by amending the Federal Immission Control Act.[191]

Setting *higher efficiency standards for power stations* would be permissible under European law but would lead to increased effort and expense for monitoring and measuring. Here, too, amendments to the Federal Immission Control Act would be required.

185 On this subject see Oei 2016; Klinski 2015-1, pp. 12 ff.; Klinski 2015-2.

186 Limit values – calculated, for example, on the basis of the carbon content per megawatt hour of electricity generated – would be more intrusive than budgets calculated on the basis of installed power capacity, since operations would have to be completely shut down if the limit values were exceeded. With budgets, only the mode of operation would have to be reduced for part of the year, see Oei et al. 2015.

187 SRU 2017, p. 9; for a supportive view see Franzius 2018-2, pp. 1588 ff.

188 SRU 2017, pp. 9 ff.

189 Art. 9 (1) Directive 2010/75/EU.

190 With reference to Art. 193 TFEU cf. SRU 2011, Note 445 ff.; Ziehm/Wegener 2013; Klinski 2017-1, pp. 207 ff.; cf. Franzius 2018-2, p. 1587 also on the non-existent blocking effect of the ETS Directive; a different opinion is expressed by Spieth 2015, p. 1177 and Däuper/Michaels 2017, p. 218; on budgets see BBH 2017, pp. 35 ff.; SRU 2017, p. 5.

191 Deletion of Section 5 (2) BImSchG. According to this provision, it is not permissible to demand that plants meet demands that go beyond those of the Greenhouse Gas Emissions Trading Act (Treibhausgas-Emissionshandelsgesetz). Alternative instruments to the EU-ETS are hindered by this.

A grid-fee-funded "scrapping incentive" for the shifting of coal-fired power stations to standby status or as *capacity reserves* is less advantageous since it is already doubtful whether further reserves are necessary. Furthermore, additional costs for electricity consumers are to be expected and there is the risk of conflict with EU law on state aid, since the operating companies would gain a financial advantage.[192]

Alternatively, *indirect financial incentives* such as special levies could be an option.[193] These can make the phasing out of coal more flexible and therefore economically more efficient, but their non-specific steering effect poses a risk to supply security and provides weaker safeguards for regional structural change.[194] An "Energy Transition Levy" on the model of the Renewable Energy Levy, which is paid by power plant operators to transmission system operators, would be compatible with the financial provisions of the Constitution but it would have to be arranged in such a way as to comply with the strict EU rules on state aid.[195]

The *setting of shutdown dates for existing plants* could, with particular regard to amortisation and the principle of protecting legitimate expectations, be arranged so as to be constitutionally compatible (particularly with regard to the fundamental rights of property ownership[196] and occupational freedom[197]) and would offer a high degree of reliability from the point of view of investors.[198] If the legislative option is chosen, the jurisdiction of the Federal Constitutional Court on the constitutionality of the phasing out of nuclear power[199] can provide legal insights but it cannot be transferred one-to-one. The court's decision was based not on the original nuclear phase-out decision of 2002, which rested on the "nuclear consensus", but only on the cancellation of the extension of operating periods in 2011.[200] Coal-fired electricity generation is also not a high-risk technology.[201] Fundamental rights of operators, the requirement of equal treatment and the need for supply security, on the one hand, would have to be balanced against equally serious concerns such as the protection of the environment and natural resources (substantial threats owing to climate change), public health and compliance with the Paris Agreement's climate goals as an obligation under international law. The legislature is granted broad scope for determining the structure of the energy supply system.[202] Furthermore, proportionate measures involving transitional arrangements have priority over the payment of compensation.[203] If every power plant unit is considered individually, taking into account, firstly, amortisation, and, secondly, reasonable

192 Agora 2016, p. 37; Däuper/Michaels 2017, p. 218; Oei et al. 2015, p. 6; Rodi 2017, p. 200.

193 Rodi 2017, pp. 201 ff.; Klinski 2015-1, pp. 47 ff.

194 Däuper/Michaels 2017, p. 218.

195 Rodi 2017, p. 202. A further alternative is the climate levy (Klimabeitrag) proposed by the Federal Ministry for Economic Affairs and Energy in 2014. It envisaged a system whereby for any CO_2 emissions beyond a certain limit additional ETS allowances would have to be submitted, which would then be removed from the market. There are considerable reservations against this option from the point of view of fiscal constitutional law and European law (Klinski 2017-2, p. 37 f.; Rodi 2017, p. 201; Spieth 2015).

196 Art. 14 (1) GG.

197 Art. 12 (1) GG.

198 Klinski 2015-1; Klinski 2017-1, p. 205; on the question of compatibility with European law see, BBH 2017, p. 32.

199 BVerfG 2016.

200 At this time ownership was already "repeatedly restricted", BVerfG 2016, marginal notes 295 ff.

201 For this reason, among others, transferability is rejected by Spieth/Hellermann 2018; Frenz 2017, p. 123.

202 BVerfG 2013, marginal notes 287, 289; BVerfG 2016, marginal note 218.

203 BVerfG 2016, marginal note 260.

profit expectations,[204] there is nothing to prevent a gradual phasing out of coal[205] without financial compensation of the operators,[206] as the Constitution does not protect the expectation of a completely unchangeable evolution of law.[207] However, the influence of lignite power stations on opencast mining and the special characteristics of mining law must be taken into account. A proportionate phase-out could be achieved by a combination of the aforesaid instruments, for example setting a final date for residual current.[208] Stating that immediate shutdown without compensation is generally possible after 25 to 35 years of operation is not a substitute for these essential case-by-case analyses – in particular with regard to investments made only recently.[209] In view of the long-standing debate on the phasing out of coal, there is little reason for the power plant operators to have particular confidence in their expectations.[210] An advantage of legislation ordering the shutdown of coal-fired power stations would be that case-by-case assessments could pay attention to such aspects as supply security and the specific characteristics of each power plant, as well as strategies for dealing with structural change.[211] From an economic perspective, on the other hand, fixed shutdown dates are regarded unfavourably, and the aforementioned, more flexible instruments are considered preferable.

In order to avoid "stranded assets", scientists are working on various options for the subsequent use of coal-fired power stations, which are currently not yet competitive but whose potential should not be underestimated.[212] For example, coal-fired power stations could be converted to use other fuels (above all, natural gas) or coal-fired power stations that have been closed down could be reconstructed as carbon-neutral power-heat-power storage units (known as Carnot Batteries), which transform electrical power from renewable sources into heat and then convert the heat into electrical energy when required. These could make a contribution not only to the better integration of fluctuating renewable energy but could also open up opportunities for regions affected by structural change. The coal phase-out debate should therefore not only be conducted at a socio-economic and legal level but also increasingly with a view to the further development of technological options for the subsequent use of existing infrastructure.[213]

204 BVerfG 2016, marginal note 312.

205 SRU 2017, p. 36 The German Advisory Council on the Environment (SRU) has suggested a three-stage phase-out: 2020 – shutdown of the oldest power plants; up to 2030 – continued operation at reduced capacity; after 2030 – gradual shutdown of remaining power plants.

206 Financial compensation only comes into question if proportionality cannot be achieved by other means; a different view is expressed by Spieth/Hellermann 2018.

207 BVerfG 2016, marginal note 269 plus further notes; Franzius 2018-2, p. 1586.

208 BVerfG 2016, marginal note 300, 337 ff. regards residual current as compensation for early shutdown.

209 On the basis of the calculations used in the nuclear consensus of 2000, Däuper/Michaels 2017, p. 217, take the view that immediate shutdown is permissible for power plants as young as 25 years old; the same opinion is expressed by BBH 2017, pp. 24 ff.; Franzius 2018-2, p. 1586; Ziehm 2017, p. 10 assumes an age limit of 35 years.

210 BVerfG 2016, marginal note 302, 310 ff.

211 Klinski 2017-1, p. 205; Klinski 2015-1, p. 97.

212 With regard to this, the Coalition Agreement between the CDU/CSU and SPD sets out the intention to "consider the extent to which power plant sites that are no long needed can be used for large thermal storage power units", Coalition Agreement 2018, line number 3321 f.

213 On this matter see Laughlin 2017 and the "GigaStore" project of the German Aerospace Centre (DLR).

5 Conclusion

At present, legislative and policy blockages in the European Union are preventing effective further development of an EU-wide climate and energy policy suited to achieving the international climate targets. The options set out in this position paper are intended to indicate how the existing scope for action within the framework of a European Energy Union can be used to enable the EU to fulfil its obligations under international law to reduce greenhouse gas emissions by the necessary amount.

For the period 2020 to 2030 the EU has set ambitious climate and energy policy targets. How these targets are to be achieved is, however, largely left up to the Member States. The Governance Regulation enacted on 24 December 2018 obliges the Member States to produce integrated National Energy and Climate Plans (NECPs) and to report to the European Commission. In these Plans, the Member States set out their national energy and environmental policy targets, strategies and measures. However, no adequate sanctions exist for Member States which fail to set sufficiently ambitious targets (so-called "ambition gap") or which do not sufficiently implement their NECP afterwards (so-called "implementation gap" or sometimes "delivery gap").

The enactment of the Governance Regulation on the establishment of the European Energy Union is a necessary step towards coordinating climate and energy policy in the European Union and towards achieving the international climate protection targets. These targets will not be achieved through the governance mechanism alone, however. Only if additional measures are taken by the EU and the Member States will it be possible to secure European energy supplies in a climate-friendly and safe manner. The options proposed in this position paper make use of the opportunities available in order to implement the Governance Regulation effectively, to finance additional measures, sanction non-compliance and back them up by means of leadership alliances. The various options can be categorised according to the various actors involved and are outlined in brief in the following Table 2.

The first category of options sets out possible measures to be taken at national level (particularly at federal level in Germany). The second category addresses the Member States in their role as members of the European Council and as potential members of leadership alliances. The third category relates to the bodies of the European Union such as the European Commission or the European Parliament, which are primarily responsible for EU legislation. In order to increase the chance of the respective option being implemented, it is important to identify and take into account specific concerns both in EU legislative procedures and in current energy and climate policy negotiation processes in the individual nation states.

Here, the **German federal government** can play a leading role in a number of respects. For example, the Climate Protection Act proposed in the Coalition Agreement as an aim for 2019 offers the opportunity of integrating the climate targets to be

Strengthening governance through …		Instruments	Actors
IMPLEMENTING	1	Make the German **NECP** a core component of the planned Federal Climate Protection Act, make it **legally binding**, so as to more closely align national and European climate and energy policy.	
	2	**Integrate** the **national coal phase-out strategy** when drafting the German NECP and the long-term strategy.	
	3	**Intensively involve municipal and local authorities and the German federal states** when drafting and implementing the NECP and long-term strategies by • setting out concrete national measures in the multilevel climate and energy dialogue, • integrating existing formats such as the "Covenant of Mayors".	
	4	**Encourage public participation** in the drafting of NECPs and long-term strategies by • standardising guidelines from the EU Commission, • setting out concrete measures in the planned German Federal Climate Protection Act	
FUNDING	1	**Link European Structural and Investment Funds with NECPs**, strengthening energy policy measures as part of the planned reforms to the Funds by • setting specific funding targets such as energy efficiency, • undertaking cooperative projects to manage transnational structural change in coal mining regions.	
SANCTIONING	1	**Introduce legal rights for associations** to subject the NECP to review by amending the Environmental Appeals Act (UmwRG).	
	2	**Sanction insufficient implementation of Commission recommendations by limiting financial resources from the Structural Funds (ESIF).**	
BACKING UP	1	**Forming a European carbon pricing alliance** taking into account the level of the carbon price, the sectors covered and the specific form. Options: • a national minimum price for primary auctions of EU-ETS allowances, • a "sliding" carbon tax in addition to the EU-ETS allowance price, • carbon price also in sectors not covered by the ETS.	
	2	**Introduce a carbon price in Germany.** Options: • tax primary fuels based on their CO2 and energy content (fundamental reform of energy taxation legislation), also covering non-ETS sectors, • also possible as a "sliding" tax in addition to the EU-ETS allowance price	
	3	**Give political priority to an international coal phase-out alliance:** • agreeing on the prohibition of the construction of new power plants in order to prevent lock-in effects, • establishing a common time frame for the phase-out, • anchoring the alliance in an international treaty.	 
	4	**Organising the German coal phase-out more closely with the European level.**	

 Germany

 European Union

 Several EU Member States together

 In collaboration with third-party states

Table 2: Alternative options. Source: Own diagram.

submitted to the EU by the German government in its NECP into binding legislation. Further improvements to the enforceability of climate protection measures are also the responsibility of the German legislature, such as regulating the rights of associations to bring legal action, which should be designed in such a way that environmental organisations receive the right to bring legal action if deficiencies occur in the drawing up or implementation of the NECP.

This position paper identifies two policy fields which offer a high degree of effectiveness for climate protection and which should also be supported specifically at national level: the introduction of a minimum price for CO_2 emissions and the preparation for the phasing out of coal. Germany should drive these measures forward in such a way that ecological effectiveness and economic efficiency are guaranteed while protecting the climate. In order to achieve scaling effects, the measures should be coordinated at supra-regional level. For this purpose, it would be advantageous for the federal government to play an active role in relevant leadership alliances.

Last but not least, there are opportunities for the **EU institutions** – above all, the **European Commission** and the **European Parliament** – to improve the coherence and effectiveness of EU climate and energy policy through policy negotiation processes with the European Council. The forthcoming reform of the European Structural and Investment Funds can be used to reinforce the linkage between the ESIF and the Governance Regulation, i. e. to increase the incentive effect of the funding programmes for climate protection measures. For example, the future ERDF regulation could incorporate more specific measures for improving energy efficiency or for supporting regions that are directly affected by structural change resulting from the energy transition. In addition, such coupling can also be used as a sanctioning instrument when ambition gaps or delivery gaps fail to be sufficiently addressed. Furthermore, the Commission, in particular, should use its opportunities to strengthen the role of the general public and local-level actors in the new governance system, for example by issuing common guidelines for public participation procedures in the Member States.

Through the combination of these various options both at EU and at national and subnational level, the Energy Union can be strengthened and a common climate and energy policy can be effectively driven forward.

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With the initiative "Energy Systems of the Future" (ESYS), acatech – National Academy of Science and Engineering, the German National Academy of Sciences Leopoldina and the Union of the German Academies of Sciences and Humanities provide impulses for the debate on the challenges and opportunities of the German energy transition. In interdisciplinary working groups, more than 100 experts cooperate on the development of policy options for the implementation of a sustainable, secure and affordable energy supply.

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Expert discussion

On 23 April 2018, an English-language specialist colloquium on "Governance for a European Energy Union" was held, for which a draft of the position paper was put up for discussion. The feedback from this was used in drawing up the final version. In addition to members of the working group, the following persons took part in the colloquium:

Dr Niels Anger	BMWi – Federal Ministry for Economic Affairs and Energy
David Donnerer	Covenant of Mayors
Dr Phillip Fest	Ministry of Economic Affairs, Innovation, Digitalisation and Energy of the State of North Rhine-Westphalia
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