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SYMPOSIUM ARTICLE

Energy Transition in the European Union and its Member States: Interpreting Federal Competence Allocation in the Light of the Paris Agreement[†]

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Abstract
Energy transition in the European Union (EU) and its Member States involves questions of federalism, which are subject to various perspectives. The distribution of powers cannot be properly understood using classical legal methodology alone because Articles 192 to 194 of the Treaty on the Functioning of the European Union (TFEU) contain too many ambiguous political compromises. On the one hand, Article 192(1) TFEU (on the environment) and Article 194(1) and (2)(1) TFEU (on energy) enable EU legislation on energy transition through the ordinary legislative procedure, including majority voting in the European Parliament and the Council. On the other hand, there are significant textual limits for EU action in neighbouring provisions with a 'sovereignty exception' for the Member States in both Article 192(2) and Article 194(2)(2) TFEU. This article argues that, in the light of the Paris Agreement, the allocation of competences between the EU and its Member States should, in case of doubt, be understood in such a way that effective climate protection becomes possible. Because under Article 191(1) TFEU the EU is to promote measures at the international level to combat climate change, such an international law-friendly interpretation is part of a legitimate teleological approach. Economic theories of federalism and innovation research in the social sciences help us to understand which aspects of economic or innovation theory can promote effectiveness in this respect. It is necessary to interpret the distribution of competences in a dynamic way, thereby slightly shifting the limits of interpretation.

Keywords: Energy transition, Distribution of powers, Legal methodology, Paris Agreement, Competition/cooperative federalism, Pre-emption

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1. INTRODUCTION: DIFFERENT PERSPECTIVES ON THE DISTRIBUTION OF POWERS IN ENERGY TRANSITION

Energy transition is a task for both the European Union (EU or the Union) and its Member States. It can therefore be understood as an issue of federalism. In accordance with an important strain of literature,[1] we hold that the supranational legal order of the EU is a federal system although it does not have the quality of a state. Rather, the qualification of 'federal' is based on the existence of two different levels of government and legislation.[2] From this starting point energy transition can be subject to various perspectives. Firstly, one can analyze from the standpoint of legal doctrine how the powers are distributed between the two levels and thus who may act where and how (see Section 2 below). Secondly, it is possible to focus on the challenge that the Paris Agreement[3] poses for both the EU and its Member States. In this regard, an international law-friendly interpretation of EU competence norms may enable more effective EU climate protection legislation (Section 3). Finally, it is possible to engage with economics and the social sciences to better understand how tasks should be distributed between the EU and its Member States in order to shape energy transition in an effective and efficient way. This is because neighbouring social science methodologies may deliver insights into how opportunities of climate protection, innovation and mutual learning in federal systems can be fostered (Section 4).

I will address these three different approaches consecutively. The gradual widening of perspectives leads back to the doctrinal starting point, bringing the work full circle. Ultimately, I aim to determine the extent to which international law or the contributions of related academic fields can be harnessed in interpreting and handling the confusing distribution of legislative powers between the EU and its Member States (Section 5).

2. DOCTRINAL PERSPECTIVE: THE RELEVANT DISTRIBUTION OF POWERS BETWEEN THE EU AND ITS MEMBER STATES

EU treaties have long lacked a coherent catalogue of EU competences and clear indications of the limits to centralized legislative powers as opposed to the residual powers of the Member States. There is long-standing and widespread criticism that many EU competences have been expressed in very broad, open-textured norms, thereby

[1] This categorization leaves aside the highly debated questions of the legal character of the EU and the distribution of sovereignty; cf. A. von Bogdandy, 'Neither an International Organization Nor a Nation State: The EU as a Supranational Federation', in E. Jones, A. Menon & S. Weatherill (eds), *The Oxford Handbook of the European Union* (Oxford University Press, 2012), pp. 761–75.

[2] See, e.g., G. de Búrca, 'Limiting EU Powers' (2005) 1(1) *European Constitutional Law Review*, pp. 92–8, at 93–5; M. Wendel, 'Mutual Trust, Essence and Federalism: Between Consolidating and Fragmenting the Area of Freedom, Security and Justice after *LM*' (2019) 15(1) *European Constitutional Law Review*, pp. 17–47, at 35; S. Oeter, 'Föderalismus und Demokratie', in A. von Bogdandy & J. Bast (eds), *Europäisches Verfassungsrecht*, 2nd edn (Springer, 2009), pp. 73–120, at 74–5.

[3] Paris (France), 22 Apr. 2016, in force 4 Nov. 2016, available at: http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.

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enabling an extensive, effectiveness-driven interpretation of the EU competences by the Court of Justice of the EU (CJEU).[4] This is particularly evident for the harmonization clause in the internal market provision in Article 114 of the Treaty on the Functioning of the European Union (TFEU)[5] and for the codification of implied powers in Article 352 TFEU.[6] This enables an ongoing transfer of competences from the Member States to the EU level.[7] In the environmental policy field, this move to the centre is further enhanced by the fact that environmental problems tend to be transboundary and can be resolved only at the supranational level, given the strong economic ties between the Member States.

The Treaty of Lisbon[8] of 2007 introduced new provisions on basic aspects of the distribution of powers between the Union and the Member States. Since then, Articles 2 to 6 TFEU contain a systematization according to categories and subject matter areas of EU competence, at least to some extent. These provisions list the areas of exclusive competences of the Union; the areas of competences shared with the Member States; and areas in which the EU's competences are restricted to supporting, coordinating, or taking supplementary action.[9] In exercising its powers, the Union must respect the principles of subsidiarity and proportionality laid down in Article 5(3) and (4) of the Treaty on European Union (TEU).[10] In addition, Articles 4(1) and 5(2) TEU now make it unambiguously clear that all powers not conferred upon the Union remain with the Member States.

However, the horizontal competences of the EU are outside the scope of Articles 2 to 5 TFEU. Furthermore, the clarity of the distribution of powers depends on how precisely the relevant norms in the various policy areas are formulated.[11] In the policy areas of the environment and energy in Articles 191 to 194 TFEU, which are of interest here, we find very heterogeneous clauses. In their entanglements and demarcations they are hardly accessible to a strictly legal (doctrinal) systematization.

2.1. *Shared Responsibilities as a Starting Point*

The starting point is clear. The environment and energy are among the policy fields where responsibilities are shared between the Union and the Member States (Articles

4 See, e.g., G. Davies, 'Democracy and Legitimacy in the Shadow of Purposive Competence' (2015) 21(1) *European Law Journal*, pp. 2–22; J. Oberg, 'The Rise of the Procedural Paradigm: Judicial Review of EU Legislation in Vertical Competence Disputes' (2017) 13(2) *European Constitutional Law Review*, pp. 248–80, at 252–3.

5 Lisbon (Portugal), 13 Dec. 2007, in force 1 Dec. 2009 [2012] OJ C 326/47, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:326:FULL:EN:PDF.

6 For discussion of the problem of a 'competence creep' of EU authorities based on Art. 114 TFEU see P. Craig & G. de Búrca, *EU Law*, 5th edn (Oxford University Press, 2011), p. 92.

7 For an elaborate discussion of the reasons see U. Haltern, *Europarecht, Vol. 1* (Mohr Siebeck, 2017), paras 760–73.

8 Lisbon (Portugal), 13 Dec. 2007, in force 1 Dec. 2009, [2007] OJ C 306/1, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2007:306:FULL:EN:PDF.

9 For details see Haltern, n. 7 above, paras 774–94.

10 Lisbon (Portugal), 13 Dec. 2007, in force 1 Dec. 2009, available at: http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A12012M%2FTXT.

11 Cf. P. Craig & G. de Búrca, *EU Law: Text, Cases and Materials* (Oxford University Press, 2015), p. 973.

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4(2)(e) and 4(2)(i) TFEU). Similar to the provisions concerning competing legislative powers in the German federal state (Articles 72 and 74 of the Basic Law for the Federal Republic of Germany, or Grundgesetz), the Member States can legislate in these areas to the extent that the Union has not exercised its competence (Article 2(2) TFEU).[12]

2.2. *Articles 192 and 194 TFEU as a Political Compromise of Heterogeneous Parts*

If one attempts to determine the scope of the relevant EU competences, however, almost everything is unclear. The allocation of competences in Articles 192 and 194 TFEU results from a political compromise. The text of both articles was established in the deliberations for the Treaty of Lisbon without too much attention paid to systemic aspects.[13] So the interpretation depends to a large extent on political pre-understanding. Some political actors have pointed out the necessity of finding solutions for urgent problems on the higher – European – level,[14] while others have feared an erosion of national sovereignty.[15] Article 194 TFEU was created to highlight the importance of energy for the European economy and the common market[16] without a clear idea of how this new provision would fit together with Articles 191 to 193 TFEU. At the same time, as a pragmatic concession to the Member States, a sovereignty exception was included in Article 194(2)(2) TFEU, which is similarly worded but not identical to the sovereignty clause in Article 192(2)(1)(c) TFEU on environmental protection.

It is already uncertain to what extent European legislation that promotes energy transition should be based on the environmental (Article 192 TFEU) or the energy policy provision (Article 194 TFEU).[17] This question cannot be left open simply by considering that the Union has shared competence in both cases and that the same, ordinary legislative procedure (Articles 289, 294 TFEU) must be followed for initiatives adopted under either the energy or environment articles. It matters because only in the environmental policy field may the Member States enact stricter national standards than those provided by European secondary law, as affirmed in the so-called 'provision for increased protection' in Article 193 TFEU. In addition, the sovereignty exception for the Member States works in two different ways: in energy policy there is a strict substantive restriction of Union powers (Article 194(2)(2) TFEU) whereas in the case of

[12] Strong criticism (mixture of different concepts) by R. Schütze, 'Lisbon and the Federal Order of Competence: A Prospective Analysis' (2008) 13(5) *European Law Review*, pp. 709–22, at 715–7.

[13] J. Saurer, 'Rechtsvergleichende Betrachtungen zur Energiewende' (2016) 64 *Jahrbuch des öffentlichen Rechts*, pp. 411–30, at 427.

[14] E.g., Emmanuel Macron's speech at Université La Sorbonne, Paris (France) 'Pour une Europe souveraine, unie, démocratique – seul le prononcé fait foi', 26 Sept. 2017; see F. Fabbrini, 'The Future of the EU27' (2019) 11 *European Journal of Legal Studies*, pp. 305–33, at 320–2.

[15] E.g., Matteo Salvini at the Lega Nord's party festival in 2018; see A. Lev, 'A House Divided: Federalism and Social Conflict in Italy' (2018) 46 *Federal Law Review*, pp. 615–30, at 628.

[16] S. Bings, in R. Streinz (ed.), *EUV/AEUV, Kommentar* [Commentary on TEU/TFEU] (C.H. Beck, 2018), Art. 194 TFEU, para. 3.

[17] See, with several examples, M. Peeters, 'Governing Towards Renewable Energy in the EU: Competences, Instruments, and Procedures' (2014) 21(1) *Maastricht Journal of European & Comparative Law*, pp. 39–63, at 42–5.

environmental policy procedural unanimity in the Council of the EU, following a special legislative procedure, is required (Article 192(2) TFEU).

On the one hand, the history of the creation of Article 194 TFEU seems to speak to its special status, as the Treaty of Lisbon was intended to create clarity through the creation of a new energy competence of the Union.[18]

According to the European Court of Justice (ECJ), in the absence of more specific competences, Article 194 TFEU:

> constitutes the legal basis intended to apply to all acts adopted by the European Union in the energy sector which are such as to allow the implementation of those objectives, subject to, as can be deduced from the terms '[w]ithout prejudice to the application of other provisions of the Treaties' at the beginning of Article 194(2) TFEU, the more specific provisions laid down by the TFEU on energy.[19]

On the other hand, energy competence according to Article 194(2)(1) TFEU explicitly applies only 'without prejudice to the application of other provisions of the Treaties'. This implies that even the general harmonization clause in the internal market provision (Article 114 TFEU) could be considered as a legal basis in addition to the environmental competence. Ultimately, as is generally the case with overlapping legislative powers, it depends on the main focus of the legal measure.[20] An indirect effect on the relevant policy area is not enough; instead, the legal measure must be aimed primarily at having an impact on the policy area in question. This is determined on the basis of objective factors which can be verified by the courts and which include, in particular, the aim and objective of the measure. However, in difficult cases[21] the application of these criteria is a matter of individual judgement rather than of strict legal doctrine.[22] At best, these criteria provide some clarity.

General rules on reducing emissions of greenhouse gases (GHGs), such as the Emissions Trading Directive,[23] are based on the environmental competence (Article 192 TFEU) with good reason, because the major goal of the Directive is to safeguard the environment against global warming. Rules on the promotion of renewable energies and energy efficiency, in turn, are linked to the energy competence (Article 194

[18] The new Art. 194 TFEU was intended to bundle the legislative acts related to energy which had been grounded on different competences before, most importantly, Arts 114 and 192 TFEU; see W. Kahl, 'Die Kompetenzen der EU in der Energiepolitik nach Lissabon' (2009) 44(5) *Europarecht*, pp. 601–22, at 608; C. Kreuter-Kirchhof, 'Ist die Zukunft des Energierechts europäisch?', in P. Rosin & A. Uhle (eds), *Recht und Energie. Liber Amicorum für Ulrich Büdenbender zum 70. Geburtstag* (De Gruyter, 2018), pp. 129–53, at 142.

[19] C-490/10, *European Parliament* v. *Council of the European Union*, ECLI:EU:C:2012:525, para. 67.

[20] Joined Cases C-164/97 and C-165/97, *European Parliament* v. *Council of the European Union*, ECLI:EU:1999:99, para. 12.

[21] See, e.g., C-281/01, *Commission of the European Communities* v. *Council of the European Union*, ECLI:EU:C:2002:761, para. 33; C-301/06, *Ireland* v. *European Parliament and Council of the European Union*, ECLI:EU:C:2009:68, para. 60.

[22] Haltern, n. 7 above, paras 823–4 (pointing to the fact that institutional considerations of the actors in the legislative procedure might also play a prominent role in deciding upon the 'right' clause).

[23] Directive (EU) 2018/410 amending Directive 2003/87/EC to Enhance Cost-effective Emission Reductions and Low-Carbon Investments, and Decision (EU) 2015/1814 [2018] OJ L 76/3.

TFEU)[24] because the main focus is on energy production and supply, even if this ultimately also serves the fight against global warming. However, certain overlaps remain difficult to resolve. For example, both legislative powers were used cumulatively for the new Regulation on Energy Governance:[25]

> With regard to a measure that simultaneously pursues a number of objectives, or that has several components, which are inseparably linked without one being incidental to the other, the Court has held that, where various provisions of the Treaty are therefore applicable, such a measure will have to be founded, exceptionally, on the various corresponding legal bases.[26]

However, it is completely unclear what this dual basis means for the applicability of the provision on increased protection and for the applicable version of the sovereignty exception. In the light of the principle of subsidiarity, it seems appropriate that the competence regime that gives the Member States most scope to legislate should prevail. This would point towards the environmental competence because of its provision on increased protection. However, there seems to be no support for such a reading in case law or in legal literature.

Considering the sovereignty clause (Articles 192(2)(1)(c) and 194(2)(2) TFEU respectively), the ECJ has clarified several points in a recent case involving Poland. It concerned an action for annulment (Article 263 TFEU) of the annual reduction of emissions allowances. The sovereignty clause applies only if it follows from the 'aim and content' of the EU measure that 'the primary outcome sought by that measure is significantly to affect a Member State's choice between different energy sources and the general structure of the energy supply of the Member State'.[27] If the impact of the measure is merely indirect – for example, if the market share of coal-fired electricity shrinks because of a price increase resulting from the reduction of the available certificates – this is not enough to invoke the sovereignty exception. The ECJ based its decision on the fact that the reduction of certificates only aims to make emissions trading more effective.[28] This, however, fails to do justice to the overall issue. After all, emissions trading is supposed to serve the purpose of carbon dioxide (CO_2) reduction. To this end, coal-fired power generation must be gradually, but massively, reduced and, in the longer term, must be phased out entirely. Therefore, a slightly different reading of the *Poland* case is more convincing. Influencing the energy mix as a mere long-term objective is not sufficient to activate the sovereignty clause in favour of the Member States. Otherwise, there would be hardly anything left of the EU's powers in terms of

[24] Directive (EU) 2018/2002 amending Directive 2012/27/EU on Energy Efficiency [2018] OJ L 328/210 and the Renewable Energy Directive (n. 30 below) are all based on Art. 194(2) TFEU.

[25] Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU, Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 [2018] OJ L328/1.

[26] C-490/10, *European Parliament* v. *Council of the European Union*, ECLI:EU:C:2012:525, para. 46.

[27] C-5/16, *Republic of Poland* v. *European Parliament and Council of the European Union*, ECLI:EU:C:2018:483, para. 46.

[28] Ibid., para. 61.

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climate protection and the promotion of renewable energies. This was certainly not the intention of the Treaty of Lisbon.

Nevertheless, in the light of the ECJ jurisprudence, the question remains whether emissions trading will expand and ultimately fall within the scope of the sovereignty exception as soon as the quantity of allowances is reduced to an extent that coal-fired electricity is (almost) no longer marketable. The same question affects the quantitative targets for the promotion of renewable energies to the extent that their minimum market share required by EU law approaches 100%. It is true that currently the binding target amounts to only 32% renewable energies by 2030 at the European level[29] (Article 3(1) of the Renewable Energy Directive 2018,[30] with national targets in Appendix I). However, the reference to the Paris Agreement in recital (2) of the Directive makes it clear that the targets must become increasingly ambitious after 2030, thus getting significantly closer to 100%. Several years ago, the European Council had already declared that CO_2 emissions should be reduced by no less than 80% until 2050;[31] this is possible only by eliminating coal. At what percentage the energy mix of the Member States might be 'significantly' affected remains an open question.[32] The one clear thing is that a regulatory nuclear phase-out or, conversely, the expansion of nuclear energy can only be decided upon at the Member State level. The same is true for a coal phase-out or the maintenance or even intensification of coal-fired power generation.

In the case of indirect regulation by economic incentives, however, the scope of national sovereignty remains unclear. On the one hand, the ECJ has acknowledged the need for a narrow reading of the sovereignty clause because, otherwise, it would not be possible to effectively fight climate change at the European level, which would contravene Article 191(1) TFEU. Furthermore, a broad interpretation of Article 192(2) TFEU 'would risk having the effect of making recourse to the special legislative procedure, which the TFEU intended as an exception, into the general rule'.[33] On the other hand, the Court reasoned that it would not be possible to ground the applicability of the sovereignty clause on the impact of the legislative measure. Otherwise, 'the legislature's choice would have to be based on assumptions …, which, by their nature, are speculative and are in no way objective factors'.[34] However, if future European law were to – directly or indirectly – oblige the Member States to raise the market share of renewables to a much higher level (even close to 100%), the impact on the national

[29] This (not very ambitious) target is based on a political compromise; see C. Kreuter-Kirchhof, 'Emissionshandel und Erneuerbare Energien Richtlinie' (2019) (7–8) *Zeitschrift für Umweltrecht*, pp. 396–404, at 400–1.

[30] Directive (EU) 2018/2001 on the Promotion of the Use of Energy from Renewable Sources (Recast) [2018] OJ L 328/82 (Renewable Energy Directive).

[31] Council of the EU, 'Brussels European Council, 29/30 October 2009, Presidency Conclusions', 1 Dec. 2009, 15265/09, Institutional issue 7.

[32] Cf. S. Klinski, 'Instrumente eines Kohleausstiegs im Lichte des EU-Rechts' (2017) 6 *Zeitschrift für Energiewirtschaft*, pp. 203–11, at 206–7; W. Kahl, 'Alte und neue Kompetenzprobleme im EG-Umweltrecht: Die geplante Richtlinie zur Förderung Erneuerbarer Energien' (2009) 28(5) *Neue Zeitschrift für Verwaltungsrecht*, pp. 265–70, at 269.

[33] C-5/16, *Poland*, n. 27 above, paras 43–4.

[34] Ibid., para. 41.

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energy mix would no longer be speculative. In such a scenario, therefore, the impact of the legislative measure might be relevant for evoking the sovereignty exception even as interpreted by the ECJ.[35]

This overview suggests that although the ECJ's jurisdiction and traditional means of legal interpretation shed some light on Articles 192 and 194 TFEU, they do not provide for an entirely coherent legal concept. Instead, there is a need for a broader methodological horizon.

2.3. *The Scope of Pre-emption in European Secondary Law*

It is also extremely difficult to determine the scope of the pre-emption that the Industrial Emissions Directive[36] and the Emissions Trading Directive prescribe regarding Member States' climate protection regulations. According to the ECJ:

> [European legislation excludes national legislation under shared competences] either because the extension of those rules affects a matter which the common organization of the market has dealt with exhaustively or because the rules so extended are contrary to the provisions of community law or interfere with the proper functioning of the common organization of the market.[37]

As the wording of Article 2(2) (sentences 2 and 3) TFEU ('to the extent that') already tells us, and as has been confirmed by Protocol No. 25 to the Treaty of Lisbon on the Exercise of Shared Competence,[38] the scope of pre-emption depends on the material scope of the relevant secondary law.[39] In the legal literature the doctrine of pre-emption pursuant to Article 2(2) (sentences 2 and 3) TFEU is widely believed to be based not on the German[40] but on the United States (US) model.[41]

This parallel helps us to work out clearer categories of pre-emption; if an entire legal area has been exhaustively regulated at the European level so that EU law prohibits any legislative action of the Member States in this area, this is labelled 'field pre-emption'. As far as European secondary law only precludes certain regulatory measures of the Member States, one speaks of 'rule pre-emption'. If certain legislation at the Member

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35 C. Kreuter-Kirchhof, 'Der künftige Ausbau der erneuerbaren Energien in der EU' (2017) 28(21) *Europäische Zeitschrift für Wirtschaftsrecht*, pp. 829–35, at 830 (arguing that already a reduction of GHG emissions by 80% (as put forward by the European Council, C-5/16, *Poland*, n. 27 above) would invoke the sovereignty clause).

36 Directive 2010/75/EU on Industrial Emissions (Integrated Pollution Prevention and Control) [2010] OJ L 334/17.

37 C-218/85, *Cerafel* v. *Le campion*, ECLI:EU:C:1986:440, para. 13.

38 N. 8 above.

39 Craig & de Búrca, n. 11 above, p. 84; Haltern, n. 7 above, paras 784–5.

40 For a short comparison with German Constitutional Law (Art. 72(2) Grundgesetz) see J. Bauerschmidt, 'Die Sperrwirkung im Europarecht' (2014) 49(3) *Europarecht*, pp. 277–98, at 286–7.

41 E. Auber, 'États-Unis versus Union européenne: Observations comparatives sur la répartition des competénces' (2008) 517 *Revue du Marché Commun de l'Union Européenne*, pp. 221–6, at 221; E. Cross, 'Pre-emption of Member State Law in the European Economic Community: A Framework for Analysis' (1992) 29 *Common Market Law Review*, pp. 447–72, at 455; K. Lenaerts, *Le juge et la Constitution aux États-Unis d'Amérique et dans l'ordre juridique européen* (Émile Bruylant, 1988), pp. 645–7.

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State level is contrary to objectives of EU secondary law, this is called 'obstacle pre-emption'.[42]

The Industrial Emissions Directive contains an explicit pre-emption, as its Article 9(1) expressly prohibits emissions limits for GHGs subject to emissions trading. Accordingly, the German Federal Administrative Court considered CO_2 emissions limits in land-use planning to be inadmissible, albeit based on the German implementation (section 5(2) of the Federal Emissions Control Act (Bundesimmissionsschutzgesetz)) and not directly on EU law.[43] Regulatory instruments that come close to such limits are also likely to be affected by pre-emption. However, it is unclear whether Article 9(1) should be read even more broadly as a field pre-emption and should therefore exclude any command-and-control measures. On the one hand, Article 9(1) of the Industrial Emissions Directive seems to be based on the presumption that CO_2 emissions should be subject only to emissions trading and therefore, by implication, should not be regulated via command and control at all. On the other hand, the Directive is clearly based on the environmental competence (Article 192 TFEU) and therefore is subject to the provision for increased protection (Article 193 TFEU). Recital (10) of the Industrial Emissions Directive further underlines this. Against this background, one might argue that additional national measures are not pre-empted as far as they do not impair the allocation mechanism in the European emissions trading system.[44]

In the past, the precautionary principle (Article 191 TFEU) lent support to the case for supplementary national measures because emissions trading did not truly work as a result of the number of allowances being too high, which suppressed their market price.[45] After the recent tightening of the system in the amended Emissions Trading Directive,[46] however, additional national command-and-control regulation might no longer be needed to meet the demands of the precautionary principle.

Undoubtedly, the Emissions Trading Directive contains an implicit obstacle pre-emption. It prohibits all national measures that impair the functioning of the trading system. In addition, some argue that the Directive states a field pre-emption as well to the effect that even merely supplementary legislation at the national level, aimed

[42] For an overview see R. Schütze, 'Supremacy Without Preemption? The Very Slowly Emergent Doctrine of Community Preemption' (2006) 43(4) *Common Market Law Review*, pp. 1023–48; for a detailed discussion of these categories in US law see J. Merriam, 'Preemption as a Consistency Doctrine' (2017) 25(3) *William & Mary Bill of Rights Journal*, pp. 981–1045; slightly different categorization by Cross, n. 41 above, pp. 455–66; for a detailed discussion of these categories in US law see L. Tribe, *American Constitutional Law* (Foundation Press, 2000), pp. 1172–79.

[43] Bundesverwaltungsgericht [Federal Administrative Court] 14 Sept. 2017, Case 4 CN 6.16, *Amtliche Sammlung* [official documentation], Vol. 159, pp. 356–66.

[44] This line of argumentation is put forward in more detail by C. Ziehm, 'Klimaschutz im Mehrebenensystem: Kyoto, Paris, europäischer Emissionshandel und nationale CO_2-Grenzwerte' (2018) 29(6) *Zeitschrift für Umweltrecht*, pp. 339–46, at 344–5; less clear, Klinski, n. 32 above, p. 208; J. Scott, 'Multi-Level Governance of Climate Change' (2011) 5(1) *Carbon & Climate Law Review*, pp. 25–33, at 27.

[45] Ziehm, n. 44 above, p. 343.

[46] The concept of the reform is described by C. Kreuter-Kirchhof, 'Klimaschutz durch Emissionshandel? Die jüngste Reform des europäischen Emissionshandelssystems' (2017) 28(11) *Europäische Zeitschrift für Wirtschaftsrecht*, pp. 412–8.

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at further accelerating the energy transition, is inadmissible.[47] This ambiguity is again closely linked to the difficult distinction between the policy fields of environment (Article 192 TFEU) and energy (Article 194 TFEU), as the provision for increased protection in Article 193 TFEU rules out any field pre-emption regarding environment-related regulations. In any case, the European Commission has not objected to the United Kingdom (UK) Carbon Price Floor,[48] which tops up the EU emissions trading system (ETS) allowance prices to the carbon floor price target enacted by the UK government.[49] Although the Commission did not give reasons, the fact that the UK legislation does not affect the certificate price outside the UK, and hence does not disturb the EU-wide allocation mechanism, probably played a decisive role.

In contrast, the so-called 'national climate protection contribution' (*nationaler Kimaschutzbeitrag*), which was proposed in Germany some years ago by Sigmar Gabriel, then Federal Minister of Economics, has been widely regarded as incompatible with the Emissions Trading Directive in its original version. This is because this proposal would have allowed the deletion of certificates which, in turn, would have affected the price formation mechanism in the trading system throughout the EU.[50] Article 12(4) of the new, revised version of the Directive now explicitly mandates that Member States may delete certificates until coal power plants, which hold these certificates, have been closed down. This might be characterized as an additional protection clause in secondary EU law, reinforcing the provisions in primary law as laid down in Article 193 TFEU.[51] In any event, national tax solutions that are not linked to emissions trading, such as a general carbon tax, remain admissible. Such national solutions are subject only to restrictions under national law.

The recently revised Renewable Energy Directive does not provide any significant pre-emption; nor does it standardize national support systems.[52] Instead, the supremacy of EU law[53] poses a challenge for financial support schemes at the national level as these are restricted (and thereby guided) by Article 107 et seq. TFEU, together with the Commission's guidelines on state aid.[54] In Germany, the influence of EU state aid rules has resulted in a change in energy promotion strategies. Competitive tendering

[47] Klinski, n. 32 above, pp. 208–9.

[48] Highlighted by Ziehm, n. 44 above, p. 345.

[49] For more details of the UK Carbon Price Floor and whether it might serve as a role model see D. Newberry, D. Reiner & R. Ritz, 'When is a Carbon Prize Floor Desirable?', *Cambridge Working Paper on Economics 1833*, 15 June 2018, available at: https://www.repository.cam.ac.uk/handle/1810/277385.

[50] W.F. Spieth, 'Europarechtliche Unzulässigkeit des "nationalen Klimabeitrags" für die Braunkohleverstromung' (2015) 34(17) *Neue Zeitschrift für Verwaltungsrecht*, pp. 1173–7, at 1174; M. Rodi, 'Kohleausstieg: Bewertung der Instrumentendebatte aus juristischer und ökonomischer Sicht' (2017) 6(6) *Zeitschrift für das gesamte Recht der Energiewirtschaft*, pp. 195–203, at 201.

[51] Kreuter-Kirchhof, n. 29 above, p. 399.

[52] Except for some remarks regarding the support schemes for renewables (Art. 4): Kreuter-Kirchhof, n. 29 above, pp. 402–3.

[53] For this difference between supremacy and pre-emption see, in general, J. Weiler, 'The Community System: The Dual Character of Supranationalism' (1981) 1 *Yearbook of European Law*, pp. 267–306, at 277; Bauerschmidt, n. 40 above, pp. 280–1.

[54] Communication from the Commission, Guidelines on State Aid for Environmental Protection and Energy 2014–2020 (2014/C 200/01) [2014] OJ C 200/1.

procedures for market premiums were introduced instead of feed-in tariffs,[55] so that financial support for renewables, if considered state aid, could at least be justified under Article 106(2) TFEU.[56] However, the ECJ recently refrained from classifying as state aid the promotion of renewables under the German Renewable Energy Sources Act of 2012 (Erneuerbare Energien-Gesetz (EEG 2012)). The financial support was considered neither part of state resources nor – this was the most contentious aspect – otherwise sufficiently linked to the state, because the feed-in tariffs are paid by grid operators rather than state agencies.[57]

It might even be possible to identify a more general tendency in this ruling to reduce the impact of state aid law in favour of secondary legislation.[58] In legal literature it has long been recognized that the term 'granted by a Member State or through state resources' aims to draw a clear line between financial support and regulatory measures.[59] State aid law can only set limits to state action but is not able to frame a positive regulatory concept. The European Commission lacks the democratic credentials to guide the energy transition via the 'back door' of detailed state aid guidelines. Therefore, the ECJ ruling could be understood as an argument for a narrower interpretation of state aid law, granting more political freedom for designing a national regulatory concept for energy transition. If this interpretation proves to be correct, state aid law will probably lose some influence on the future design of national support systems. Nevertheless, a national support scheme might still fall foul of EU state aid rules if the financial flows are more strictly regulated in law and, hence, more connected to the state than they were under the EEG 2012.[60]

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55 This happened in the German Renewable Energy Sources Act of 2014 (Erneuerbare Energien-Gesetz (EEG 2012)) and was extended in the EEG 2018.

56 Art. 106 (2) TFEU states that 'undertakings entrusted with the operation of services of general economic interest or having the character of a revenue-producing monopoly shall be subject to the rules contained in the Treaties, in particular to the rules on competition, in so far as the application of such rules does not obstruct the performance, in law or in fact, of the particular tasks assigned to them'.

57 C-405/16 P, *Federal Republic of Germany* v. *European Commission*, ECLI:EU:C:2019:268, paras 70–85. With this landmark decision the ECJ reaffirmed its own ruling in C-379/98, *PreussenElektra AG* v. *Schleswag AG*, ECLI:EU:C:2001:160 (*PreussenElektra*), paras 59–60, although in the former Stromeinspeisungsgesetz [German Electricity Feed Act] there was considerably less state influence on the financial flows than in the EEG 2012. For a detailed analysis of the relevant case law see P. Overkamp & J. Brinkschmidt, 'Der Beihilfenbegriff im Wandel: Die Entscheidung des EuGH zum EEG 2012 als Wendepunkt der "Beihilfenpolitik"' (2019) 23(21) *Die öffentliche Verwaltung*, pp. 868–75.

58 M. Ludwigs, 'Die Förderung erneuerbarer Energien vor dem EuGH: Luxenburg locuta, causa non finita!' (2019) 38(13) *Neue Zeitschrift für Verwaltungsrecht*, pp. 909–14, at 913–4; B. Scholtka, 'Remarks on ECJ C-405/16' (2019) 30(10) *Europäische Zeitschrift für Wirtschaftsrecht*, pp. 425–6, at 426.

59 For the following line of argumentation see Overkamp & Brinkschmidt, n. 57 above, p. 869; M. Knauff, 'Beihilferechtliche Steuerung der Energiepolitik? Der Einfluss der EU-Kommission auf die Energiepolitik der Mitgliedstaaten', in J. Gundel & K.W. Lange (eds), *Energieversorgung zwischen Energiewende und Energieunion* (Mohr Siebeck, 2017), pp. 55–75, at 67–74; regarding *PreussenElektra* (n. 57 above): M. Bronckers & R. van der Vlies, 'The European Court's Preussen Elektra Judgment: Tensions between EU Principles and National Renewable Energy Initiatives' (2001) 22(10) *European Competition Law Review*, pp. 458–68, at 464.

60 See Overkamp & Brinkschmidt, n. 57 above, p. 874; M. Kahles & J. Nysten, 'Alles auf Anfang? Die fehlende Beihilfeneigenschaft des EEG' (2019) 8(5) *Zeitschrift für das gesamte Recht der Energiewirtschaft*, pp.147–52, at 150–2; Ludwigs, n. 58 above, pp. 912–3.

Finally, the new Governance Regulation[61] puts an even stronger focus on promoting Member State commitments than the Renewable Energy Directive. The Governance Regulation pursues a dedicated, bottom-up approach outside the ETS area,[62] such that there is no pre-emption of national measures to combat climate change. I will come back to this later.

The doctrinal analysis of the distribution of legislative powers between the EU and Member States reveals that many legal questions remain open because there is no coherence in Articles 191 to 194 TFEU. The wording is full of unclear political compromises and thus the relevant treaty provisions are not suitable for strict legal interpretation in a narrow sense. As a consequence, we suggest reconsidering the methods of legal interpretation. Interpretation of competence allocation in Articles 192 and 194 TFEU should move beyond the classical methods of textual and historical interpretation towards a more teleological approach.

3. INTERNATIONAL PERSPECTIVE: EFFECTIVE ENFORCEMENT OF THE OBLIGATIONS IMPOSED BY THE PARIS AGREEMENT

International law and, in particular, the Paris Agreement look differently upon the distribution of competences within the EU. Here, the spotlight turns from doctrinal issues to the instrumental function of the distribution of legislative powers. From this perspective, the crucial questions are whether international legal obligations can be effectively fulfilled given the respective competences of Member States, and how to link the efforts of the EU and the Member States in the most reasonable way.

3.1. *The 2 or 1.5°C Target and the Bottom-up Approach*

Not all parts of the Paris Agreement are equally binding. To a large extent it is more or less soft law.[63] Many responsibilities of the signatory states are framed in rather vague terms; quite often the agreement says that the parties 'should' do something (e.g., Article 4(4)) or that they 'aim to … as soon as possible' (e.g., Article 4(2)). If such clauses are legally binding at all, they can be understood only as purely procedural obligations.[64] Other clauses contain even softer recommendations or declarations (e.g., Article 7(4)). In contrast, the overarching goal of limiting global warming to well below 2 and, if possible, 1.5°C (degrees Celsius) (Articles 2(1)(a)(lit. a) is fully binding

[61] Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No. 663/2009 and (EC) No. 715/2009, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No. 525/2013 [2018] OJ L 328/1.

[62] There are only European-wide goals, no binding national targets in the Regulation because of the sovereignty clauses in Arts 192(2)(1)(c) and 194(2)(2) TFEU; see S. Schlacke & M. Knodt, 'Das Governance-System für die Europäische Energieunion und für den Klimaschutz' (2019) 30(7–8) *Zeitschrift für Umweltrecht*, pp. 404–12, at 406.

[63] See J. Saurer, 'Klimaschutz global, europäisch national: Was ist rechtlich verbindlich?' (2017) 36(21) *Neue Zeitschrift für Verwaltungsrecht*, pp. 1574–9, at 1575.

[64] Cf. J. Saurer, 'Strukturen gerichtlicher Kontrolle im Klimaschutzrecht: Eine rechtsvergleichende Analyse' (2018) 29(12) *Zeitschrift für Umweltrecht*, pp. 679–86, at 683.

under international law. The Agreement is based on a principle of joint responsibility, but it varies according to the level of development and the economic performance of the signatory states (Article 2(2)). It is not specified exactly who must do what against climate change and when this is supposed to happen. Rather, the Paris Agreement relies in this respect on the self-commitment of the contracting parties, which is supported procedurally by reporting obligations.

Although the so-called nationally determined contributions (NDCs) (Article 3) are voluntary, the parties are obliged to prepare, communicate, and maintain such contributions. The NDCs reflect rather than drive national policy.[65] After they have been communicated, however, the national commitments become mandatory and the Paris Agreement prods states to increase their efforts progressively every five years (Article 4(a)). To monitor the progress of the parties and make them more ambitious, a transparency framework is established (Article 13).[66] This is the so-called bottom-up approach.[67] The signatory states could only agree on such a procedural strategy because it offers greater flexibility than concrete substantive standards. Unfortunately, there is some divergence between the collective ambition and actual, solid national commitments, as national politics are often rather short-term oriented.[68]

The Paris Agreement is a so-called mixed agreement, as the aforementioned obligations affect both the EU itself and its Member States, and involve both European and national competences.[69] At first glance, Articles 3(2) and 216 TFEU might be read broadly so as to give exclusive powers to the EU if this is necessary in order to achieve one of the objectives referred to in the treaties (such as fighting climate change, as confirmed in Article 191(1) TFEU). However, the concept of mixed agreements has a long history in the jurisprudence of the ECJ,[70] and the Treaty of Lisbon did not change this. Therefore, a narrower reading of Article 216 TFEU is more convincing: external competences may be shared if – as is the case for environmental and energy policy, according to Articles 192 and 194 TFEU – the TFEU did not confer sufficient competence

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[65] D. Bodansky, 'The Paris Climate Change Agreement: A New Hope' (2016) 110(2) *American Journal of International Law*, pp. 288–319, at 289.

[66] For some detail see E. Ediboglu, 'The Paris Agreement: Effectiveness Analysis of the New UN Climate Change Regime' (2017) 17 *University College Dublin Law Review*, pp. 164–201, at 179.

[67] For a detailed analysis see, e.g., M.-C. Cordonier Segger, 'Advancing the Paris Agreement on Climate Change for Sustainable Development' (2016) 5(2) *Cambridge Journal of International and Comparative Law*, pp. 202–37, at 209–12. Cf. (bottom-up substance combined with a top-down process) D. Bodansky, J. Brunnée & L. Rajamani, *International Climate Change Law* (Oxford University Press, 2017), pp. 214–5.

[68] L. Bergkamp, 'The Paris Agreement on Climate Change: A Risk Regulation Perspective' (2016) 7(1) *European Journal of Risk Regulation*, pp. 35–41, at 36.

[69] For ratification at EU-level see Council Decision (EU) 2016/1841 on the Conclusion, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change [2016] OJ L 282/1; before that (signature) Council Decision (EU) 2016/590 on the Signing, on behalf of the European Union, of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change [2016] OJ L 103/1; ratification in Germany, *BGBl* [official journal] II 2016, p. 1082.

[70] E.g., Opinion of the Court, *Competence of the Community to Conclude International Agreements concerning Services and the Protection of Intellectual Property: Article 228 (6) of the EC Treaty, Opinion 1/94*, Opinion of the Court, ECLI:EU:C:1994:384, p. 5284.

upon the EU to ratify the agreement in its entirety.[71] Accordingly, both levels must ensure that contractual obligations are fulfilled, in a coordinated manner and within the requisite framework of distribution of powers. Admittedly, there are no sanctions for failure to comply, and there is no enforcement mechanism in the Paris Agreement.[72] This, however, does not change the legally binding character of some obligations, which must be taken into account in both European and national law.

The Paris Agreement's approach to legal binding effect is familiar and is also found in the United Nations Framework Convention on Climate Change (UNFCCC).[73] The UNFCCC established the governance structure for the international climate regime and paved the way for both the Kyoto Protocol[74] and the Paris Agreement. However, it avoids legally binding targets and proposes the implementation of climate protection programmes at the national level in order to stabilize the concentration of GHG emissions.[75]

3.2. *Possibilities and Limits of an International Law-Friendly Interpretation of EU Primary Law*

To fulfil their obligations under international treaties, the EU and its Member States must make effective use of their respective powers. The question arises whether, in a case of ambiguity, the distribution of powers in Articles 192 and 194 TFEU must be interpreted in the most international law-friendly way possible, so that the respective interpretation promotes effective implementation of the energy transition. If so, firstly, this might support a restrictive interpretation of the national sovereignty exception. If not, the reduction of climate-damaging fossil fuels would be significantly hampered because, as mentioned above, the European level would fail to be a driving force. Secondly, a broad interpretation of Article 192 TFEU and a narrow interpretation of Article 194 TFEU would empower the Member States to accelerate the fight against climate change because Article 193 TFEU allows stricter national standards than those provided by European secondary law only in environmental policy.

In Germany, Charlotte Kreuter-Kirchhof has asserted that the sovereignty exception is conditioned by the EU energy policy goals in order to fulfil its obligations under international law. Because all Member States have agreed to the Paris Agreement, they have consequently given implicit consent to a regulatory policy at the European level that increasingly turns away from fossil fuels and shifts the energy mix towards renewables.[76] Unfortunately, Kreuter-Kirchhof does not clearly distinguish between the mere *exercise* of competence and the *interpretation* of competence. However, to the

[71] See, in general and with more details, Craig & de Búrca, n. 6 above, pp. 81–3.

[72] Cordonier Segger, n. 67 above, p. 218.

[73] New York, NY (US), 9 May 1992, in force 21 Mar. 1994, available at: https://unfccc.int/resource/docs/convkp/conveng.pdf.

[74] Kyoto (Japan), 11 Dec. 1997, in force 16 Feb. 2005, available at: http://unfccc.int/resource/docs/convkp/kpeng.pdf.

[75] See further Bodansky, Brunnée & Rajamani, n. 67 above, pp. 118–20, 130–58.

[76] Kreuter-Kirchhof, n. 18 above, pp. 148–9; Kreuter-Kirchhof, n. 29 above, p. 401.

extent that the substantive restriction of powers in Article 194(2)(2) TFEU is at issue, rather than only the procedural unanimity requirement of Article 192(2)(1)(c) TFEU, the question of the delimitation of the policy areas of environment and energy emerges once more. Only a narrow, international law-friendly interpretation of the national sovereignty exception would work in this context.

The principle that European legislation should be interpreted as much as possible in accordance with the EU's international obligations is by no means unknown in EU law. Article 3(5) TEU explicitly provides that the EU should contribute to the strict observance and development of international law. International law-friendly interpretations are discussed primarily in EU secondary law which is based on international treaty law, such as the Directives implementing the UN Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention).[77] The recitals to both Directives state clearly that these instruments serve the goal of fulfilling the Union's obligations under the international treaty.[78] From this background, interpreting the Directives so that they are in line with the Aarhus Convention[79] can be understood and justified as a part of teleological interpretation. In addition, this interpretation is backed by Article 216(2) TFEU, which emphasizes the legally binding character of such international treaties for both the EU and the Member States.

However, the matter in question concerns the interpretation of higher-ranking primary law in the light of obligations under lower-ranked and more recent international treaties.[80] The ECJ has always understood EU treaties as establishing their own constitutional space and has asserted the autonomy of EU law vis-à-vis international law. At first glance this stance does not fit together very well with an international law-friendly interpretation which relies extensively on international law.[81] Referring to

[77] Aarhus (Denmark), 25 June 1998, in force 30 Oct. 2001, available at: http://www.unece.org/env/pp/treatytext.html. The Aarhus Convention is also a mixed agreement; see ratification at EU-level, Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment [2001] OJ L 197/0030; Directive 2003/4/EC on Public Access to Environmental Information and Repealing Directive 90/313/EEC [2003] OJ L 41/0026; Directive 2003/35/EC providing for Public Participation in respect of the Drawing Up of Certain Plans and Programmes relating to the Environment and Amending with regard to Public Participation and Access to Justice Directives 85/337/EEC and 96/61/EC [2003], OJ L 156/17; ratification at German level, BGBl [official journal] II 2016, p. 1251.

[78] See Recitals 4–10 of Directive 2003/35/EC, ibid.; Recitals 19–21 of Directive 2011/92/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment [2011] OJ L 26/1 (later replaced by Directive 2014/52/EU Amending Directive 2011/92/EU on the Assessment of the Effects of Certain Public and Private Projects on the Environment [2014] OJ L 124/1).

[79] Pointing in this direction, albeit not clear, C. Eckes, 'Environmental Policy "Outside-In": How the EU's Engagement with International Environmental Law Curtails National Autonomy' (2012) 13(11) *German Law Journal*, pp. 1151–75, at 1156, 1172.

[80] In the context of the *Kadi* cases highlighted by C. Ohler, 'Gemeinschaftsrechtlicher Rechtsschutz gegen personengerichtete Sanktionen des UN-Sicherheitsrats' (2008) 19(20) *Europäische Zeitschrift für Wirtschaftsrecht*, pp. 630–3, at 632.

[81] Cf. H.P. Aust, 'Eine völkerrechtsfreundliche Union? Grund und Grenze der Öffnung des Unionsrechts zum Völkerrecht' (2017) 1 *Europarecht*, pp. 106–21, at 109–11. This explains why the ECJ emphasized the autonomy of EU law when reviewing sanctions of the UN Security Council in the *Kadi* case law. See Joint Cases C-402/05 P & C-415/05 P, *Yassin Abdullah Kadi and Al Barakaat International Foundation* v. *Council of the European Union and Commission of the European Communities*,

international law in the interpretation of the distribution of powers in the TFEU is also problematic from the perspective of conventional legal reasoning. Such reference would be warranted only if one sees the TFEU, and in particular its provisions on the allocation of competences, as a dynamic 'living instrument'[82] which can be adapted to changed circumstances. There has been much criticism of the ECJ's previously ultra-dynamic interpretation of European law and European competences in the service of European integration.[83] An international law-friendly interpretation could be seen as a new variation of this controversial *effet utile* approach.

Nevertheless, Articles 191 to 194 TFEU have some special characteristics that mitigate the general objections to an international law-friendly interpretation. Article 191(1) TFEU explicitly refers to 'promoting measures at the international level to deal with regional or worldwide environmental problems, and in particular combating climate change'. No particular international agreement is mentioned, so this clause is open to dynamic adaptation to changing obligations in international treaties. Therefore, the interpretation of Articles 192 and 194 TFEU, in the light of the Paris Agreement's push to promote an effective implementation of the energy transition, can also be understood as a legitimate teleological interpretation similar to the previously discussed example of the Aarhus Convention and secondary EU law.

In general, such teleological reasoning might be seen as problematic because it gives too much room to interpretations based on individual (political) preferences.[84] Furthermore, according to many legal scholars, the allocation of competences should be a particularly stable factor within a federal system.[85] This assumption of stability,

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ECLI:EU:C:2008:461 (*Kadi I*), paras 291–308; Joint Cases C-584/10 P et al., *European Commission and Others* v. *Yassin Abdullah Kadi*, ECLI:EU:C:2013:518 (*Kadi II*), paras 104–6, 130–3. For further discussion of this point see G. de Búrca, 'The European Court of Justice and the International Legal Order after Kadi' (2010) 51(1) *Harvard International Law Journal*, pp. 1–49, at 40–2; M. Wimmer, 'Inward- and Outward-Looking Rationales behind *Kadi II*' (2014) 21(4) *Maastricht Journal of European and Comparative Law*, pp. 676–703, at 698–9; S. Neudorfer, 'Antiterrormaßnahmen der Vereinten Nationan und Grundrechtsschutz in der Union' (2009) 69 *Zeitschrift für ausländisches öffentliches Recht und Völkerrecht*, pp. 979–1006, at 992–3. Admittedly, the constellation in *Kadi* was more about the scope of commitment to UN law than about international friendly interpretation of the EU treaties.

82 The living-instrument doctrine is discussed primarily in relation to the Strasbourg court but formulates a legal reasoning widely shared in continental law; see T. von Danwitz, 'The Rule of Law in the Recent Jurisprudence of the ECJ' (2014) 37(5) *Fordham International Law Journal*, pp. 1312–46, at 1346.

83 See, e.g., M.P. Maduro, 'Interpreting European Law: Judicial Adjudication in a Context of Constitutional Pluralism' (2007) 1(2) *European Journal of Legal Studies*, pp. 1–21; G. Itzcovich, 'The Interpretation of Community Law by the European Court of Justice' (2009) 10(5) *German Law Journal*, pp. 537–60; for a detailed methodological discussion of the *effet utile* case law of the ECJ see F. Müller & R. Christensen, *Juristische Methodik, Vol. II: Europarecht* (Duncker & Humblot, 2012), pp. 357–60.

84 L. Kestemont, *Handbook on Legal Methodology: From Objective to Method* (Intersentia, 2018), p. 29; for a short summary see K.F. Röhl & H.C. Röhl, *Allgemeine Rechtslehre*, 3rd edn (Heymanns, 2008), pp. 630–1; cf. K. Hesse, *Grundzüge des Verfassungsrechts der Bundesrepublik Deutschland*, 20th edn (C.F. Müller, 1999), para. 57 ('Teleologische Interpretation ist kaum mehr als ein Blankett, weil mit der Regel, daß nach dem Sinn eines Rechtssatzes zu fragen ist, nichts für die entscheidende Frage gewonnen ist, wie dieser Sinn zu ermitteln sei').

85 R. Schütze, *From Dual to Cooperative Federalism: The Changing Structure of European Law* (Oxford University Press, 2009), pp. 242–3, 284–5; for Germany see R. Stettner, *Grundfragen einer Kompetenzlehre* (Duncker & Humblot, 1983), pp. 306–7; P. Lerche, *Aktuelle föderalistische Verfassungsfragen* (Bayerische Staatskanzlei, 1968), pp. 32, 50.

however, has never held in European law[86] and even less in Articles 192 to 194 TFEU, which conceal an unclear political compromise. As discussed above, in this particular setting the combination of a teleological and an international law-friendly interpretation of the competences is still in line with traditional standards of legal interpretation. This is possible at least in so far as the wording of Articles 192 to 194 TFEU remains unclear.

4. A VIEW FROM OUTSIDE: MODELS OF FEDERALISM IN LAW AND ECONOMICS AND THE SOCIAL SCIENCES

How should the distribution of powers between the EU and the Member States be interpreted in order to make climate protection as effective as possible and thereby enhance energy transition? At first glance it would seem reasonable to interpret EU competences as extensively as possible in order to overcome the self-interest of Member States and ensure a level playing field. However, opponents of this position might deem the likely effectiveness of such a move uncertain. The need to obtain the majorities required for European legislation can also lead to a compromise on the lowest common denominator. Less ambitious regulations at the EU level which are rooted only in Article 194 and not in Article 192 TFEU would then pre-empt more far-reaching national measures. Thus, climate protection would be hindered rather than promoted.

Which viewpoint is more convincing cannot be assessed exclusively on the basis of conventional legal methodology. In this respect neither the wording nor the systemic link between Articles 192 and 194 TFEU are helpful. However, a look at economics and the social sciences can be beneficial here, as these disciplines have dealt intensively with various models of federalism and their effects. Admittedly, it may be problematic to rely on theoretical approaches outside the law for statutory construction and constitutional interpretation. The turn to neighbouring social sciences offers different perspectives, invites different normative implications, and may lead to completely different normative conclusions if applied to the law. There is a certain risk of arbitrariness in espousing a particular theory,[87] which might even jeopardize the rule of law. However, investigating the intention and purpose of legal provisions is often not possible without going beyond the law itself. This is widely acknowledged in Anglo-American legal scholarship,[88] and is also recognized in

[86] From a comparative perspective see M. Fehling, 'Mechanismen der Kompetenzverteilung in föderalen Systemen im Vergleich', in J. Aulehner et al. (eds), *Föderalismus – Auflösung oder Zukunft der Staatlichkeit* (Boorberg, 1997), pp. 31–55, at 42–5, 47.

[87] This was argued strongly in relation to administrative law in K. Gärditz, 'Die "Neue Verwaltungsrechtswissenschaft": Neuer Wein in alten Schläuchen?', in M. Burgi (ed.), *Zur Lage der Verwaltungsrechtswissenschaft, Die Verwaltung, Beiheft 12* (Duncker & Humblot, 2017), pp. 105–45, at 133–41. Traditionally, the 'Pure Theory of Law' (H. Kelsen) stressed the autonomy of the legal order; relying extensively on a 'pure legal method' today, e.g., A. Funke, 'Perspektiven subjektivrechtlicher Analyse im öffentlichen Recht' (2015) 70 *Juristenzeitung*, pp. 369–80, at 374–6.

[88] See, most famously, O.W. Holmes, 'The Path of the Law' (1897) *10 Harvard Law Review*, pp. 457–74, at 469; for an interdisciplinary approach in environmental law see, e.g., D. Owen & C. Noblet, 'Interdisciplinary Research and Environmental Law' (2014) 41(4) *Ecology Law Quarterly*, pp. 887–938.

France[89] and Germany.[90] To avoid one-sidedness, one should look at various social sciences and compare or even, if possible, combine the insights. In federalism theory this means engaging with both economics and political science. Of course, we must be wary of naïve interdisciplinary transplants[91] and must critically review what can be made use of for the teleological interpretation of Articles 191 to194 TFEU.

4.1. *Competitive versus Cooperative Federalism?*

Ideally, we can distinguish competitive from more cooperative and even unitary forms of federal relationship. The unitarian model is based on the perception that, because of increased mobility and globalization, a growing number of problems can be solved only if they are addressed together. Thus, we need either cooperation (through treaties) or an even greater centralization of competences at a higher level. In contrast, competitive federalism seeks to exploit the economic advantages of competition for public purposes and advocates a decentralized distribution of competences.[92] Both forms of federalism have advantages and disadvantages, especially for effective climate protection. Genuine federal systems, including the EU,[93] typically feature elements of both models, albeit in different mixes.

Theoretically at least, the competitive model generates a particularly high potential for innovation. Member States, especially those that are the most economically efficient, can compete for the best (for example, regulatory or fiscal) solutions, which should then ideally be diffused elsewhere.[94] This strategy undergirds the new EU Governance Regulation and is reflected in the bottom-up approach of the Paris Agreement as illustrated in the NDCs. The integrated National Energy and Climate Plans (NECPs) – which the Member States or signatory states in the case of the Paris

[89] Cf., with focus on administrative law, J. Chevallier, 'Doctrine ou science?' (2001) 7 *L'Actualité Juridique: Droit Administratif*, pp. 603–7, at 603–4.

[90] See, e.g., H.C. Röhl, 'Öffnung der öffentlich-rechtlichen Methode durch Internationalität und Interdisziplinarität: Erscheinungsformen, Chancen, Grenzen' (2015) 74 *Veröffentlichungen der Vereinigung der Deutschen Staatsrechtslehrer*, pp. 7–32, at 28–32; A. von Arnauld, 'Die Wissenschaft vom öffentlichen Recht nach einer Öffnung für sozialwissenschaftliche Theorie', in A. Funke & J. Lüdemann (eds), *Öffentliches Recht und Wissenschaftstheorie* (Mohr Siebeck, 2009), pp. 65–117, at 82–6; from a methodological point of view cf., e.g., S. Taekema & B. van Klink, 'On the Border: Limits and Possibilities of Interdisciplinary Research', in B. van Klink & S. Taekema (eds), *Law and Method* (Mohr Siebeck, 2011), pp. 7–32, at 14–27.

[91] On the background to the German discussion about a 'New Administrative Law Science' this is pointed out in more detail by M. Fehling, 'Die neue Verwaltungsrechtswissenschaft: Problem oder Lösung. Innovation durch Kanonisierung?', in Burgi, n. 87 above, pp. 65–103, at 79–87; A. Voßkuhle, 'Neue Verwaltungsrechtswissenschaft', in W. Hoffmann-Riem, E. Schmidt-Aßmann & A. Voßkuhle (eds), *Grundlagen des Verwaltungsrechts, Vol. 1*, 2nd edn (C.H. Beck, 2012), § 1 para. 39.

[92] For a general discussion see, e.g., C. Volden, 'The Politics of Competitive Federalism: A Race to the Bottom in Welfare Benefits?' (2002) 46(2) *American Journal of Political Science*, pp. 352–63; V. Mehde, *Wettbewerb zwischen Staaten* (Nomos, 2005).

[93] Cf., from a slightly different perspective, Schütze, n. 85 above; W. Kerber, 'Applying Evolutionary Economics to Public Policy: The Example of Competitive Federalism in the EU', in K. Dopfer (ed.), *Economics, Evolution and the State* (Edward Elgar, 2005), pp. 296–324.

[94] On the positive impacts of intergovernmental competition see T.R. Dye, *American Federalism: Competition among Governments* (Lexington, 1990), pp. 177–89.

Agreement, respectively, must submit according to Articles 3 and 4 of the Governance Regulation[95] – can be understood as a regulatory innovation laboratory for best practice. The role of the EU above all would be to promote and, where necessary, force Member States' efforts. However, this hardly constitutes a competition model in its pure form because the bottom-up approach is also associated with the hope of cooperation and mutual learning without economic pressure for adaptation, which seems beneficial for individual Member States. Moreover, one could consider explaining and justifying the sovereignty with reference to the competition model between Member States. This model gives Member States the freedom, for example, to test different strategies for decarbonization with or without nuclear energy. However, it is unrealistic to assume that such considerations animated the Member States under the Treaty of Lisbon. Realistically, it was probably more a matter of safeguarding classic national sovereignty against unitarization tendencies that were perceived to be excessive.

The cooperative model assigns a stronger, more active role to the supreme, which in the context of our topic is the European level. The EU must intervene independently and legislate where national efforts alone are not enough to effectively tackle supranational and international problems. Ultimately, both levels should interact to achieve the common goal. At the international level the principle of common but differentiated responsibilities of the signatory states to the Paris Agreement (Article 2(2)), which is specified in several provisions,[96] also speaks in favour of such cooperative and, to some extent, collaborative efforts for climate protection and energy transition.

4.2. *Law and Economics Perspective: Enabling a 'Race to the Top' instead of a 'Race to the Bottom' in Climate Protection Efforts*

To better understand how a strategy based primarily on various efforts by the Member States could have an impact on climate protection, it is advisable to look at legal-economic models. Such legal-economic models of federalism address the question when it is desirable to have competition among multiple jurisdictions. This is closely connected with another question: do competing jurisdictions have a continuing incentive to decrease or increase their levels of intervention, for example regarding our topic, in relation to their climate protection and energy transition efforts? In the pure neoclassical competition model of federalism[97] people or firms have the option not only of 'voice' (political engagement and voting) but also of 'exit' (migrating to a different

[95] For details see, Schlacke & Knodt, n. 62 above, p. 406.

[96] Specifications in Art. 4(3)(19) of the Paris Agreement; for further details see Bodansky, Brunnée & Rajamani, n. 67 above, pp. 219–26.

[97] Dating back at least to C. Tiebout, 'A Pure Economic Theory of Local Expenditures' (1956) 64(5) *The Journal of Political Economy*, pp. 416–24; for refinements see, e.g., T. Bewley, 'A Critique of Tiebout's Theory of Local Expenditures' (1981) 49(3) *Econometrica*, pp. 713–40; detailed overview on different concepts of competition between regulatory systems by J. Brettschneider, *Das Herkunftslandprinzip und mögliche Alternativen aus ökonomischer Sicht* (Dunker & Humblot, 2015), pp. 161–263.

jurisdiction) to achieve the desired level of state intervention.[98] In this economic model it does not matter whether the level of regulation is more or less strict; it is only important that those affected perceive the level of intervention as optimal for them.[99] However, such outcome neutrality is irreconcilable with the goal of energy transition. If federal competition were to lead to lower standards, this would be undesirable in the light of the Paris Agreement.

The fear of a 'race to the bottom' is widespread, especially in the case of environmental standards.[100] Countries with fewer environmental requirements might offer their companies cost advantages, which may enable them to displace their competitors operating in countries with more ambitious and, thus, more expensive environmental protection. To avoid the disadvantages of site location, the more ambitious states, for their part, would relax environmental standards. Such a downward spiral is often economically modelled as a prisoner's dilemma. It is a situation in which the states, acting in their own self-interest, reach a collectively irrational result.[101] A different explanation points to market failure because of interstate and inter-temporal externalities,[102] which are particularly important in activities that damage the climate. This could only be effectively counteracted by uniform regulations at a higher – European – level.

In connection with energy transition the location argument is often put forward against proposals for taxation at the national level, such as carbon taxation. However, harmonization of (carbon) taxes at the EU level is almost impossible because provisions of a primarily fiscal nature must be adopted with unanimity by the EU Member States (Article 192(2)(1)(a) TFEU). The alleged disadvantage of site location has also been repeatedly invoked against the German financial promotion of renewable energies because it is well known that the costs are passed on to electricity consumers by the grid operators who initially bore the burden. This fear has been taken into account via generous discounts for the power-intensive industry in the Renewable Energy Act surcharge. For the 2014 Renewable Energy Act, the European Commission decided that such discounts are compatible with the Energy and Environmental Aid Guidelines for competitiveness reasons, in that the covered sectors are both energy-intensive and exposed to international trade.[103]

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98 See A.O. Hirschmann, *Exit, Voice, and Loyality* (Harvard University Press, 1970); overview by A. Peters, 'Wettbewerb von Rechtsordnungen' (2010) 69 *Veröffentlichungen der Vereinigung der Deutschen Staatsrechtslehrer*, pp. 7–53, at 17–9.

99 Cf., e.g., R.J. Revesz, 'Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation' (1992) 67(6) *New York University Law Review*, pp. 1210–54.

100 See, e.g., P.P. Swire, 'The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition among Jurisdictions in Environmental Law' (1996) 14(2) *Yale Law & Policy Review*, pp. 68–110; K.H. Engels, 'State Environmental Standard-Setting: Is There a "Race" and Is It "to the Bottom"?' (1997) 48(2) *Hastings Law Journal*, pp. 271–376.

101 Revesz, n. 99 above, pp. 1217–8.

102 Swire, n. 100 above, pp. 99–100.

103 European Commission, 'State Aid SA.38632 (2014/N) – Germany EEG 2014: Reform of the Renewable Energy Law', 23 July 2014, C(2014) 5081 final, in particular recitals (292)–(328). However, because of the substantial extension of these privileges, some exemptions and reductions might threaten to come into conflict with EU state aid law in the future. Reductions of the EEG surcharge have not been subject to the

Nevertheless, the location argument for the promotion of renewable energies is by no means clear. As soon as renewable energies are successfully introduced into the market without the need for further subsidies – which is already partly the case in Germany and other countries – they will offer a competitive *advantage* to the national economy because the variable costs of green electricity tend to be much lower than those of any conventional energy source.

Instead of a 'race to the bottom', under certain circumstances a 'race to the top' may occur if states compete on environmental standards. If a large and economically strong state with particularly strict environmental standards becomes a pioneer, it may economically force other states to follow. This has been referred to as the 'California effect', which refers to vehicle pollution standards. In the long run, stricter standards in California paved the way for a stricter federal standard.[104] However, this works only if these other states adjust in order to be able to offer their products in the pioneer state's indispensable market.

The conditions for a California effect are rarely met in the European internal market. This is because in many areas EU fundamental freedoms do not allow the restriction of cross-border trade of goods and services merely because less stringent environmental standards prevail in the country of origin. However, even within the EU such a strict application of the country-of-origin principle does not apply without distinction. European fundamental freedoms have limits, and indirect discrimination can be justified under certain conditions. Hence, the country-of-origin principle and rules of mutual recognition are intertwined with the opposite country-of-destination principle[105] and with (minimum) harmonization in EU secondary law.[106] Countries outside the European Economic Area, on the other hand, could be compelled (in accordance with World Trade Organization obligations and bilateral agreements), to comply with EU environmental standards as a requirement for access to the EU market. However, the political will to do so seems to be lacking. Moreover, such a 'trading up' mechanism is more likely to materialize in respect of products than for process standards such as pollution limits or carbon taxes.[107]

Prospectively, any 'race to the top' within the EU energy market is more likely to follow an alternative pathway. If certain climate protection strategies prove to be economically successful, they may become role models. Germany has succeeded to a certain, but ultimately limited, extent in making renewable energy competitive by gradually

decision of the ECJ (*Federal Republic of Germany* v. *European Commission*, n. 57 above), which only covered the feed-in-tariffs.

[104] This line of argumentation has been developed by D. Vogel, *Trading Up: Consumer and Environmental Regulation in a Global Economy* (Harvard University Press, 1995); cf. furthermore P. Fredriksson & D. Millimet, 'Is There a "California Effect" in US Environmental Policymaking?'(2002) 32(6) *Regional Science and Urban Economics*, pp. 723–64.

[105] As the counter principle of the country of origin principle, the country of destination principle determines that the regulation of the country that receives goods and services applies.

[106] Some short remarks by Craig & de Búrca, n. 11 above, p. 608; for a detailed analysis of different areas of European law see Brettschneider, n. 97 above, pp. 330–562.

[107] Vogel, n. 104 above, pp. 20–2; Swire, n. 100 above, pp. 83–5; cf. R. Stewart, 'International Trade and Environment: Lessons from the Federal Experience' (1992) 49(4) *Washington & Lee Law Review*, pp. 1329–71, at 1333–45.

reducing financial support according to the Renewable Energy Act. Some other nations (mostly outside Europe) consider Germany a possible role model in this respect. Regarding decisions on the future of nuclear energy, on the other hand, completely different national perceptions on risk stand in the way of mutual learning, with Germany and France as extreme examples.[108] Concerning the phasing out of coal, the existing economic exit conditions in the various Member States are probably too different to allow any state to play a pioneering role in this respect. For example, the UK phased out coal to a great extent in the Thatcher era, but Germany and, to an even greater extent, Poland still rely heavily on coal not only for the security of the supply of electricity but also for employment reasons, at least in some areas of these countries.

What lesson can we draw from this? No single economic theory of federalism would be able to advise how to allocate legislative competences for the most effective fight against climate change. Under certain conditions giving more legislative power to the Member States might induce a 'race to the top'. Under other conditions the opposite, a 'race to the bottom', might occur.[109] Therefore, there is good reason to believe, as supported in legal-economic scholarship,[110] that a mixture of European standards and leeway for stricter Member State measures is the best arrangement to realize the goals of the Paris Agreement. This is exactly what is laid out in Article 193 TFEU for environmental policy, although there is no equivalent provision for the energy policy field.

4.3. *Social Science Perspective: Promoting Innovation at the National Level?*

The energy transition requires both technological and legal innovation. Technological progress is needed, for example, in energy storage, battery capacity for electro-mobility and the increase of energy efficiency. From a legal and economic point of view, the advantages and disadvantages of regulatory and economic instruments regarding, for example, the phasing-out of coal energy are the subject of debate. Economists point to the fact that fiscal and incentive-based solutions, such as a carbon tax or a refined cap-and-trade-system, are more flexible than command and control. They argue that these economic instruments create opportunities for regulatory addressees to search for the most efficient and innovative technological solutions. Against this background, the question arises as to which distribution of powers is particularly conducive to innovation, and how the exercise of powers in this framework can promote innovation. To this end, it is helpful to examine innovation research in economics, legal scholarship, and the social sciences. This research area distinguishes between

[108] See Saurer, n. 13 above, p. 425.

[109] So, most clearly, Brettschneider, n. 97 above, pp. 719–20; Peters, n. 98 above, pp. 32–5.

[110] So, in general (not dealing with the problems of climate change) Swire, n. 100 above, p. 108; cf. Brettschneider, n. 97 above, pp. 709–10.

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different types of innovation[111] and, in legal research, also discusses which legal preconditions might be favourable or unfavourable for innovation.[112]

Energy transition as a whole might be labelled a 'system innovation' to the extent that it requires a change in the basic social and economic paradigm.[113] However, at the more specific level of legal and technological instruments, what is needed here is less basic innovation than further development (for example, incremental innovation) and the implementation of scientific findings in practice (so-called inventions). Existing economic structures in the Member States are reflected in different path dependencies.[114] The unique energy mix and, closely connected, the industrial structure of the state cannot be changed overnight; different starting positions call for different strategies to make the energy transition work.[115] In these circumstances the required incremental innovation and inventions are more likely to happen at a decentralized level.[116] Federalism, in particular, creates more room for national experimentation. However, the higher European level retains at least two important tasks. Firstly, EU legislation should provide a framework for a sufficient exchange of experience and a comparative evaluation of national pathways towards energy transition. Only with mutual learning can 'best practice' develop and 'front runners' demonstrate the practicability of new, more effective approaches.[117] Secondly, European legislation should ensure through harmonizing directives that this practice, possibly in a modified form, is also adopted gradually (because of the path dependencies) by the other Member States.

In this respect the bottom-up approach of the Paris Agreement and the EU Governance Regulation appear, in principle, to be well suited to the promotion of innovation. The transparency requirement in Article 13(1) of the Paris Agreement

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[111] Dating back at least to J. Schumpeter, *Theorie der wirtschaftlichen Entwicklung* (Duncker & Humblot, 1912) (Harvard Economic Studies 46, 1934): trilogy of invention, innovation, and diffusion; drawing on Schumpeter's categorization for legal research on innovation: W. Hoffmann-Riem, 'Risiko- und Innovationsrecht im Verbund' (2005) 38 *Die Verwaltung*, pp. 145–76, at 155.

[112] Most importantly, W. Hoffmann-Riem, *Innovation und Recht: Recht und Innovation* (Mohr Siebeck, 2016).

[113] M. Rodi, 'Innovationsförderung durch ökonomische Instrumente der Umweltpolitik', in M. Eifert & W. Hoffmann-Riem (eds), *Innovation und Recht: Innovationsfördernde Regulierung* (Duncker & Humblot, 2009), pp. 147–69, at 153.

[114] For this concept, in general, see, e.g., D.C. North: *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, 1990), pp. 92–104; J. Mahoney, 'Path Dependence in Historical Sociology' (2000) 29(4) *Theory and Society*, pp. 507–48; for the energy transition compare the short remark by S. Oberthür, 'Hard or Soft Governance? The EU's Climate and Energy Policy Framework for 2030' (2019) 7(1) *Politics and Governance*, pp. 17–27, at 25; in the context of innovation see P. Aghion et al., 'Path-Dependence, Innovation and the Economics of Climate Change', Centre for Climate Change Economics and Policy & Grantham Research Institute on Climate Change and the Environment, 24 Nov. 2014, available at: https://www.lse.ac.uk/granthaminstitute/publication/path-dependence-innovation-and-the-economics-of-climate-change.

[115] For the energy mix see Saurer, n. 13 above, pp. 423–4.

[116] Cf., pointing to research and development policies in the different states, D. Buschke & K. Westphal, 'A Challenge to Governance in the EU: Decarbonization and Energy Security' (2019) 8(3/4) *European Energy Journal*, pp. 53–64, at 60.

[117] For some short remarks see C. Franzius, 'Regulierung und Innovation im Mehrebenensystem', in T. Müller (ed.), *Erneuerbare Energien in Europa* (Nomos, 2015), pp. 41–85, at 85; Hoffmann-Riem, n. 112 above, p. 268; for the US energy market compare D. Lyons, 'Protecting States in the New World of Energy Federalism' (2018) 67(5) *Emory Law Journal*, pp. 921–73, at 960–1.

will not only 'promote effective implementation' by 'naming and shaming'[118] but is also a laboratory of concepts.[119] This is even more true for the biennial progress reports and their follow-up in Article 17 and onwards of the Governance Regulation.[120] The transparency requirement is set up both as a compliance mechanism and as a learning tool for innovation. However, it is unclear and rather doubtful whether the procedural framework of national planning and reporting obligations is strong enough to induce the Member States to go beyond wordy statements to make substantive and sufficient efforts at innovation and to implement those efforts in practice. Only the future will show whether the EU will be in a position to make certain best practice measures binding by setting uniform standards, even for Member States that have previously lagged behind.[121]

In sum, the insights from innovation research show once again that strong legislative competences are needed at both the domestic and European levels. In the first stage, there must be scope for experiments and different strategies at the Member State level. To this end, an expansive reading of Article 193 TFEU would be helpful, as observed when dealing with legal economic theories of federalism. In the second stage, after having identified a 'best practice', far-reaching EU competences are necessary to ensure that other Member States do not fall behind in their efforts to fight climate change. Here, a narrow reading of the sovereignty exception clauses (Articles 192(2)(1)(c) and 194(2)(2) TFEU) is essential. Even in this second stage legal harmonization should not be a goal in itself. With regard to the principle of subsidiarity (Article 5(3) TEU), the Member States should remain free to apply their own practices as long as they are equally effective in reaching the goals of the Paris Agreement. However, the subsidiarity principle must not be an obstacle to the European legislation necessary to overcome the free-rider mentality of some Member States and to ensure that the legal or technological innovations required to combat climate change are put into practice in all Member States.

5. CONCLUSION

What legal consequences can be drawn from all of this? In particular, how can impulses from findings in related social sciences be used to deal with and possibly even interpret the distribution of competences in the TFEU? This article has argued that the distribution of powers cannot be understood properly by classical legal methodology alone because Articles 192 and 194 TFEU, as well as secondary EU law, contain too many political compromises that are unclear. In the light of the Paris Agreement, the competences should, in case of doubt, be understood in a way that enables effective climate

[118] See R. Leal-Areas & A. Morelle, 'The Resilience of the Paris Agreement: Negotiating and Implementing the Climate Regime' (2018) 31(1) *Georgetown Environmental Law Review*, pp. 1–64, at 22–3, Cordonier Segger, n. 67 above, p. 218.

[119] According to Art. 13(1) Paris Agreement the transparency framework 'builds upon collective experience'.

[120] Similarly, comparing the reporting and implementing obligations of the Paris Agreement and the Governance Directive, see Oberthür, n. 114 above, p. 24.

[121] After a detailed overview of the enforcement mechanism also sceptical: Schlacke & Knodt, n. 62 above, pp. 407–8.

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protection. Because of Article 191(1) TFEU, an international law-friendly interpretation of EU legal provisions is part of a legitimate teleological approach. Economic theories of federalism and innovation research in social sciences help us to understand which reading of the EU competences can promote effectiveness in this respect. Definitive clarity, however, cannot be achieved in this way.

In concrete terms, this means the following: the sovereignty exception must be interpreted restrictively in favour of the EU, in accordance with the *Poland* judgment. The exception only prevents direct orders or prohibitions on the use of certain forms of energy, such as nuclear energy or coal-fired electricity. On the other hand, the reservation of sovereignty does not apply to percentage targets regarding the share of renewable energies (even if they approach 100% one day) or to general carbon-reduction commitments (even if they tend towards zero). Moreover, such general requirements in EU law, particularly those set out in the Emissions Trading Directive, must continue to be based on environmental competence and not on energy competence. As a result, national reinforcements of protection remain admissible and increase effectiveness. Finally, the primacy of existing European law within the framework of shared competences must be understood restrictively in order to grant the Member States scope for experimentation and innovation.

Comparative social science research on federalist systems indicates that the distribution of (legislative) powers must not be taken too literally or interpreted statically. Otherwise, with an ossifying interpretation, the legal order of competences would no longer be able to adjust to new real-world challenges.[122] Instead, for the required efficiency-oriented reconstruction of the distribution of powers, it is necessary to adopt a dynamic interpretation and shift the limits of interpretation slightly. Whether such an understanding would be accepted in political practice and ultimately by the ECJ remains questionable.

[122] Fehling, n. 86 above, pp. 50–5; cf. Stettner, n. 85 above, pp. 142–4, 409–12.

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