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Energy in International Law

I The Internationalisation of Energy Transactions

The history of energy can be written from myriad perspectives, depending on the object emphasised in each account. A household, a river, an activity, an event, a specific resource, a given technology, a country, a region, a global process or combinations thereof are some of the objects around which an energy narrative has been built.[1] As a result, the periodisation used, and the inflexion points selected as milestones are naturally not the same, and nor is their relevance for other disciplines. From the standpoint the social practice and discipline we call international law, three broad inflexion points are particularly noteworthy.

The first is the slow and multifaceted process known as the Industrial Revolution, which unfolded from the late eighteenth century onwards in

[1] Selected examples of this varying focus include: P. Warde, 'The Hornmoldt Metabolism: Energy, Capital, and Time in an Early Modern German Household' (2019) 24 *Environmental History* 472; R. White, *The Organic Machine: The Remaking of the Columbia River* (New York: Hill and Wang, 1995); C. F. Jones, *Routes of Power: Energy and Modern America* (Cambridge: Harvard University Press, 2014); M. I. Santiago, *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900–1938* (Cambridge: Cambridge University Press, 2006); D. Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Free Press, 2009); G. Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (Cambridge: MIT Press, 1998) or D. Nye, *Electrifying America: Social Meanings of a New Technology, 1880–1940* (Cambridge: MIT Press, 1990); E. A. Wrigley, *The Path to Sustained Growth: England's Transition from an Organic Economy to an Industrial Revolution* (Cambridge: Cambridge University Press, 2016) or S. H. Schurr, B.C. Netschert, *Energy in the American Economy 1850–1975* (Baltimore: Johns Hopkins University Press, 1960); A. Kander, P. Malanima, P. Warde, *Power to the People: Energy in Europe over the Last Five Centuries* (Princeton: Princeton University Press, 2013); J. R. McNeill, P. Engelke, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge, MA: Belknap Press, 2016) or V. *Smil, Energy Transitions: History, Requirements, Prospects* (Santa Barbara: Praeger, 2010).

England.[2] The Industrial Revolution is of critical importance for the study of the international law of energy first and foremost because it marked the transition from a mainly 'organic' (human-, animal-, wood- or charcoal-based) to a mainly 'mineral fuel' coal-based economy.[3] Whereas the search for 'stocks' of mineral energy resources in foreign lands for use in the metropolis remained limited, the Industrial Revolution added a measure of internationalisation in energy transactions both directly and indirectly. Directly, the turn to coal and the increasing use of oil mainly after the First World War meant that energy resources had to be extracted where their deposits were found. As long as that location fell within a territory controlled by a State, including colonial possessions, that measure of legal internationalisation remained limited. However, energy transactions were also internationalised in an indirect manner, through the possibilities coal offered for long-distance transportation (for market access, resource extraction and military expeditions) and the heavy reliance on slaves as part of the human energy supporting the 'triangular trade' mechanism that enabled and sustained the Industrial Revolution in England. In an influential book,[4] economic historian K. Pomeranz asks why the Industrial Revolution happened in England rather than the Yangzi Delta, despite propitious conditions in both regions. His answer rests on two main factors, namely the fortuitous availability of large coal reserves in England[5] and, no less importantly, the triangular trade between England (exporting manufactures to its American colonies and former colonies), West Africa (from which slaves were sent to the Americas) and the Americas (which relied on cheap

[2] On this major – and highly debated – subject of historiographical research see: Wrigley, *The Path to Sustained Growth;* R. C. Allen, *The British Industrial Revolution in a Global Perspective* (Oxford: Oxford University Press, 2014); E. A. Wrigley, *Energy and the English Industrial Revolution* (Cambridge: Cambridge University Press, 2010); D. S. Landes, *The Unbound Prometheus. Technological Change and Industrial Development in Western Europe from 1750 to the Present* (Cambridge: Cambridge University Press, 2nd ed. 2003); R. P. Sieferle, *The Subterranean Forest: Energy Systems and the Industrial Revolution* (Cambridge: White Horse Press, 2001). For three partial surveys of a vast literature see: E. Griffin, *A Short History of the British Industrial Revolution* (London: Palgrave, 2010); S. A. Beaudoin, 'Current Debates in the Study of the Industrial Revolution' (2000) 15 *OAH Magazine of History* 7; D. Cannadine, 'The Past and the Present in the English Industrial Revolution, 1880–1980' (1984) 103 *Past and Present* 114.

[3] Wrigley, *The Path to Sustained Growth*, at 2–3.

[4] K. Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton: Princeton University Press, 2000).

[5] This is a classic line of argument epitomised by the work of W. S. Jevons, *The Coal Question* (London: Macmillan, 1865).

slave labour to produce the raw materials acquired by Britain in exchange for manufactures). These two factors, the abundance of coal in England and the 'natural bounty' imported from abroad enabled a capital and manufacture intensive path, with a growing population fed by natural resources from overseas grown/extracted by slaves. Thus, slavery as a form of traded human energy served as a catalyst for the transition to the fossil fuel energy matrix.

The second inflexion point relevant for an international law perspective also unfolded over several decades, but mainly in the aftermath of the Second World War. The post-war reconstruction effort required growing amounts of energy resources, mainly coal and oil, which could not be satisfied only by domestic inland deposits. The assertion of sovereign powers over the resources of the continental shelf, triggered by US President Truman's proclamation of 1945,[6] and the internal allocation of powers over oil in submerged lands between the federal government and the States of the Union,[7] both illustrate an increasingly acute understanding of this imperative. More generally, the exploitation of fossil fuel resources in foreign lands was an extremely profitable activity, and it was essentially under the control of international oil companies from either colonial powers or the US.[8] In a post-1945 decolonisation context

[6] Proclamation 2667 of 28 September 1945: 'Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf', 10 Fed. Reg. 12305 (1945). The initiative for this proclamation, which came both from the State Department and the Department of the Interior as early as 1943, was directly related to the possibility of drilling for oil offshore. Even before Truman came to power, in a letter of 1943, President Roosevelt noted '[f]or many years I have felt that the old three-mile limit ... should be superseded by a rule of common sense. For instance the Gulf of Mexico is bounded on the South by Mexico and on the North by the United States. In parts of the Gulf, shallow water extends very many miles offshore. It seems to me that the Mexican Government should be entitled to drill for oil in the Southern half of the Gulf and we in the Northern half of the Gulf. That would be far more sensible than allowing some European nation, for example, to come in there and drill', reproduced in D. C. Watt, 'First steps in the enclosure of the oceans: The origins of Truman's proclamation on the resources of the continental shelf, 28 September 1945' (1979) 3 *Marine Policy* 211, at 213.

[7] In 1947, in *United States v. California*, the US Supreme Court concluded that the federal government had 'paramount rights in full dominion over the resources of the soil under the water area, including oil', 322 US 19 (1947), at 38–39. This principle was confirmed in *United States v. Texas*, 339 US 707 (1950) and *United States v. Louisiana*, 339 US 699 (1950). It was eventually reversed by statute, with the adoption in 1953 of the Submerged Lands Act, 43 USC §§ 1301–15 (1953). R. B. Krueger, 'The Background of the Doctrine of the Continental Shelf and the Outer Continental Shelf Lands Act' (1970) 10 *Natural Resources Journal* 442, at 452–453.

[8] A vivid account of the struggle for oil is provided in Yergin's classic book *The Prize*.

characterised by the emergence of numerous newly independent States eager to use their own resources for their national development,[9] this configuration led to a further degree of internationalisation of energy transactions. Two main questions arose, which underpin the legal foundations of international energy transactions. One was the question of *entitlements over energy* and, more generally, the determination of the rules conferring such entitlements and allocating powers in case of competing claims. The other was the *organisation of the energy transaction* based on such entitlements. The *geographical mismatch between the countries where energy deposits were mainly located and those where the resources were consumed* required indeed substantial amounts of foreign investment by the latter in the former in order to exploit the relevant deposits. It also rested on the assumption that the movement of capitals, equipment and the energy resources (or the refined product) thus produced would be enabled and protected.

At present, a third inflexion point is unfolding before our very eyes as a result of much more profound and long neglected implication of the 'mineral fuel' economy, namely its environmental implications, of which climate change is the most salient manifestation.[10] This multifaceted process of transition from carbon-intensive to low-carbon forms of energy and processes, often called the low-carbon transition or the energy 'transformation', has very important implications for the international law of energy. One 2019 report provides one of several characterisations of this transformation.[11] Its main markers are the substantial improvements in energy efficiency, the rapidly growing reliance on modern renewable energies for electricity production, and the growing electrification of sectors (e.g. transportation) traditionally based on fossil fuels. The drivers, according to this report, must be sought in the

[9] See the discussion of the emergence of the Organization of Petroleum Exporting Countries in Chapter 7.

[10] As noted by the prominent environmental historian J. R. McNeill: 'Cheap and abundant energy has probably done more to shape the human–environment relationship than anything else in the last 150 years. Cheap and abundant energy has proven a potent historical force in almost every sphere, from the conduct of housework to international struggles for power', J. R. McNeill, 'Cheap Energy and Ecological Teleconnections of the Industrial Revolution, 1780–1920' (2019) 24 *Environmental History* 492.

[11] Global Commission on the Geopolitics of the Energy Transformation, *A New World: The Geopolitics of the Energy Transformation* (IRENA, 2019), at 15–23. See further International Renewable Energy Agency (IRENA), *Global Energy Transformation: A Roadmap to 2050 (2019 Edition)* (IRENA, 2019).

declining costs of renewable energies, climate change and other forms of pollution, proactive renewable energy policies (such as targets and support schemes), technological innovation, corporate and investor action and, last but not least, a shift in public opinion.

The implications of this third inflexion point will be discussed throughout this book both in the context of each the three 'approaches' to energy governance and, more specifically, in Chapter 8. Their international legal dimensions can only be assessed if we first shed light on the overall phenomenon studied in this book, the international law of energy. That, in turn, requires a clear understanding of what is 'energy' as a legal object (II), the purposes pursued over time by the international law of energy (III), the overall structure of international energy transactions (IV), and the main patterns that can be extracted from a detailed and comprehensive analysis of the relevant rules, instruments and institutions (V).

II Energy as a Legal Object

2.1 Overview

From the perspective of international law, 'energy' is understood not as a physical quantity or an enabler of other human activities but as a legal object. International law is a language and, as such, it projects a certain ontology on the world. Defining energy as a legal object is therefore an inductive exercise. It amounts to scanning international law to track the different forms in which energy is governed, explicitly or implicitly. This scan has been conducted as part of the groundwork for this study and the main conclusion and submission is that energy, as an object of international law, has four facets: energy as a resource; as a product or service; as a technology or the components and equipment on which the technology relies; and as an activity.

Defining energy as a legal object is necessary in order to both (1) identify the rules most relevant for energy and (2) bring them together under an integrated analytical framework. The identification of the relevant materials implies no circularity in the analysis. It is true that the initial characterisation of energy relies on a scan of the relevant sources. Yet, this initial characterisation – which reflects the legal materials relied upon – has been tested and adjusted through subsequent applications. This trial-and-error process is not reproduced here, as it is part of the groundwork for the study. But one example can help to

understand what it consisted of. Initially, my definition of energy as a legal object had only three facets (resource, product, activity). However, a range of legal materials (e.g. the technologies and equipment expressly contemplated under the Energy Charter Treaty (ECT), the provisions on scientific cooperation, information exchange and technology transfer appearing in a wide body of bilateral energy agreements,[12] and the international law relating to the protection of intellectual property rights (IPRs)[13]) strongly suggested that the technology facet of energy could not be adequately subsumed under the other facets. Although one cannot be certain that further testing of the definition may not require additional adjustments, the fact that, by now, this characterisation has been tested for a decade suggests that, as a conceptual tool, this definition is sufficiently mature.

The circularity caveat aside, the purpose of this definition is to federate very diverse bodies of international law, whether they specifically refer to energy or not, whether they were developed to cover energy or not, under a single analytical framework capable of clarifying which international rules and processes are relevant for energy governance and why.

2.2 *Energy as a Resource*

Energy as a 'resource' is perhaps the most intuitive facet of all. The term resource applies to stocks, such as those of fossil fuels (coal, oil and gas) or of minerals from which fissile materials can be derived (mainly uranium), as well as to flows, such as the flow of a watercourse, solar radiation or wind power used for renewable energy. It also applies to related stocks of resources, such as those on which renewable energy systems (e.g. cobalt, copper, lithium, manganese, nickel and zinc) and batteries (e.g. lithium, cobalt, graphite and nickel) rely. The resources underlying the generation of so-called bioenergy (solid biomass as well as liquid and gaseous biofuels) vary significantly. They include forests, a range of crops (such as corn, wheat, soy or sugarcane) and other materials (from algae to carcasses to waste). As a general matter, bioenergy resources are mainly stocks.

[12] See Chapters 4 and 5.

[13] Most notably the provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 UNTS 299 [TRIPS Agreement].

The distinction between 'stocks' and 'flows' is meaningful from a geopolitical perspective, as noted by the aforementioned 2019 report from the Global Commission on the Geopolitics of the Energy Transformation,[14] as well as from a legal one. International law confers and allocates entitlements over energy resources in a static or 'spatial' form. By way of illustration, whereas coal, oil, gas and uranium stocks or 'deposits' can be appropriated through legal concepts such as 'territorial sovereignty' or the exclusive 'sovereign rights' over the continental shelf (for offshore oil and gas), flows such as solar radiation, wind power or stream power (for tidal energy) present both spatial (location) and non-spatial (flow) dimensions. Solar radiation cannot be fully appropriated, although solar energy installations are certainly territorial.

To clarify this facet, three additional observations are in order. First, the same energy resource may be governed both as a stock and as a flow. For example, oil and gas are stocks for purposes of power allocation but they may also be treated as flows in the regulation of transportation and transit. Electricity is left out for now, because this is discussed under the product/service facet. Secondly, the tension between stock/flow governance is well illustrated by the rules applicable to the non-navigational uses of international watercourses, such as the generation of hydroelectricity,[15] as well as by the need for unitisation of shared oil and gas deposits, which present some 'flow' characteristics before they are extracted from a well.[16] Thirdly, in addition to the stock/flow distinction, it is useful to categorise energy as a resource using a tripartite intuitive distinction between: 'fossil' (coal, oil and gas), nuclear (mainly uranium) and renewable resources (mostly hydro, solar, wind and bioenergy).

The use of these terms will facilitate the presentation later on, for example when discussing the 'centralised approach' used to describe the international legal regime of nuclear energy or the 'ad hoc approach' used for oil and gas, hydroelectricity or offshore wind.

[14] According to this report, growing reliance on modern renewable energies will transform the geopolitics of energy because 'renewable energy resources are available in one form or another in most countries, unlike fossil fuels which are concentrated in specific geographic locations' and 'most renewables take the form of flows, whilst fossil fuels are stocks. Energy stocks can be stored, which is useful; but they can be used only once. In contrast, energy flows do not exhaust themselves and are harder to disrupt', *The Geopolitics of the Energy Transformation*, at 23.

[15] See Chapter 5.

[16] See Chapter 4.

2.3 Energy as a Product

The second facet of energy as a legal object is that of an 'end product or service'. Energy resources undergo a process of transformation into usable products or services. The latter can be categorised essentially as 'electricity' (or electrical power), thermal services (heating or cooling, for many different purposes), and a range of 'fuels' (including gasoline, diesel, jet fuel and several types of biofuels, including ethanol, biodiesel and biogas). In this categorisation, hydrogen must also be seen as an energy 'product', despite its versatility for a variety of uses (e.g. fertilisers). This is because most hydrogen is produced from fossil fuels (mainly natural gas) in dedicated facilities of which hydrogen is the primary product.[17] Even when produced by electrolysis, the resource itself is water and the primary product is hydrogen.

These end products and services are not the only ones that can be derived from energy resources. For example, the petrochemical industry uses energy resources to produce a range of products such as plastics. But the focus in this study is on energy end products and services. Another clarification concerns how 'end' products and services are characterised. Some accounts of energy refer to 'transportation' as the end service of most fuels. However, in international law, transportation is governed as an 'activity' by a range of instruments specifically addressing tankers,[18] pipelines[19] and electrical transmission lines.[20]

The distinction between energy resources and end products/services is legally significant in certain contexts because it reflects the scope of application of certain instruments (e.g. agreements relating to electricity as such) as well as the different legal regime governing trade in goods and trade in services.[21]

2.4 Energy as a Technology

Thus characterised, neither energy resources nor energy end products and services clearly cover a significant object of international law, namely the 'technologies' used to generate end products (or to enable certain activities) on the basis of resources.

[17] See IEA, *The Future of Hydrogen. Seizing Today's Opportunities* (June 2019), at 31.
[18] See Chapter 3.
[19] See Chapter 4.
[20] See Chapter 5.
[21] See Chapter 2.

By technologies one must understand the knowledge of the processes, whether protected by IPRs or not, as well as the physical components (materials, equipment, machinery) enabling such processes. Article 1 (4bis) of the ECT and its related annexes offer a long list of relevant illustrations under the heading 'Energy-Related Equipment'. Although heavily focussed on fossil fuels and nuclear energy, this list provides many examples such as tubes, pipes and hollow profiles used for pipelines or sea lines protection, reservoirs, tanks and containers, steam, vapour and hydraulic turbines, centrifuges, nuclear reactors, cranes, self-propelled bulldozers and excavators, drilling equipment, taps, processors, and many others. Article 1(12) of the ECT further refers to IPRs, which are broadly defined as encompassing 'copyright and related rights, trademarks, geographical indications, industrial designs, patents, layout designs of integrated circuits and the protection of undisclosed information'. In an understanding relating to Article 1(12), the Parties 'recognize[d] the necessity for adequate and effective protection of Intellectual Property rights according to the highest internationally-accepted standards'.[22] The ECT is mentioned only as an example.

The Agreement on the Trade-Related Aspects of Intellectual Property Rights (TRIPS), concluded under the aegis of the WTO,[23] also contains general disciplines requiring States to adopt a national system of IPRs protection consistent with international standards.[24] Certain bilateral and regional trade agreements also include provisions relating to IPRs which are relevant for energy as a technology.[25]

2.5 *Energy as an Activity*

The fourth facet concerns energy as an 'activity'. In international law, the clearest general characterisation of energy activities so far is provided in Article 1(5) of the ECT: '"Economic Activity in the Energy Sector" means an economic activity concerning the exploration, extraction, refining,

[22] Final Act of the European Energy Charter Conference, Lisbon, 17 December 1994 [Final Act], Understanding 5.

[23] See n. 13.

[24] TRIPS Agreement, Article 1(1) and (3), which refer to the standards set in Part II of the Agreement for IPRs such as industrial designs, patents, and layout-designs of integrated circuits, among others.

[25] See M. Handler, B. Mercurio, 'Intellectual Property', in S. Lester, B. Mercurio, L. Bartels (eds.), *Bilateral and Regional Trade Agreements. Commentary and Analysis* (Cambridge: Cambridge University Press, 2nd ed. 2016), pp. 324–363.

production, storage, land transport, transmission, distribution, trade, marketing, or sale of Energy Materials and Products'. Energy Materials and Products are in turn defined by a global legal 'ontology' developed through the Harmonized System of the World Customs Organization[26] as well as a regional one, the Combined Nomenclature of the then European Communities.[27] In an 'Understanding' appearing in the Final Act of the European Energy Charter Conference, two important clarifications are added. First, 'Economic Activities in the Energy Sector' include not only those activities relating to fossil fuels, nuclear energy and electricity, but also renewable energies.[28] Secondly, some other activities, such as the removal and disposal of waste, the decommissioning of facilities, and a range of consulting services are also included.[29] Such understanding is confirmed by Article 19(3)(a) of the ECT when it defines the 'Energy Cycle'.[30]

These analytical distinctions enshrined in the ECT are of broader relevance for international law. Energy activities can be generally characterised as encompassing 'exploration, extraction, refining, production, storage, land transport, transmission, distribution, trade, marketing, or sale', as well as waste removal and disposal, decommissioning of facilities, and a range of energy-related services. These activities are sometimes further summarised (based on the example of the petroleum industry) into three categories of activities: upstream (exploration and production),

[26] This is based on the International Convention on the Harmonized Commodity Description and Coding System, 14 June 1983, 1503 UNTS 167 [HS Convention], Article 3(1)(a) and the Annexed Nomenclature, which is regularly updated. The current version dates from the 2017 Amendments, and a new version (HS 2022) has been agreed and will enter into force on 1 January 2022. A discussion of how energy falls within the Harmonised System is provided in Chapter 2.

[27] This nomenclature was established by Council Regulation (EEC) No. 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff, in pursuance of the HS Convention, of which the EU is a party. It is updated every year and published as a European Commission implementing regulation. The latest edition is Commission Implementing Regulation (EU) 2020/1577 of 21 September 2020 amending Annex I to Council Regulation (EEC) No. 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff.

[28] Final Act, Understanding with respect to Article 1(5), at para. (b)(ii).

[29] Final Act, Understanding with respect to Article 1(5), at paraa. (b)(iv), (v) and (vii).

[30] Article 19(3)(a) of the ECT provides the following definition: '"Energy Cycle" means the entire energy chain, including activities related to prospecting for, exploration, production, conversion, storage, transport, distribution and consumption of the various forms of energy, and the treatment and disposal of wastes, as well as the decommissioning, cessation or closure of these activities, minimising harmful Environmental Impacts'.

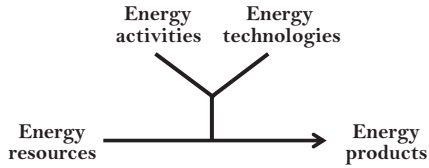

Figure 1.1 Energy as a legal object.

midstream (processing, storing, and transporting), and downstream (refining and conversion, distribution, retail).

Some of the activities are specifically regulated by either global or *ad hoc* legal regimes. Examples include the transportation of energy resources, which is governed *inter alia* by global treaties on the prevention and compensation of oil pollution damage,[31] or the treatment of energy-related 'services' under market access rules in trade and investment agreements,[32] or still the differences between 'exploration' and 'exploitation' of resources in undelimited areas.[33]

Energy activities may also be addressed *en bloc* in the same footing as many other activities relating to an 'investment' by a foreign investor falling under one or more investment agreements.[34] The latter point is yet another example of how international law may govern energy as a legal object with specifically addressing it. As discussed later in this chapter (see Section V), what shall be called the 'foundational approach' to energy governance is, with few exceptions, unspecific.

2.6 *Energy as a Legal Object: Summary*

The four dimensions of energy as a legal object are summarised graphically in Figure 1.1. In essence, *international law frames energy as resources converted into products through a range of activities relying on certain technologies*:

This simple framing shows that 'energy' as a legal object is distinct from energy as a physical force and focuses on the legal organisation of

[31] See Chapter 3.
[32] See Chapter 2.
[33] On the different regime of 'exploration' and 'exploitation' in undelimited and/or disputed maritime areas see Chapters 2 and 4.
[34] See Chapter 2.

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the processes that generate and harness that force for certain purposes pursued by States and many other actors on the international plane. These purposes are discussed next.

III The Purposes of Energy Governance

3.1 Overview

Given energy's role as an enabler, the overall purpose of energy governance is the availability of sufficient energy to achieve a range of goals, which can be broadly encompassed by the term prosperity. Yet, this statement is overly simplistic. There are many steps involved in making energy available, from access to the resources and technology necessary for the extraction and conversion of energy to the adequate distribution of energy end products. There are also side effects in such processes, including the wider impact of all the activities performed to make energy available. Moreover, different actors at different levels pursue different goals depending on their needs, interests and ability to influence the policy process. In order to move from this level of abstraction to a more meaningful discussion of the purposes of energy governance, the analysis follows four steps.

I begin by stating, with reference to some representative instruments, what the main purposes of energy governance are at the international level (2.2). I then place this basic statement in historical perspective (2.3), flesh out the ways in which the energy transition has found expression in pursuance of different purposes (2.4), and connect these different goals and their deeper roots and implications to the development of international law since the second half of the twentieth century, emphasising the interactions between the purposes of energy governance (2.5). The competing nature of the different purposes of energy governance will become apparent at each stage of the discussion.

3.2 Main Purposes of Energy Governance

The overarching and most rudimentary purpose of energy governance is the 'availability' of sufficient energy to fuel prosperity. One associated – and intermediate – purpose concerns the uninterrupted supply of energy (energy security), which has itself been pursued, from a supply side, through the diversification of source countries and energy resources (energy diversification) and, from a demand side, through policies to

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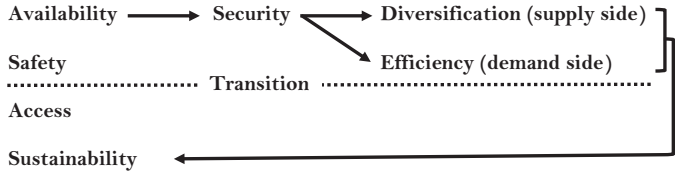

Figure 1.2 The purposes of energy governance.

make energy use more efficient, i.e. to perform the same tasks using less energy (energy efficiency).

Importantly, neither 'availability' nor its intermediate purposes require a specific allocation of energy among groups and/or individuals. Matters of distributive justice and, more specifically, of individual and collective entitlements are captured by another purpose, namely 'energy access'. Moreover, the quest for prosperity is not unconstrained. Energy activities may have deleterious effects both on human beings (calling for 'energy safety') and the environment, through oil spills, acidification, air pollution, and emissions of greenhouse gases (placing 'sustainability' constraints). The latter purpose has, in fact, led to a reorientation of two intermediate goals (diversification and efficiency) to serve not only energy security but also environmental and climate change policy. This reorientation is conveyed by the change of terminology from 'alternative' sources of energy to 'renewable', 'sustainable' or 'low-carbon' energy sources. The purposes of energy governance are summarised graphically in Figure 1.2.

These are not the only purposes that energy policies can pursue. For example, the military implications of the resources and technologies used to generate nuclear energy (which can be used to enrich uranium to weapon-grade level) present specific characteristics that do not fit entirely under the above-mentioned goals.[35] Moreover, the purposes of energy policy may be stated in other terms, as in the case of the EU energy policy, which has sought through several 'energy packages' to increase the integration of and competition within the internal energy market.[36]

The quest for *'availability', 'security', 'diversification', 'efficiency', 'safety', 'access' and 'sustainability'* through a range of policies formulated

[35] See Chapter 6. In the nuclear energy context, energy security is not understood as only a matter of security of supply but as international security (physical protection, non-diversion of nuclear materials and ultimately non-proliferation).

[36] See the discussion of EU energy law in Chapter 7.

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in legal terms, including through international law, presents synergies and conflicts. 'Availability' and 'sustainability' may be at odds with each other, although the energy transition is changing that tension. 'Efficiency', which at first sight appears as consistent with all the other goals, may require the adoption of equipment and appliances by end users that are too expensive for some sectors of the population, thus thwarting energy access. Enjoying energy 'security' may also come at a price, requiring inefficient but strategically important investments. Similarly, energy 'safety' typically requires contingency systems and a range of other regulatory requirements that may also add costs to energy production. Synergies are also possible. Reliance on renewable energies in the 1970s was seen as a potential means to ensure energy security in the wake of unreliable supplies of energy resources from the Middle East. The interrelations between these different purposes can be better understood by reference to some historical developments.

3.3 *The Primacy of Availability and Security*

In the early 1950s, the assertion of a right to exploit natural resources in the national interest was not as obvious as it may appear today. Schrijver[37] provides an illuminating example by reference to the drafting history of what became UN General Assembly Resolution 523 (VI).[38] The draft proposed by Poland stated that 'under-developed countries' have the full right to determine freely the use of their natural resources. The United States opposed this formulation and proposed an amendment adding a reference to 'the interests of an expanding world economy'. Underlying this proposal was an attempt, by several industrialised countries, to secure some level of access to the energy resources located mostly in the Middle East. The final compromise text, brokered by Egypt, India and Indonesia, referred to both the national interest and that of the world economy.[39] As noted by Schrijver, this resolution is remarkable in

[37] See N. Schrijver, *Sovereignty over Natural Resources. Balancing Rights and Duties* (Cambridge: Cambridge University Press, 1997), at 37ff.

[38] 'Integrated economic development and commercial agreements', 12 January 1952, UN Doc. A/RES/523(VI) [Resolution 523 (VI)].

[39] Resolution 523 (VI), first preambular paragraph ('under-developed countries have the right to determine freely the use of their natural resources and that they must utilize such resources in order to be in a better position to further the realization of their plans of economic development in accordance with their national interests, and to further the expansion of the world economy').

that it stated for the first time the 'right' of under-developed countries to determine freely the use of their natural resources and for the first *and last* time the expectation that such resources be used not only in their national interest but also to further the expansion of the world economy.

Resource sovereignty gained increasing recognition in subsequent years, finding expression in a stream of UN General Assembly resolutions, most notably Resolution 1803 (XVII).[40] But the latent tension between the pursuit of national prosperity by resource-rich countries and energy security concerns by oil importing countries remained a major issue. It has characterised the geopolitics of oil ever since, as suggested by the vivid debate ignited by the ongoing works for the Nord Stream 2 pipeline project, which many see as a political lever allowing Russia to circumvent Ukraine in its gas exports to the EU and increase the reliance of the latter on Russian exports, thus also thwarting US exports of shale gas to Europe.[41]

The first major expression of the use of energy exports as a political instrument was the oil embargo imposed by the Organization of Arab Petroleum Exporting Countries (OAPEC)[42] in October 1973 against the United States and other industrialised countries, as a result of their support of Israel in the Yom Kippur War. Oil supply was wielded as a weapon, with powerful effects over the economies of the affected importing countries. By March 1974, when the embargo was lifted, the nominal price of the oil barrel had increased by almost 300 per cent.[43]

The 1973 oil crisis acted as a catalyst for importing countries to realise the need to give energy security both an institutional and a technological solution. Two noteworthy and related consequences[44] were the creation

[40] 'Permanent sovereignty over natural resources', 14 December 1962, UN Doc. A/RES/1803(XVII) [Resolution 1803 (XVII)]. See further Chapters **4** and **7**.

[41] See A. Goldthau, 'Assessing Nord Stream 2: Regulations, Geopolitics & Energy Security in the EU, Central Eastern Europe & the UK', *Strategic Paper 10 – European Centre for Energy and Resource Security* (2016); R. L. Morningstar, D. Fried, O. Khakova, 'Reinforcing transatlantic ties amidst Nord Stream 2 sanctions: a way forward', *Atlantic Council* (18 December 2020).

[42] On this organisation and its links to the Organization of Petroleum Exporting Countries (OPEC) see Chapter 7.

[43] See R. A. Johnson, 'The Impact of Rising Oil Prices on the Major Foreign Industrial Countries' (1980) 66 *Federal Research Bulletin* 817. The 'nominal price' is the average quarterly OPEC price in USD, adjusted for spot market transactions.

[44] For a survey of the responses in West Germany, Japan, France and the United States see G. J. Ikenberry, 'The irony of state strength: comparative responses to the oil shocks in the 1970s' (1986) 40 *International Organization* 105.

of the International Energy Agency (IEA) in 1974, involving a 'Sharing System' or buffer against oil shocks,[45] and a trend towards energy diversification, both from Middle East sources and from oil as such.[46] The goal pursued by these initiatives was energy security, but at the same time it created momentum for the development of renewable energies, at the time called – from an energy security perspective – 'alternative' energies.

Energy security and, specifically, access to fossil fuel resources (oil and gas) has remained an important driver of international legal developments in the field of energy. With the first signs of disaggregation of the Soviet bloc, the then European Communities launched a negotiation process that culminated with the adoption of the ECT in 1994.[47] Although the ECT pursues several purposes, the overall aim of the European initiative was to secure a continued flow of energy resources and products from the former Soviet republics in exchange for access to European markets and foreign investment.

Since the early 1990s, however, a stream of policy developments has introduced a new dimension of global energy governance, which is no longer seen only as an energy availability framework but also as an approach to transitioning from a carbon-intensive to an inclusive (access) and low-carbon (sustainability) energy matrix. This new transitional dimension is represented in Figure 1.2 with the dotted line between the classic and the more recent purposes of energy governance.

3.4 The Rise of Access and Sustainability

The transition to a low-carbon inclusive energy matrix has found expression in global governance mostly in the form normative statements adopted by UN bodies as well as some selected major conferences. Four main and sometimes overlapping phases can be identified in the process of mainstreaming of renewable energies in global governance, corresponding to the introduction, consolidation, institutionalisation, and expansion of the issue.

[45] See Chapter 7.

[46] Ikenberry, *The Irony of State Strength*, at 107.

[47] The idea of a European Community for Energy was championed by the former Prime Minister of the Netherlands, Ruud Lubbers, at the Dublin European Council held on 25–26 June 1990 and subsequently taken up by the Commission, which conducted the negotiation process leading to the adoption of the ECT in 1994. On the negotiating history of the ECT see generally K. Hober, *The Energy Charter Treaty. A Commentary* (Oxford: Oxford University Press, 2020), pp. 13–24.

The introduction phase unfolded over two decades, from 1981 to 2002. A first attempt was made in the 1980s with the convening[48] of a UN Conference on New and Renewable Sources of Energy, held in Nairobi in 1981, but at the time the 'energy transition' was understood mostly from the lenses of diversification for energy security purposes.[49] The sustainability dimension gained ground over the ensuing decade and was recognised in Chapter 9 of the action plan adopted at the 1992 Rio 'Earth Summit', i.e. Agenda 21, which referred to '[t]he need to control atmospheric emissions of greenhouse and other gases and substances' as part of the explanation for a 'growing reliance on environmentally sound systems, particularly new and renewable sources of energy'.[50] On this basis, the UN Educational, Scientific and Cultural Organization (UNESCO) launched, at a 'World Solar Summit' held in Harare, in September 1996, a 'World Solar Programme 1996–2005'[51] aimed to catalyse and promote cooperation among governments and the private sector for the development of renewable energies. At the nineteenth special session of the UN General Assembly in 1997, dubbed 'Earth Summit + 5', the Commission on Sustainable Development (CSD), established to oversee the implementation of Agenda 21, was asked to address 'energy issues' in its ninth session.[52] Then, in December 2000, the UN General Assembly adopted Resolution 55/205 endorsing the UNESCO initiative.[53]

[48] 'United Nations Conference on New and Renewable Sources of Energy', 16 December 1980, UN Doc. A/RES/35/204 [Resolution 35/204].

[49] See the article by the Conference's Secretary-General, E. V. Iglesias, 'Objectives of the United Nations Conference on New and Renewable Sources of Energy' (1981) 5 *OPEC Review* 12.

[50] Report of the United Nations Conference on Environment and Development, A/CONF.151/26/Rev.1 (Vol. 1), Resolution 1, Annex 2: Agenda 21 [Agenda 21], Basis for Action 9.9.

[51] Harare Declaration on Solar Energy and Sustainable Development, 17 September 1996, A/53/395, annex, section II. The Declaration led to the adoption by the UNESCO of its 'World Solar Programme 1996–2005', UNESCO, Records of the General Conference, Twenty-ninth Session, Paris, 21 October–12 November 1997, vol. 1: Resolutions.

[52] Resolutions and Decisions adopted by the General Assembly during its nineteenth special session, 23 to 28 June 1997, Supplement No. 2 (A/S-19/33), para. 46(a). The CSD undertook this task and proposed a draft decision to ECOSOC. See Commission on Sustainable Development, Report on the ninth session (5 May 2000 and 16–27 April 2001), ECOSOC Official Records 2001, Supplement No. 9, E/2001/29E/CN.17/2001/19, Draft Decision 9/1: Energy for Sustainable Development.

[53] 'World Solar Programme 1996–2005', 20 December 2000, UN Doc. A/RES/55/205 [Resolution 55/205].

The endorsement of the UN General Assembly, the work of CSD and reliance on it during the 2002 Johannesburg Summit on Sustainable Development,[54] marks the transition to the consolidation phase, which can be broadly situated between 2002 and 2005. This period is of note for two main reasons. First, although the main resolutions continued to refer to cleaner and more advanced fossil fuel technologies, UN General Assembly Resolution 60/199 made the 'promotion of new and renewable sources of energy' a specific sub-item of the agenda of the UN General Assembly.[55] Secondly, certain global meetings held during this period laid the ground for the institutional expression of renewable energy at the global level.

This institutionalisation phase unfolded approximately between 2004 and 2011. Indeed, the impetus given by the Johannesburg Summit as well as by two other conferences held in Bonn (2004), Beijing (2005) and then again in Bonn (2009) led to the establishment in 2004 of a 'global policy network' on renewable energy, REN21, and that of an International Renewable Energy Agency (IRENA), in 2009.[56] In addition to decarbonisation, the 'access' dimension was emphasised by UN General Assembly Resolution 65/151, which declared 2012 the 'International Year of Sustainable Energy for All'.[57] Under this umbrella, in September 2011, UN Secretary-General Ban Ki-moon announced the launch of a 'Sustainable Energy for All' initiative (SE4ALL or SEforALL),[58] which later became an independent body.[59]

The expansion phase is marked by the inclusion of a specific Sustainable Development Goal (SDG 7) in the 2030 Agenda for Sustainable Development aimed to 'ensure access to affordable, reliable,

[54] Report of the World Summit on Sustainable Development at Johannesburg (South Africa), 26 August–4 September 2002, UN Doc. A/CONF.199/20, Plan of Implementation, para. 20.

[55] 'Promotion of New and Renewable Sources of Energy, Including the Implementation of the World Solar Programme', 13 March 2006, A/RES/60/199, para. 13.

[56] See the discussion of promotion organisations in Chapter 7.

[57] 'International Year of Sustainable Energy for All', 16 February 2011, A/RES/65/151 [Resolution 65/151].

[58] A Vision Statement of Ban Ki-moon, Secretary General of the United Nations, Sustainable Energy for All (November 2011), available at: www.seforall.org/sites/default/files/gather-content/SG_Sustainable_Energy_for_All_vision.pdf.

[59] It was established under Austrian law in the form of a Quasi-International Organization (*Quasi-Internationale Organisation*). Federal Law on the Granting of Privileges to Non-Governmental International Organisations, Federal Law Gazette No. 174/1992, as later amended, section 7(2).

sustainable and modern energy for all'.[60] Unlike the Millennium Development Goals (MDGs),[61] which contained no stand-alone goal on energy, the SDG thus turned access to energy into a global priority which concerns not only developing countries (as did the MDGs) but all countries (as the SDGs do).

3.5 *Competition among Purposes*

The many goals now pursued by global energy governance have introduced significant complexity in the international legal norms and instruments that give expression to them.

Different bodies of international law pursue different and potentially conflicting goals. For example, the requirement to provide wide and affordable access to energy, as part of certain human rights,[62] may collide with efforts at decarbonising the economy, as required by climate change law,[63] or with the disciplines arising from investment law (e.g. if low-cost access is pursued by imposing a tariff cap on an electricity utility owned by foreign investors). Similarly, the requirement to decarbonise the energy sector under climate change law may, in some circumstances, collide with the disciplines arising from trade law (e.g. if the low-carbon policy relies on discriminatory local content requirements).[64] More generally, the special joint development and related agreements or watercourse-specific agreements between two States may prioritise the availability and security of energy over considerations of human rights or environmental protection, whether in their letter or in practice.[65]

[60] Resolution 70/1, 'Transforming Our World: The 2030 Agenda for Sustainable Development', 21 October 2015, UN Doc. A/RES/70/1, including a statement of 17 sustainable development goals (SDGs). On SDG 7 see S. Bruce, J. E. Viñuales, 'SDG 7: Access to Affordable, Reliable, Sustainable and Modern Energy for All', in J. Ebbesson, E. Hey (eds.), *The Cambridge Handbook on the United Nations Sustainable Development Goals and International Law* (Cambridge: Cambridge University Press, 2021), chapter 7.

[61] 'Millennium Declaration', 13 September 2000, UN Doc. A/RES/55/2.

[62] See the discussion of the entitlements of individuals in Chapter 2.

[63] See the discussion of climate change law in Chapter 3.

[64] See *Canada – Certain Measures Affecting the Renewable Energy Generation Sector*, Panel Report (19 December 2012), WT/DS412/R and *Canada – Measures Relating to the Feed in Tariff Program,* WT/DS426/R, AB Report (6 May 2013), WT/DS412/AB/R and WT/DS426/AB/R; *India – Certain Measures Relating to Solar Cells and Solar Modules*, AB Report (16 September 2016), WT-DS456/AB/R. For a discussion of trade law as it relates to energy see Chapter 2.

[65] See *In the matter of the Indus Waters Kishenganga Arbitration before the Court of Arbitration constituted in accordance with the Indus Waters Treaty 1960 between the*

The analysis has to proceed on a case-by-case basis because two or more norms that appear incompatible on their face may be reconciled through interpretation and, conversely, two apparently compatible norms may, in practice, be applied in an inconsistent manner. What is important is the ability to recognise that different energy goals may be supported by different norms of international law. Analytically, an account of the international law of energy must encompass all these normative sources and, insofar as possible, spell out their interrelations.

IV The Structure of International Energy Transactions

4.1 Overview

The theory of externalities can be used to understand the structure of international energy transactions because it provides a simple distinction between the core purpose of different international norms and instruments. It may be useful to recall, in intuitive terms, why this is so, before elaborating on the different aspects of this proposition. Simply stated, there are rules of international law that are mainly concerned with conferring and allocating entitlements over energy and with the legal organisation of the energy transactions, whereas some other rules operate as a sort of additional layer mainly addressing the negative externalities generated by such transactions rather than the transactions themselves. This apparently simple statement requires significant elaboration to be properly understood. One must clarify what is meant by 'transaction' generating 'externalities' on 'third parties' as well as identify the international legal rules mainly concerned with the 'transaction' and the 'externalities'.

4.2 'Transactions' and 'Externalities'

The first step is to clarify what is meant by the 'externalities' of a 'transaction'. For present purposes, rather than the classical contributions

Government of India and the Government of Pakistan signed on 19 September 1960 (Islamic Republic of Pakistan v. Republic of India), PCA, Final Award (20 December 2014), para. 111 (where the tribunal, while admitting the relevance of environmental protection, gave priority to the express language of a 1960 treaty apportioning the water flow between India and Pakistan). The relevant principles are briefly discussed in Chapters 2 and 3 and then in more detail in Chapter 5.

of Pigou[66] or Coase[67] on this topic, we can rely on the broad characterisation of externalities provided by J. E. Meade in a 1973 study:

> [a]n external economy (diseconomy) is an event which confers an appreciable benefit (inflicts an appreciable damage) on some person or persons who were not fully consenting parties in reaching the decision or decisions which led directly or indirectly to the event in question.[68]

A negative externality (a 'diseconomy') is thus the harm caused by a transaction (a 'decision or decisions which led directly or indirectly to' such harm) on third parties (a 'person or persons who were not fully consenting parties' in the transaction).

This characterisation has the merit of emphasising the composite nature, indeed the complexity, of the concept of 'transaction'. A transaction could mean something as narrow and specific as a contract between two companies for the sale of given product or something as broad, composite and complex as the set of policies and private transactions encompassed by an economic development model, with many other examples in between. The dividing line between the 'transaction' and the 'externality' has profound implications for the validity of economic theory. As noted by a commentator who positively but objectively reviewed Meade's work '[i]f a theory relegates some of the most important contemporary issues to the category of externalities that, by definition, lie outside the theory's boundaries, then what is its value?'[69] For present purposes, however, it is not the theory of externalities but the conceptual distinction between 'transactions' and 'externalities' as it has permeated the framing and design of international law that warrants attention.[70]

[66] See A. C. Pigou, *The Economics of Welfare* (London: Mcmillan, 1920).

[67] See R. Coase, 'The Problem of Social Cost' (1960) 3 *Journal of Law and Economics* 1.

[68] See J. E. Meade, *The Theory of Economic Externalities: The Control of Environmental Pollution and Similar Social Costs* (Geneva: IUHEI, 1973). This is the written version of a set of lectures delivered at the Institut universitaire de hautes études internationales in Geneva.

[69] R. Morgenstern, 'Book Review' (1976) 14 *Journal of Economic Literature* 66, at 68.

[70] For a critique see J. E. Viñuales, *In Our Hands? The Organisation of the Anthropocene* (The Hague: Brill Research Perspectives, 2018) (arguing that environmental law is overwhelmingly structured as the law of negative externalities); J. E. Viñuales, J.-F. Mercure, 'Pathway to Reframing Environmental Law' (2020) 50(6) *Environmental Policy and Law* 63 (with J.-F. Mercure) (Special issue for the fiftieth anniversary, guest-edited by B. Desai).

Meade, as others who have theorised externalities, saw third parties through an anthropocentric prism. Those 'persons who were not fully consenting parties' included humans who suffer from the environmental degradation of certain transactions, but not the environment as such, as it lacks agency to 'fully consent'. Conceptually, however, third parties could also include certain non-human entities, such animals, trees, the 'environment', legal persons, States etc., as well as non-present human persons, individual or collective, such as future generations. Being a 'third party' to a transaction may be clear-cut for narrow and specific transactions (e.g. a one-off sale of goods) but as the term transaction is used to refer to more composite and complex phenomena (e.g. a foreign investment transaction in the extractive industries sector or the trade flows of a range of goods between two countries) that requires a more complex understanding of third parties. In a town where most of the population works in a coal-fired power plant generating electricity for the entire town, they may all be considered as part of the polluting transaction (the production of electricity from coal) while, at the same time, they are third parties suffering from polluted air and water. Similarly, in a global economy still based on the burning of fossil fuels, States (at least most of them) are both parties to the production and consumption transactions organised globally and third parties suffering from global environmental degradation. The distinction between 'participants' and 'third parties' in broad and composite transactions is thus not one of 'agency' (full consent) but one of 'role'. The same agent, e.g. a State, may perform both the role of participant and of third party at the very same point in time. If we allow for agent heterogeneity, the situation becomes more complex but the distinction between agents and roles stands.

Analytically, one may try to disentangle who exactly participates in a specific transaction and to what extent. For example, in the aforementioned example of the town, a major producer of furniture which does not work in the coal-fired power plant and which relies on solar panels to generate the electricity it consumes would clearly be a third party suffering from air and water pollution. But what if it sells all its furniture to the local power plant or if it relies entirely for its business on the electricity provided by the plant and is one of the main clients? Even more complex, what if the local government is both the main client of the plant and derives most of its tax revenue from it? Analytically, one may still define the relevant transactions separately and target one of them (e.g. the generation of electricity) as the transaction resulting in the negative externality, but this analytical cut would not accurately represent reality.

In global energy governance, most States are in a position analogous to those of the furniture producer and the local government. The transactions they are involved in are complex and interdependent networks of relations organised by a range of legal instruments. The negative externalities of some of these transactions are also addressed by legal instruments. The agents, whether States, international organisations, companies, groups, peoples and/or individuals, are all interrelated in such transactions, performing at times the role of participants and at times that of third parties.

4.3 The Rules Governing International Energy 'Transactions' and their 'Externalities'

The international legal rules mainly concerned with the 'transaction' and the 'externalities' can only be identified if the search is conducted within the context of 'energy' transactions. It is useful at this stage to recall the 'legal' definition of energy provided earlier in this chapter (see Section II). One component of that definition looks at energy as a set of 'activities'. Article 1(5) of the ECT characterises an 'Economic Activity in the Energy Sector' as 'an economic activity concerning the exploration, extraction, refining, production, storage, land transport, transmission, distribution, trade, marketing, or sale of Energy Materials and Products'. As noted earlier, this specific characterisation provides an indication of the type of activities that constitute the heart of international energy transactions.

The bulk of the law organising these activities is domestic and transnational (e.g. corporate structures, international contracts, joint ventures, employment contracts), but some important dimensions remain the province of international law. Specifically, the conferral of legal *entitlements* over resources (on which the ability to explore and produce relies) is based on a range of customary and treaty norms allocating sovereignty over land and water as well as sovereign rights over certain maritime areas (the exclusive economic zone and the continental shelf).[71] Such powers are the foundations over which energy transactions are organised. As noted earlier in this chapter (see Section I), international law plays an important role in this organisation because energy transactions have become internationalised. This means, specifically, that there is a

[71] See Chapter 2.

substantial mismatch between the States where energy is produced and the States where energy is consumed. As a result, energy as a legal object (resources, products, technology, activities) must cross borders. That, in turn, requires *enabling and protecting* such movements. A wide range of rules and treaties relating to foreign investment (to develop the resources located abroad), trade (to enable access to markets and level the playing field of exports/imports) and transit (to minimise hindrances to the movement of the relevant energy resources and products) organise these movements. IPRs relating to these flows are also protected, although international law only requires the granting of a minimum level of protection, relying on domestic law to do so. Thus, the international law mainly concerned with international energy transactions can be seen as those rules *(1) confer and allocate entitlements over energy and (2) that organise the cross-border movements entailed by such transactions by 'enabling' and 'protecting' foreign investment, trade and transit.*

In addition to this first layer of international law, another layer places limitations on how these transactions are conducted in order to prevent, most notably, adverse effects (negative externalities) on humans and the environment as 'third parties'. Two important observations are in order here. First, the limitations are not intended to ban or impede the transactions. Quite to the contrary, they are specifically designed not to excessively interfere with them.[72] For this reason, the rules introducing such limitations can be said to operate as an 'additional layer'. Secondly, the fact that these norms are 'additional' from the perspective of energy transactions does not mean that they are not constitutive in other contexts. A good example is provided by international human rights law. The fact that, in the energy context, human rights may operate mostly to prevent or mitigate the negative effects of energy activities on the integrity, private life and/or cultural expression of individuals,[73] does not mean that international human rights law is 'additional' as a general matter. In fact, the prism of 'branches' is only partly adequate as 'international human rights law' does not only impose 'additional' limitations on the conduct of energy activities; it also generates entitlements over energy resources (e.g. the collective right over natural resources or the extension of a people's right to self-determination through permanent sovereignty over natural resources).[74]

[72] See the discussion in the studies in n. 70.
[73] See Chapter 3.
[74] See Chapter 2.

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These two observations introduce important caveats and must be kept in sight when stating that, from an energy perspective, *the international law regulating the negative externalities of international energy transactions is mainly – but certainly not only – provided by international human rights and environmental law*.

V Three Approaches to the Regulation of International Energy Transactions

5.1 Overview

Three main approaches to the regulation of international energy transactions can be extracted from an examination of international legal practice. I shall refer to them as the *foundational*, *ad hoc*, and *centralised* approaches. Before presenting each of them and their interactions, two clarifications are in order.

First, the term 'approach' is used as a synonym of a conceptual or analytical 'prism' through which a set of rules, whether expressly interrelated or not, are considered together from the perspective of their relevance for energy as a legal object. For example, the right of peoples to self-determination, the rules relating to State powers over the continental shelf, the rights and duties of an occupying power over the resources in the occupied territory, the principle of prevention of environmental harm, and bilateral investment treaties have little in common as regards their emergence, content and application. Yet, as discussed in Chapters 2 and 3 of this book, through the prism of the foundational model, they are sources from which to derive the rules shaping three main issues: the conferral and allocation of entitlements over energy, the enabling and protection of international energy transactions, and the regulation of the negative externalities of such transactions on humans and/or the environment. Thus, through this prism, an unconnected set of rules is analysed together from the perspective of its relevance to energy as a legal object. The three approaches must be understood as artificial analytical lenses, the only purpose of which is to bring into view the relevance of a certain set of rules for energy as a legal object.

Secondly, the distinctive features of each approach can be derived from three main criteria, namely (1) the level of specificity of the relevant rules, which ranges from broad and unspecific sets of rules which were not designed to apply to energy but nevertheless do so (e.g. non-discrimination standards in international trade law or general human

rights) to very specific sets of rules expressly designed to govern one or more aspects of energy as a legal object (e.g. a joint development agreement or a pipeline agreement); (2) the 'transversality' or 'verticality' of the relevant rules, with 'transversality' understood as rules that govern certain aspects of energy as a legal object (e.g. 'trade' in energy goods or services; protection of energy 'investments'; conditions for the maritime transportation of oil to prevent 'operational' or 'accidental discharges'; human rights to life, health, private and family life, culture, property etc. of populations affected by energy-related activities) and 'verticality' understood as narrower but deeper regulation (e.g. general legal framework applicable to a specific hydrocarbons deposit or to a hydroelectric project, under which maritime disputes are suspended, joint ventures are formed, licences are issued, contracts are entered into, proceeds are distributed); and (3) the spatial scope of application of the relevant set of rules, which ranges from universal application (e.g. some customary norms), to multilateral application (with a wider – e.g. the GATT, the ICCPR or the ECT – or narrower – e.g. some pipeline agreements – scope depending on the treaty), to bilateral application (e.g. joint development agreements).

These criteria are intended to describe the 'sets of rules' brought into sight by each one of the three approaches, rather than the approaches as such. Thus, the *foundational approach* encompasses rules that are typically – but not exclusively – unspecific, transversal and from universal to bilateral, the *ad hoc approach* covers rules that are specific, vertical and narrowly multilateral or bilateral, and the *centralised approach* encompasses rules that are specific, transversal and multilateral. It also relies on bilateral agreements concluded under the aegis of or to support the multilateral regime. Figure 1.3 summarises this basic characterisation.

The way in which the features of this comparative characterisation find expression in each approach requires further elaboration to be properly

Approaches	Specificity		Angle of incidence		Spatial scope			
	Unspecific	Specific	Transversal	Vertical	Universal	Multilateral		Bilateral
						Wide	Narrow	
Foundational								
Ad hoc								
Centralised								

Figure 1.3 Comparative characterisation of approaches.

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understood. This is discussed next and in each of the two chapters examining in detail each approach.

5.2 *Foundational Approach*

The foundational approach covers a range of otherwise unconnected sets of rules which are typically – but not exclusively – unspecific, transversal and range from universal to bilateral. These rules govern (1) the conferral and allocation of entitlements over energy, (2) the enabling and protection of international energy transactions (issues such as investment, trade and transit), and/or (3) the regulation of the negative externalities of such transactions on humans and/or the environment.

Given the nature and importance of the questions governed by this broad set of rules, the lack of specificity is a particularly salient feature. It explains why a very significant part of the international law of energy remained, until recently, beyond the radar of legal scholars working on energy or was analysed in an issue- or branch-specific manner. In the last decade, a significant body of scholarship has clarified the relevance for energy of subjects such as trade law, foreign investment law, environmental law, human rights or the law of the sea.[75] It also explains why the rules covered by this approach are fragmented, i.e. derived from a wide range of sources mostly with a universal or multilateral scope, and fragmentary, i.e. addressing only certain transversal areas rather than fully governing a given energy project.

A complex question arising from the lack of specificity is where to draw the line between relevant and irrelevant rules. The answer is twofold. From a practical perspective, the answer will depend on the factual circumstances that call for the application of international law. For example, the rules circumscribing the right to self-defence in general international law were relevant to decide the dispute arising from the destruction, by US forces, of two Iranian oil platforms in the late 1980s. To the extent that the incidents disrupted oil supply, the determination of their legality was relevant from an energy governance perspective.[76] Yet, such practical relevance is case-specific and, therefore, insufficient to identify the rules that are generally relevant for global energy governance.

[75] See the extensive body of scholarship referred to in the introduction with respect to these subjects. More specific topical studies are mentioned in Chapters 2 and 3.

[76] See *Oil Platforms (Islamic Republic of Iran v. United States of America)*, Judgment, ICJ Reports 2003, p. 161.

From a theoretical perspective, a clearer line is therefore needed to delimitate the rules of international law that, although unspecific, are generally relevant for energy. The criteria for the recognition of such rules stem from the regulated objects. As noted earlier in this chapter: (1) some rules *confer* and *allocate* entitlements over energy as a legal object, (2) other rules *enable* and *protect* international energy transactions, and (3) yet other rules *place limitations on the adverse effects* that such transactions may have on humans and the environment.

The interconnections between these three categories of rules are fleshed out in Chapters 2 and 3, but, for present purposes, it can be summarised as follows: norms conferring entitlements are constitutive of powers over energy, but they also entail prerogatives over the conduct of energy transactions. Yet, such prerogatives are subject to two types of limitations, depending on their overall goal. Some limitations constrain the exercise of prerogatives in order to enable and protect international energy transactions. Some other limitations constrain the previous type of (enabling/protecting) limitations in order to pursue other goals, i.e. the protection of humans and the environment from adverse side effects. From the perspective of the distinction between transactions and externalities, the rules conferring and allocating entitlements over energy and those enabling and protecting international energy transactions organise the 'transaction' as a whole, whereas those placing limitations on the transaction address its negative externalities.

Importantly, considered together, the rules relevant for all three categories lay the foundations for other much more specific rules to operate, including the rules that will be examined in the context of the *ad hoc* and *centralised* approaches. Hence the 'foundational' character of these broader rules.

5.3 *Ad Hoc Approach*

Compared to the foundational approach, the rules encompassed by the *ad hoc* approach are specific, vertical and either bilateral or narrowly multilateral. They have, for this reason, received sustained attention in the literature.[77] But this initial characterisation must be further elaborated upon in order to understand how these rules govern energy.

[77] See the extensive body of scholarship referred to in the introduction with respect, most notably, to joint development agreements. More specific topical studies are mentioned in Chapters 4 and 5.

As regards their specificity, the focus is not merely on 'energy' but on a specific energy deposit (e.g. an oil or gas field stranding the land or maritime areas of two or more States or located in a disputed area) or even a project (e.g. a specific binational or plurinational hydroelectricity project, a specific pipeline project or, more recently, a jointly undertaken project to develop an offshore windfarm and/or electricity transmission lines). The organisation of the exploitation of a specific deposit or the development of a specific project often requires a deeper – vertical – body of rules under the umbrella of the relevant agreement. This takes the form of a layered set of arrangements bringing together not only States as such but a range of other entities, such as public and/or private companies, financiers, contractors and consultants, and affected stakeholders, which may all be given a role in the relevant arrangements. Also as a result of the deposit- or project-specific focus, the agreements on which such regulation is based tend to be bilateral or narrowly multilateral in scope, encompassing only those States which participate in the project. In some cases, the limited scope of such agreements is, as such a problem, if it leaves out States that may be affected by the project. Such States can only rely on the broader rules encompassed by the foundational approach, which remain generally applicable to an extent which is sometimes undefined.

The latter point raises a common difficulty arising from *ad hoc* approaches to energy governance, namely that specificity of the arrangements may deliberately or inadvertently result in some degree of 'insulation' of the project from the generally applicable international and domestic law. That, in turn, requires some clarification of the interactions between different norms – general and specific – particularly those aimed at limiting the negative externalities of the energy transaction envisioned in the *ad hoc* instruments. Figure 1.4 represents graphically the relations

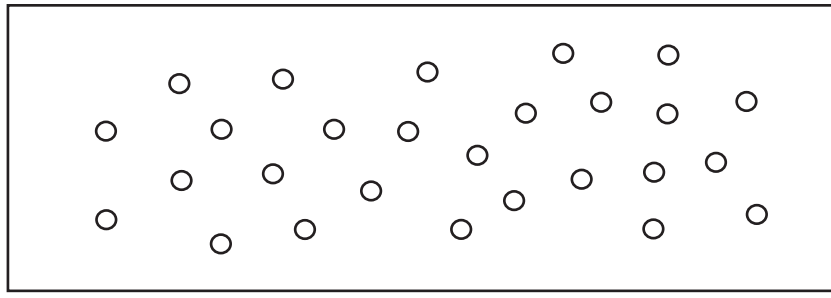

Figure 1.4 Relations between approaches.

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between the rules covered by the foundational (overall rectangle) and *ad hoc* approaches (small circles).

As noted in the previous section, one definitional feature of the rules encompassed by the foundational approach is precisely their foundational character: they are the building blocks upon which more specific rules can be developed for a given deposit and/or project. The specific articulation of these rules is not legally organised at the level of the approach. Approaches are mere analytical lenses to bring into sight a certain set of rules to be considered together. As further discussed in Chapters 4 and 5, normative interactions must be analysed in most cases at the level of each norm to determine whether one displaces the other or both apply together in a certain manner.

5.4 *Centralised Approach*

Compared to the foundational and *ad hoc* approaches, the centralised approach encompasses rules that are specific, transversal and multilateral. However, as noted earlier, it also relies on bilateral agreements concluded by States participating in the centralised or proto-centralised regime in order to support this regime or complement it in aspects not covered by it (e.g. nuclear cooperation agreements or safeguard agreements).[78] Thus, the spatial dimension of the rules encompassed by this approach are necessarily multilateral to some extent and possibly bilateral, but – unlike the *ad hoc* approach – they cannot be limited to the latter. Another related difference with the *ad hoc* approach is that, due to their overall supportive character, these bilateral agreements do not seek to insulate the transaction from the broader centralised or proto-centralised regime.

As regards differences between the centralised and the foundational approaches, although both rely on multilateral agreements, the rules covered by the centralised approach focus specifically on the governance of energy. Such specificity is not organised around a deposit or a project either, but focuses on particular energy resource (nuclear energy, oil, gas, renewable energies etc.). Importantly, such focus defines the mandate and functional scope of the institutional component of the regime. Centralised and proto-centralised approaches are indeed characterised by the establishment of an international organisation (e.g. the

[78] See Chapter 6.

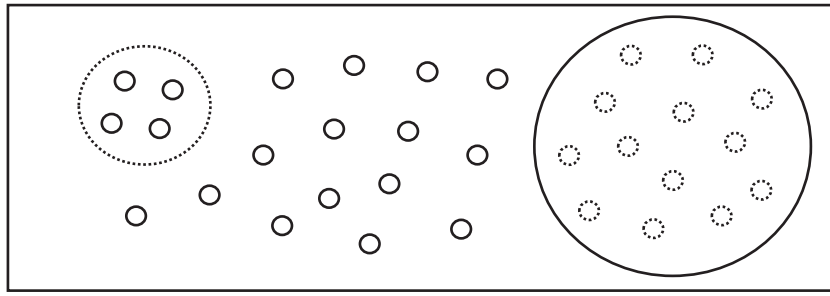

Figure 1.5 Relations between approaches (suite).

International Atomic Energy Agency (IAEA)) designed to serve as the epicentre of the efforts to govern a certain energy resource at the international level. Such efforts are fleshed out legally in form of a transversal governance framework which is sufficiently comprehensive, encompassing the 'life-cycle' of the relevant form of energy, rather than a specific aspect or activity. In order to perform its steering role, the organisation enjoys some measure of formal or informal normative power.

In centralised regimes, such as the governance of nuclear energy, these distinctive features are more clearly fleshed out than in proto-centralised regimes, such as those concerning oil (based on a combination of the OPEC, the IEA and the International Energy Forum (IEF)) or renewable energy (based on the IRENA but also on the IEA, with the two organisations in a relation of partial cooperation and partial competition).[79] The different levels of centralisation are depicted in Figure 1.5 by the use of a full line in the large circle (centralisation, e.g. the IAEA) and a dotted line in the smaller circle (proto-centralisation, e.g. the OPEC/IEA/IEF or the IRENA). The small circles represent the deposit- or project-specific ad hoc arrangements. Some of them are drawn with a dotted line to represent the different role of bilateral agreements which are supportive of a broader centralised regime (e.g. a safeguards agreement is clearly different in nature from a joint development agreement in its scope and function). The emphasis is placed here on the large circle (drawn with a full line) which provides the centre of gravity of the regulation. Conversely, for proto-centralised regimes relating, for example, to oil, gas or renewable energies, the centre of gravity is clearly on the *ad hoc* regime (hence the full line in the small circles) rather than in the broader

[79] On these and other organisations see Chapter 7.

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cooperative framework (drawn with a dotted line). The overall rectangle represents, as before, the rules covered by the foundational approach.

Whereas Figure 1.5 offers only a very broad representation of the overall structure of the international law of energy, it has the advantage of being simple and encompassing. A more granular representation would admittedly require shades that Figure 1.5 cannot possibly capture. Moreover, the question of normative interactions mentioned in the previous section becomes even more complex when the additional layers of the centralised approach are considered. Ultimately, legal analysis is – and must be – case-specific, and no overarching representation can be fully accurate. But the goal of the analytical framework introduced in this chapter and summarised in Figure 1.5 is only (and specifically) intended to frame the field or, in other words, to frame how international law as a whole regulates international energy transactions.