The disciplinary foundations of energy law

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Abstract This introductory chapter overviews the key theoretical and methodological discussions in energy law. The chapter first outlines the development of energy law as a discipline and highlights the existing theoretical debates in energy law research (Section 2). It next explores the key characteristics that have emerged during the evolution of the discipline and explains how those characteristics influence methodological choices and approaches in energy law (Section 3). The chapter then builds on these existing theoretical and methodological discussions and highlights possible and likely future avenues for research in energy law (Section 4). Finally, the chapter offers conclusions (Section 5).

Keywords energy law, legal discipline, theory, doctrine, disciplinary development, methodology

1 Introduction

Energy law has been taught and researched in universities since at least the late 1990s,[1] yet energy law as a legal discipline has no settled definition. Several have been suggested over the years. The first and perhaps still best-known definition was given by Adrian Bradbrook in 1996, who considered energy law to consist of 'the allocation of rights and duties concerning the exploitation of all energy resources between individuals, between individuals and the government, between governments and between states'.[2] After that, several different definitions of energy law have been suggested. Some of these have differentiated between energy law and resources law while others have drawn a distinction between energy law and energy policy.[3] Recently, some scholars have coined the term 'modern energy law' to highlight contemporary approaches to challenges that have arisen in the energy sector.[4]

Over the years, the vast majority of energy law scholarship has focused on exploring the changing legal frameworks that govern different segments of the energy value chain from exploration and production to supply and consumption. This surface level normative material, such as laws decrees, can be (and is) frequently amended and revised and varies between jurisdictions. Compared to the more constant elements of legal systems, such as constitutional principles or institutional structures, this material is constantly evolving to address new technologies, new societal needs, economic fluctuations and changing political priorities. While it is necessary to achieve understanding of the

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[1] Alexandra Wawryk, 'International Energy Law: An Emerging Academic Discipline' in Paul Babie and Paul Leadbeter, *Law as Change: Engaging with the Life and Scholarship of Adrian Bradbrook* (University of Adelaide Press 2014) 223-255, 223; Donald N Zillman, 'Evolution of Modern Energy Law: A Personal Retrospective' (2012) 30(4) *Journal of Energy & Natural Resources Law* 485-496.

[2] Adrian Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14(2) *Journal of Energy & Natural Resources Law* 193-217, 194.

[3] Kim Talus, 'Internationalization of energy law' in Kim Talus (ed), *Research Handbook on International Energy Law* (Edward Elgar 2014) 3-17; Barry Barton, 'A core concept in natural resources law: the nexus between owner and operator' (2022) *Journal of Energy and Natural Resources Law*; and Raphael Heffron and Kim Talus, 'The evolution of energy law and energy jurisprudence: Insights for energy analysts and researchers' (2016) 19 *Energy Research & Social Science* 1-10.

[4] Raphael J Heffron and others, 'A treatise for energy law' (2018) 11(1) *Journal of World Energy Law and Business* 34-48, 48; Donald N. Zillman, 'Evolution of Modern Energy Law: A Personal Retrospective' (2012) 30(4) *Journal of Energy & Natural Resources Law* 485-496; Raphael J Heffron and others, 'The global future of energy law' (2016) (7) *International Energy Law Review* 290-295.

surface level normative material through legal research due to its societal and practical relevance and often also for pedagogical purposes, it alone does little to advance an understanding of the foundations of energy law as an independent legal discipline that (at least partially) transcends jurisdictional boundaries.

In stark contrast to this, there is only a modest body of legal scholarship devoted to the more fundamental, disciplinary side of energy law, focusing on its theoretical and methodological elements. This becomes particularly clear when energy law scholarship is compared with the theoretical and methodological discussions taking place in environmental and climate law, for instance. These discussions have identified core concepts, principles and theoretical foundations – the doctrine – of environmental and climate law and explained how legal questions are formed and answered in these areas of law.[5] Only a small and relatively recently formed community of energy law scholars has engaged in this kind of debate over the nature and role of energy law as an independent legal discipline and the theoretical and disciplinary underpinnings driving energy law.[6] There are no clear reasons as to why energy law scholarship has remained silent on these issues for so long. It is possible that the fundamental global processes of energy market liberalization, followed by decarbonization, have resulted in substantive developments of such turbulence as to take up most of the attention of legal scholarship. A more likely explanation, however, is that the fact that energy is driven to a large extent by national interests and consequently often regulated at national level means that it has not been possible to identify common traits until now, when energy has regionalized and internationalized to a larger extent than before.[7] Furthermore, the fundamental characteristics of energy law, which are discussed further in Section 3.2, tend to orient energy law questions towards solving practical, interdisciplinary problems, which directs research attention away from theoretical matters.

Nevertheless, there is a distinct body of legal scholarship that is interested in developing the theoretical side of energy law and understanding what it is that makes energy law an independent legal discipline that can be severed from other fields of legal inquiry. This body of literature nearly always refers to energy law as a discipline that is new, young, immature or emergent[8] – it is described

[5] See, for instance, Philippe Sands and others, *Principles of International Environmental Law* (4th edn, Cambridge University Press 2018) and Jacqueline Peel, 'Climate Change Law: The Emergence of a New Legal Discipline' (2008) 32 Melbourne University Law Review 922; Amanda Kennedy and others (eds), *Teaching and Learning in Environmental Law: Pedagogy, Methodology and Best Practice* (Edward Elgar Publishing 2021); E Fisher and others, 'Maturity and Methodology: Starting a Debate about Environmental Law Scholarship' (2009) 21 Journal of Environmental Law 213.

[6] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*; Adrian Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14(2) *Journal of Energy & Natural Resources Law* 193-217; Raphael J Heffron and Kim Talus, 'The evolution of energy law and energy jurisprudence: Insights for energy analysts and researchers' (2016) 19 *Energy Research & Social Science* 1-10; Alexandra Wawryk, 'International Energy Law: An Emerging Academic Discipline' in Paul Babie and Paul Leadbeter, *Law as Change: Engaging with the Life and Scholarship of Adrian Bradbrook* (University of Adelaide Press 2014) 223-255; Raphael J Heffron and Kim Talus, 'The development of energy law in the 21st century: a paradigm shift?' (2016) 9 *Journal of World Energy Law and Business* 189-202; Raphael J Heffron and others, 'A treatise for energy law' (2018) 11(1) *Journal of World Energy Law and Business* 34-48.

[7] Jorge E Viñuales, *The International Law of Energy* (1st edn, Cambridge University Press 2022) 10-41; Kim Talus, 'Internationalization of Energy Law' in Kim Talus (ed), *Research Handbook on International Energy Law* (Edward Elgar 2014).

[8] Raphael Heffron and Kim Talus, 'The evolution of energy law and energy jurisprudence: Insights for energy analysts and researchers' (2016) 19 *Energy Research & Social Science* 1-10, 2; Alexandra Wawryk, 'International Energy Law: An Emerging Academic Discipline' in Paul Babie and Paul Leadbeter, *Law as Change: Engaging with the Life and Scholarship of Adrian Bradbrook* (University of Adelaide Press 2014) 223-255; Raphael J Heffron and Kim Talus, 'The development of energy law in the 21st century: a paradigm shift?' (2016) 9 *Journal of World Energy Law and Business* 189-202, 191; Raphael J Heffron and others, 'A treatise for energy law' (2018) 11(1) *Journal of World Energy Law and Business* 34-48, 35.

as lacking in some way the characteristics that have solidified the foundations of other legal disciplines, such as criminal law or, more recently and relatedly, environmental and climate law.[9]

Theoretical and disciplinary discussions can, of course, be understood in a plethora of ways. In this chapter, they are taken broadly to refer to the shared characteristics of energy law that go beyond the surface level normative material. In other words, they refer to elements of the discipline that are shared irrespective of the jurisdiction and do not necessarily change even if the laws themselves do.[10] This covers not only the characteristics that are determinative of the discipline, but also the impact of these properties on the processes, i.e. the methods through which legal decisions are made and legal scholarship is conducted in energy law.

It is in this context that this introductory chapter explores the theoretical and methodological discussions in energy law. While the theoretical discussions focus on *what* characterizes energy law, the methodological discussions focus on *how* legal questions are formed and answered in energy law. These discussions inform the disciplinary foundations of energy law, which may serve as a starting point for the development of energy law's core concepts, principles and theories – the doctrine of energy law.

This chapter provides the foundations and the framework within which the other chapters of this book operate. It first outlines the development of energy law as a discipline over the last two decades and highlights the existing theoretical debates in energy law research (Section 2). The chapter next explores the core characteristics of energy law that have emerged during the evolution of the discipline and explains how those characteristics affect and alter the methodological choices and approaches in energy law (Section 3). The chapter then builds on these discussions and highlights possible and likely future avenues for theoretically and methodologically oriented research in energy law (Section 4). Finally, the chapter offers conclusions (Section 5).

2 The evolution of energy law

When discussing the evolution of energy law, the term itself should be understood as having a dual meaning. On the one hand, energy law should be understood as *a normative system* in which context it refers to the collective body of existing legal norms – substantive and procedural – that have been adopted to govern the energy sector. These legal norms emerge from legal sources ranging from constitutions, customary law, international or national laws, decrees to court and arbitral judgements. These norms can be specifically addressed to the energy sector, for example by allocating responsibilities to energy market actors, as emphasized in Bradbrook's definition of energy law.[11] However, the norms can also apply without distinction to all sectors but nevertheless have a significant effect on the governance of various activities in the energy sector. Such norms may arise from legal disciplines such as trade law, competition law, data protection law, climate law and contract law at international, regional and national levels. On the other hand, energy law should be understood as *a legal discipline*. In this context, energy law is an area of research that analyses the collective body of legal norms that govern the energy sector. Within this meaning, energy law constitutes a legal discipline within academia.[12]

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[9] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*.
[10] ibid
[11] Adrian Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14(2) *Journal of Energy & Natural Resources Law* 193-217, 194.
[12] Kaisa Huhta, 'The contribution of energy law to the energy transition and energy research' (2022) 73 *Global Environmental Change*.

Energy law can exist as a normative system in its own right, and did so for a long time before energy law as a legal discipline emerged. In that sense, the two are not entirely inseverable. The exploration and production of different energy sources has been regulated by law for well over a century through instruments of administrative law, contract law, constitutional law and environmental law to name just a few. Energy consumption and energy consumers have also been addressed through legal instruments for almost as long. If energy law as a normative system is understood as the 'allocation of rights and duties concerning the exploitation of all energy resources',[13] as Adrian Bradbrook put it, it has been the object of legal regulation for much longer than environmental or climate law, for example.

For a long time, energy law was adopted and enforced solely at national level. That is to say that the laws and judicial decisions that governed the energy sector were adopted within national legal systems to protect national interests. In energy law, the reason for this is partially physical: the energy sector is infrastructure-dependent, and those infrastructures were traditionally constructed to provide energy to the citizens and the industry of a single country rather than to a region or a continent. Because of this national orientation and political sensitivity, energy law as a normative system never developed to the point at which it entailed a clearly identifiable body of law that could be severed from international law and separately called 'international energy law'. In the same way, no single global institution can be seen to holistically govern energy law-making or judicial decision-making in the energy sector or in any way to rise above other regional institutions in the energy sector. However, it has been rightly acknowledged that energy law as a normative system has become more international and the legal governance of the energy sector has regionalized and globalized compared to its previously national orientation.[14] The energy governance model adopted by the European Union (EU), for example, is a powerful example of the regionalization of energy law.[15]

Energy law as a normative system and energy law as a legal discipline and a form of academic inquiry are intrinsically interlinked, because energy law as a legal discipline focuses on studying energy law as a normative system. In fact, they have a bidirectional interrelationship where energy law as a normative system impacts energy law as a legal discipline and vice versa. On the one hand, new questions that are governed through energy law as a normative system become the research interest of energy law as a legal discipline. For example, when governments began to gradually liberalize their energy sectors through 'unbundling' and 'third-party access' rules in the 1990s, these concepts became central in energy law research. In other words, norms adopted in the sphere of energy law as a normative system became the research interest of energy law as a legal discipline. Similarly, but much more recently, the digitalization of energy sectors globally has led to energy law scholarship redirecting its research agenda towards understanding energy regulation from a data protection law perspective. Both examples show how substantive developments in energy law inform and direct the research focus of energy law as a legal discipline. They also hint at how and why energy law as a legal discipline tends to direct its attention to highly practical legal questions that are societally, economically or environmentally topical at any given time rather than to questions of theoretical and methodological orientation.

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[13] Adrian Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14(2) *Journal of Energy & Natural Resources Law* 193-217, 194.

[14] Kim Talus, 'Internationalization of energy law' in Kim Talus (eds), *Research Handbook on International Energy Law* (Edward Elgar 2014) 3-17.

[15] Kaisa Huhta, 'The Scope of State Sovereignty under Article 194(2) TFEU and the Evolution of EU Competences in the Energy Sector' (2021) 4 *International & Comparative Law Quarterly*.

On the other hand, research findings produced by energy law as a legal discipline can and do influence energy law as a normative system.[16] This is visible, for example, when energy law scholarship is referred to in and used to support argumentation in judicial proceedings.[17] Consequently, the findings produced by energy law research inform what should be regulated in the energy sector and how.

Nevertheless, energy law as a legal discipline and a specialized area of academic inquiry has much more recent origins than energy law as a normative system. In 1996, when Bradbrook wrote his seminal paper on energy law as an academic discipline, he noted that '[i]n general, energy law does not feature amongst the elective subjects available for law students'.[18] Only in the last two decades has energy law gained a role as an independent subject matter taught and researched in higher education, with several universities hosting Master's degree programmes in energy law and offering senior academic positions and professorships in energy law.[19] The development of the theoretical foundations of energy law in legal scholarship is even more recent. As the next section demonstrates, the fragmented and nationally oriented history of energy law as a normative system necessarily influences the theoretical foundations and the core characteristics of energy law as a legal discipline.

3 The core of energy law as a legal discipline

3.1 The core characteristics of energy law

Over the last decade, a small yet active community of energy law scholars has engaged in discourse over the core characteristics of energy law. These core characteristics range from suggested principles of energy law to the properties that characterize the discipline. The analysis below reviews elements of this energy law scholarship and outlines its key merits and challenges.

Inspired by the well-established and extensively researched principles of environmental law, seven principles of energy law were suggested by a group of energy law scholars in 2018. These principles comprised those of permanent sovereignty over natural resources, access to modern energy services, energy justice, prudent, rational and sustainable use of natural resources, protection of the environment, human health and combating climate change, energy security and reliability and the principle of resilience.[20] According to Heffron and others, the *raison d'etre* of these principles is to 'act as a guide to policymakers, academics, lawyers, judges and arbitrators when adjudicating, enforcing, making or formulating documentation, laws, regulations, judgments, etc on energy law'.[21]

The *raison d'etre* outlined above is indicative of fundamental differences between the principles in question and those established and studied in e.g. environmental law and, to some extent, climate law. Most importantly, the suggested principles of energy law primarily represent an effort on the part of legal scholarship to guide 'policymakers, academics, lawyers, judges and arbitrators'[22] rather than a systematic analysis of the principles that emerge from the practice of policymakers, lawyers and judges. By comparison, the principles of environmental law, for example, initially emerged from

[16] Kaisa Huhta, 'The contribution of energy law to the energy transition and energy research' (2022) 73 *Global Environmental Change*.
[17] See, for example, C-848/19 P *Germany v Poland* (2021) ECLI:EU:C:2021:218, paras 44 and 113.
[18] Adrian Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14(2) *Journal of Energy & Natural Resources Law* 193.
[19] Raphael J Heffron and Kim Talus, 'The development of energy law in the 21st century: a paradigm shift?' (2016) 9 *Journal of World Energy Law and Business* 189-202.
[20] Raphael J Heffron and others, 'A treatise for energy law' (2018) 11(1) *Journal of World Energy Law and Business* 34-48.
[21] ibid 47.
[22] ibid

international environmental diplomacy[23] and the ideas that stemmed from this gradually evolved into legally binding formats at international, regional and national levels – and *only then* were they identified and analysed in legal scholarship to construct the disciplinary foundations of environmental law. In other words, the principles of environmental law are grounded in and originate from legal sources. Curiously, the opposite approach has been taken in this article by Heffron and others: legal scholarship has suggested principles to guide the making and interpretation of energy law. So far, however, no strong line of policymaking or case-law where these principles have systematically been adopted or applied as principles can be identified on a global scale. That is to say that energy law scholarship has suggested principles that *ought* to be followed by 'policymakers, academics, lawyers, judges and arbitrators'[24] but has not conducted a systematic study of what principles *are* followed in legal sources central to energy law. The approach has also been pointed out in recent energy law scholarship with del Guayo writing that '[t]he normativity of the principles [of energy law] derives not from their incorporation into written norms, but from their recognition as axioms in the legal community'.[25] Principles suggested in this way should not be considered to have normative weight in the same way as principles emerging from legal sources such as treaties or judicial decision-making.

The principles of energy law suggested by Heffron and others also differ from those of environmental law in a more practical sense: the suggested principles of energy law are unquestionably recent compared to the deep and longstanding discussion of principles in environmental law. The recentness of the discussion of principles has consequences as to how broadly they have been adopted by the energy law community and within academia. Although the article by Heffron and others suggesting these energy law principles is well-known and frequently cited, it has not (yet) led to a more extensive discussion of the principles of energy law. Consequently, the suggested principles have not gained a well-established position in energy law scholarship compared with that of principles such as the polluter pays principle or the precautionary principle in environmental law, both of which have been discussed in environmental law scholarship for decades now.[26]

Having said that, some of the suggested principles of energy law can be traced back to diplomatic initiatives or legislative developments. For instance, the principle of permanent sovereignty over natural resources was declared by the General Assembly of the United Nations in December 1962[27] and the competence limitations in regional legal orders, such as in the EU, echo the idea of the principle.[28] Similarly, the principle of access to modern energy services can be traced back to the 7th Sustainable Development Goal adopted in 2015, the aim of which is to ensure access to affordable, reliable, sustainable and modern energy for all.

Nevertheless, no systemic analysis of how and where (and indeed whether) energy law principles emerge from legal sources or how they are reflected in energy policymaking and case-law has been carried out. Furthermore, the emergence of energy law principles that were excluded from the list of suggested principles can also be identified. For example, the EU suggested a legally binding principle

[23] Such as those established by the United Nations Conference on the Human Environment, 5-16 June 1972, Stockholm or the 1992 Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (vol. I), 31 ILM 874 (1992).
[24] Raphael J Heffron and others, 'A treatise for energy law' (2018) 11(1) *Journal of World Energy Law and Business* 34-48, 47.
[25] Iñigo del Guayo, 'The evolution of principles of energy law (a review of the content of the Journal of Energy & Natural Resources Law, 1982–2022)' (2022) 40(1) *Journal of Energy and Natural Resources Law* 43-60, 51.
[26] Nicolas de Sadeleer, *Environmental Principles: From Political Slogans to Legal Rules* (OUP 2002).
[27] Marc Bungenberg and Stephan Hobe (eds), *Permanent Sovereignty over Natural Resources* (Springer 2015).
[28] Kaisa Huhta, 'The Scope of State Sovereignty under Article 194(2) TFEU and the Evolution of EU Competences in the Energy Sector' (2021) 4 *International & Comparative Law Quarterly*.

of 'energy efficiency first' as part of its 'Fit for 55' legislative package in 2021.[29] Similarly, the principle of energy solidarity has been identified as a legally binding principle of EU energy law in a recent line of case-law from the Court of Justice of the European Union.[30]

In addition to the principles of energy law, energy law scholarship has suggested key properties of energy law.[31] The first of these is the problem-based approach of energy law.[32] As identified in the introduction to this chapter, energy law scholarship has largely focused on the surface level normative material that governs the energy sector. The emergence of energy law has grown out of the practical need to address the fast pace of developments in the energy sector and the legal issues that emerge within these developments.[33] That is to say that the fact that energy law is rooted in highly practical considerations has tended to channel energy law scholarship into exploring practically oriented issues that are often narrow in scope.[34] The problem-based approach taken within energy law also means that energy law norms can, and frequently do, emerge from beyond national energy acts.

The second suggested property of energy law is its institutional fragmentation and governance on multiple levels, including international, regional, national and local levels. That is to say that the governance of the energy sector is not centralized or concentrated in the hands of a few key actors, let alone a single institution. In fact, the governance of the energy sector is a diffuse operation, where power and competence are allocated both informally and formally to public and private actors all of whom have different levels of legitimacy and accountability. In fact, many of the objectives of energy law are pursued by means of market forces which, in practice, consist of the interplay between demand (consumers and the industry) and supply (producers).[35] Consequently, the roles and responsibilities, as between consumers, the industry and producers, involved in achieving these objectives are allocated based on the economic rationale of the markets rather than on command-and-control regulation.

The third suggested property of energy law is its tendency to borrow and absorb ideas, concepts and principles from other legal disciplines.[36] This is highly visible not only in terms of how the scope of energy law questions is delineated, but also in the ways in which energy law research is conducted. The scope of energy law is defined on the basis of (often very practical) legal questions that emerge in the regulation of the energy sector. This, again, means that the object of energy law researchers' research interest can and often does extend far beyond national energy acts depending on the issue at hand. Such an approach also means that when an energy law researcher explores a legal question in the nexus of energy and data protection law, for example, they must be able to understand the underlying ideas, concepts and principles in the sphere of data protection law in addition to those of energy law.[37] Similarly, if an energy law researcher looks into how energy law and climate law

[29] Article 3 of the Proposal for a Directive of the European Parliament and of the Council on energy efficiency (recast), COM/2021/558 final.
[30] C-848/19 P *Germany v Poland*, ECLI:EU:C:2021:598. In literature, see Anatole Boute, 'The principle of solidarity and the geopolitics of energy: Poland v. Commission (OPAL pipeline)' (2020) 57(3) *Common Market Law Review* 889-914.
[31] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*.
[32] ibid
[33] Raphael J Heffron and others, 'A treatise for energy law' (2018) 11(1) *Journal of World Energy Law and Business* 34-48, 34; Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law* 202.
[34] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*.
[35] Kaisa Huhta, 'Trust in the invisible hand? The roles of the State and the markets in EU energy law' (2020) 13(1) *The Journal of World Energy Law & Business* 1-11; Jan Martin Witte and Andreas Goldthau, *Global Energy Governance: The New Rules of the Game* (Brookings Institution Press 2010).
[36] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*.
[37] Kaisa Huhta, 'Smartening up while keeping safe? Advances in smart metering and data protection under EU law' (2020) 38(1) *Journal of Energy & Natural Resources Law* 5-22.

interact, they must be able to understand the fundamentals of climate law.[38] This method of defining the scope of energy law also means that the interpretation of law relevant to the energy sector is influenced by fundamental drivers, concepts and principles drawn from other legal disciplines.

The fourth suggested property of energy law is the continuous presence of conflicting interests and comparison of interests,[39] which has also been referred to as the plurality of objectives in energy law.[40] It is quite uncontroversial to argue that nearly all energy decisions, whether of a judicial or policy nature, involve some kind of balancing of sometimes contradictory, and often mutually equal objectives and values. The prevalence of the need to balance conflicting interests in energy law is most commonly framed as and discussed under the concept of the 'energy trilemma', which refers to the task of achieving a balance between security, competitiveness and environmental sustainability.[41] However, the balancing of interests is more nuanced than that. The objectives that are balanced can often be mutually supportive or conflicting depending on the perspective adopted towards them and there is often no formal hierarchy between these different objectives.[42] This means that often both judicial and policy decisions in the sphere of energy law involve value decisions that represent a compromise between different objectives. For example, the increase in renewable energy sources in the energy mix to address the detrimental effects of energy on the climate and the environment can be both complementary to and conflicting with energy security.[43] On the one hand, the increase in indigenous renewable energy sources often decreases energy dependence on imported fossil fuels and thus improves one element of energy security. On the other hand, the growth in weather-dependent renewable energy sources increases the unpredictability and intermittence of electricity supply and, therefore, weakens another element of energy security.

Partially owing to the first four properties, the fifth and final suggested property of energy law is its inherent interdisciplinarity.[44] Because of the problem-based scope of energy law, the questions that are tackled within the sphere of energy law are not necessarily purely *legal* questions, but also questions of economics, engineering and social sciences, for example. Again, this has an impact on not just the scope of the legal questions that are relevant in energy law, but also the processes, i.e. the methods through which these questions are tackled. This methodological discussion is the focus of the next section.

3.2 The impact of the core characteristics on methodologies in energy law

The dual meaning of energy law – i.e. its nature as both a normative system and as a legal discipline – directly affects the methodological discussions relevant to the legal study of energy. That is to say that the methodologies and methods typical of and justified in energy law depend on whether the focus is on energy law as a normative system or energy law as a legal discipline within academia.

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[38] Seita Romppanen and Kaisa Huhta, 'The Interface between EU Climate and Energy Law', *Maastricht Journal of European and Comparative Law* (2023).
[39] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*.
[40] Seita Romppanen and Kaisa Huhta, 'The Interface between EU Climate and Energy Law', *Maastricht Journal of European and Comparative Law* (2023).
[41] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*; Raphael Heffron, Darren McCauley and Gerardo Zarazua de Rubens, 'Balancing the energy trilemma through the Energy Justice Metric' (2018) 229(c) *Applied Energy* 1191-1201.
[42] Seita Romppanen and Kaisa Huhta, 'The Interface between EU Climate and Energy Law', *Maastricht Journal of European and Comparative Law* (2023).
[43] Kaisa Huhta, 'Energy Security in the Energy Transition: A Legal Perspective', in Geoffrey Wood and others (eds), *Handbook of Zero Carbon Energy Systems and Energy Transitions* (Palgrave, 2022).
[44] Kaisa Huhta, 'The coming of age of energy jurisprudence' (2021) 39(2) *Journal of Energy and Natural Resources Law*.

When the focus is on energy law as a normative system, the identification of methods focuses on the process by which legal professionals, such as judges and attorneys, identify the relevant authoritative legal sources, systematize these sources as part of the legal system in which they operate, determine the meaning of these legal sources through interpretation, justify legal decisions on grounds of argumentation and arrive at a conclusion on the basis of this process.[45] This process is commonly referred to as the doctrinal legal approach – also known as black-letter law. In simplified terms, it is an explanatory and systematic process through which legal texts are interpreted in order to elucidate whether and how they apply in different real-life situations. Within this process, legal sources and the legal norms within those sources are also often restructured and systematized, which has aptly been characterized as 'the conceptual re-ordering of legal material'.[46] This explanatory and interpretative process is generally shared by legal professionals irrespective of the jurisdiction and irrespective of the field of law. However, there are also differences between emphases depending on the jurisdiction. For example, the weight and importance given to legal precedent is heavier in common law jurisdictions than in civil law jurisdictions. Similarly, some jurisdictions give more interpretative weight to preparatory documents that are produced during legislative processes, while other jurisdictions do not consider them to have much relevance in legal interpretation.[47] In other words, the authority given to different types of legal sources varies depending on the legal tradition of each jurisdiction.

These kinds of methodological differences can be identified not only between jurisdictions but also between different fields of law. These differences emerge from the core characteristics of each field and the principles and concepts that form the structure of the field. Examples abound. For instance, criminal law as a normative system and as a legal discipline is generally committed to its fundamental principle of *nulla poena sine lege*, which means that behaviour should not be punished as criminal unless that behaviour is prohibited by law.[48] This core characteristic has implications for the process through which legal solutions can be found – it means that, in the pursuit of a punishment for a crime, laws, written statutes and binding precedent have a heavily emphasized role in legal interpretation because, on the basis of *nulla poena sine lege*, only they can be the legal basis of punitive action in criminal law, while soft law, for instance, cannot. Energy law also has these kinds of methodological nuances. However, because energy law as a legal discipline is of such a recent origin, these methodological nuances are more diffuse and less analysed than in well-established and solidified fields like criminal law. Nevertheless, such nuances can be identified.

First, the institutional fragmentation and multilevel governance typical of energy law mean that methodological approaches and emphases vary. In other words, because there is no single institutional authority in energy law, energy norms are interpreted by various national, regional and international courts and tribunals and energy decision-making is decentralized to a variety of actors and institutions that have different competences to address legal questions.[49] Furthermore, much of the governance

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[45] Robert Alexy, *A Theory of Legal Argumentation* (OUP 2010, transl. Ruth Adler and Neil MacCormick); Aleksander Peczenik, 'Scientia Juris: Legal Doctrine as Knowledge of Law and as a Source of Law' in Enrico Pattaro (ed), *Treatise of Legal Philosophy and General Jurisprudence* (Springer 2005); Aulis Aarnio and Neil MacCormick (eds), *Legal Reasoning* (New York University Press 1992); Mark Van Hoecke (ed), *Methodologies of Legal Research: Which Kind of Method for What Kind of Discipline?* (Hart Publishing 2011); and in the context of energy Kaisa Huhta, 'The contribution of energy law to the energy transition and energy research' (2022) 73 *Global Environmental Change*.

[46] Chapter 6 'Concepts, Principles and Theories' 174.

[47] In Finland and Sweden, for example, preparatory works generally carry the same interpretative weight as legal precedent.

[48] Jerome Hall, 'Nulla Poena Sine Lege' (1937) 47(2) *The Yale Law Journal* 165-193.

[49] On the pressures of international law on energy, Jorge E Viñuales, *The International Law of Energy* (1st edn, Cambridge University Press 2022).

of the energy sector is allocated to the markets, which means that methodological choices must take market contexts into account.[50]

Second, the interdisciplinarity of energy law and its problem-based approach means that the doctrinal method often entails practical argumentation and interpretation of legal sources. In other words, physical and economic considerations, even if not present in the wording of the legal sources used, are very typically present in the interpretation of energy norms. For example, interpretation of broadly worded legal requirements can be supported by practical arguments that explain the physical context in which the interpreted legal norm functions. In *PreussenElektra*, for example, the Court of Justice of the European Union argued that 'the nature of electricity is such that, once it has been allowed into the transmission or distribution system, it is difficult to determine its origin and in particular the source of energy from which it was produced'.[51] Similarly, the Supreme Court of United States has used economic arguments to justify its rulings in respect of the energy sector.[52]

Furthermore, the problem-based nature of energy law and its tendency to borrow and absorb ideas from other legal fields also has implications for the methods it employs. Because the scope of relevant legal sources can and does extend far beyond national energy acts alone, the core characteristics that influence the methodological nuances in play can also emerge from fields beyond energy law. For instance, when the legality of an environmentally harmful energy project is assessed by a court under environmental and administrative law, the core characteristics of environmental and administrative law rather than energy law alone will be determinative of the methods of interpretation that will be used in the ruling.

When the focus is on *energy law as a legal discipline*, the relevant methodological questions and discussions are similar, but certainly broader in scope in comparison to when the focus is on *energy law as a normative system*. Nevertheless, the doctrinal legal approach is commonly still the starting point for energy law scholarship. Again, the authoritative legal sources, including (but not limited to) international treaties, national constitutional provisions, laws, regulations and decrees, case-law and preparatory documents, comprise the research data that form the main object of legal scholars' inquiries. However, the processes through which these legal sources are analysed are much more diverse than when focusing on energy law as a normative system. In fact, the methods typical for energy law as a legal discipline should, and do, extend far beyond black-letter law to comparative law methods as well as socio-legal and law-in-context approaches, for instance. Due to energy law's inherent interdisciplinarity and problem-based approach, its practitioners also do not hesitate to utilize methods drawn from fields of study beyond law. Quantitative and particularly qualitative empirical methods are becoming increasingly common instruments in energy law scholars' methodological toolkits.

The interdisciplinarity of energy law requires that an energy law scholar understands and engages with disciplines other than law, including for example, political and environmental sciences, economics, geography, engineering and physics.[53] This interdisciplinarity also challenges lawyers

[50] Jan Martin Witte and Andreas Goldthau, *Global Energy Governance: The New Rules of the Game* (Brookings Institution Press 2010).
[51] Case C-379/98 *PreussenElektra* (2001) ECLI:EU:C:2001:160, para 79.
[52] E.g. *HollyFrontier Cheyenne Refining, LLC v. Renewable Fuels Ass'n*, 141 S.Ct. 2172 (2021).
[53] Raphael J Heffron and Kim Talus, 'The development of energy law in the 21st century: a paradigm shift?' (2016) 9 *Journal of World Energy Law and Business* 189-202, 191; Raphael Heffron and Kim Talus, 'The evolution of energy law and energy jurisprudence: Insights for energy analysts and researchers' (2016) 19 *Energy Research & Social Science* 1-10, 1-2.

who have received a traditional legal education.[54] For example, a traditional university law degree gives students an understanding of the nature of law and how to use it but sheds no light, for instance, on the physical and practical differences between natural gas and hydrogen and the implications of those differences for the ways in which natural gas and hydrogen pipelines can be regulated. Similarly, law students learn to identify legally relevant sources that govern the energy sector, but do not learn the difference between electricity and generation capacity. Nevertheless, an energy law scholar must be able to interpret and apply law to this complex technological system in a way that incorporates scientific facts and the physical characteristics of energy and energy infrastructures.

Overall, legal scholars are increasingly aware of the fact that law can never be isolated from its context and, thus, energy law cannot be severed from the physical, economic, and social preconditions that determine how law functions.[55] Because of this, the doctrinal approach is often not sufficient to unravel complex legal questions.[56] This is why energy law as a legal discipline uses a diverse range of methods to provide answers to research questions.

4 Existing trends and future avenues in theoretical energy law scholarship

The evolution of energy law into an independent legal discipline and the core characteristics of energy law are well illustrated in existing trends and likely future avenues in theoretical energy law scholarship.

The interdisciplinarity and problem-based scope of energy law, among other reasons, make it likely that the discipline will continue to incorporate concepts, principles and doctrines from other legal disciplines and from fields beyond law. The tendency of energy law to absorb and borrow ideas from other disciplines is likely to play a similarly guiding role. For instance, energy justice has emerged as a research agenda that applies justice principles not only to energy production and consumption and the energy transition but also to energy law.[57] Energy justice as a concept or a theoretical framework did not originate from energy law or legal scholarship more generally but from social sciences and has become a commonly used prism through which energy law is assessed. In fact, as a research approach energy justice in energy law has become a popular trend in energy law scholarship that is likely to continue in the future.[58]

While the existing trends are likely to continue, new ones must emerge to support the development of the more theoretical aspects of energy law as a legal discipline. This is important particularly for energy law as a legal discipline in order for it to grow and mature and solve the complex societal challenges presented by the low carbon energy transition. As identified above in Section 3, energy law scholarship has not conducted a systemic analysis of how and from which legal sources concepts and principles of energy law emerge or how they are reflected in energy policymaking and case-law. Energy law scholarship needs to continue to focus on the foundations of the discipline and create new approaches and processes to do this more systematically and holistically than has been the case to date. One possible avenue through which to do this would be engage more with disciplines that lie

[54] Paul Cairney and others, 'How to conceptualise energy law and policy for an interdisciplinary audience: The case of post-Brexit UK' (2019) 129 *Energy Policy* 459-466, 459-460.
[55] Ole W Pedersen, 'The Limits of Interdisciplinarity and the Practice of Environmental Law Scholarship' (2014) 26(3) *Journal of Environmental Law* 423-441; Jane B Baron, 'Law, Literature, and the Problems of Interdisciplinarity' (1999) 108(5) The *Yale Law Journal* 1059-1085.
[56] Kaisa Huhta, 'The contribution of energy law to the energy transition and energy research' (2022) 73 *Global Environmental Change*.
[57] Kirsten Jenkins and others, 'Energy justice: A conceptual review' (2016) 11 *Energy Research & Social Science* 174-182.
[58] See, for instance, Iñigo del Guayo and others (eds), *Energy Justice and Energy Law* (OUP 2020).

close to energy law, such as environmental or climate law scholarship, to see what elements and processes have allowed those disciplines to mature to a deeper level than energy law.

This introductory chapter has explored the theoretical and methodological discussions in energy law and offered insights into the likely future avenues of energy law scholarship. It has provided the disciplinary foundations and the framework within which the other chapters of this book will operate.

The chapter has outlined the development of energy law as a discipline over the last two decades and highlighted the existing theoretical debates in energy law research. It has explored the core characteristics of energy law that have emerged during the evolution of the discipline and highlighted some of the challenges and criticisms that emerge in this context. Against the foundations created by these core characteristics, the chapter has explained how energy law both as a normative system and as a legal discipline approaches questions of law and how the core characteristics affect and nudge the methodological choices and approaches in energy law. Building on these theoretical discussions, the chapter has highlighted the possible and likely future avenues for theoretical research in energy law. As the following chapters will show, these likely theoretical themes and approaches are also reflected in the future research agendas of different substantive areas of energy law, such as international trade law and energy, investments and energy, the low-carbon energy transition, the regulation of emerging energy technologies and access to energy.