Introduction and Objectives

Energy is all around us. It comes in many forms and, just as much as the air we breathe and the water we drink, is essential for our survival. Energy is also ever-changing and in transition. Up until the end of the nineteenth century we were burning wood and peat as the main fuels to keep our houses warm and our economies going.[1] Industrialization transported us into the age of coal, which lasted until the middle of the twentieth century. This energy transition was soon followed by yet another one: oil overtook coal as our primary fuel after large discoveries of petroleum at the close of the nineteenth and start of the twentieth centuries.[2] The ensuing establishment of huge multinationals extracting oil caused a steep increase in its global consumption and trade.[3] The oil age placed us under the spell of 'black gold' from the second half of the twentieth century onwards. Added to which, the 1970s oil crises made it painfully clear how dependent the world was on oil and what turmoil follows if supplies are hampered.

At the beginning of the twenty-first century, large shale gas discoveries, especially in North America, heralded the dawn of the natural gas era we are experiencing today.[4] At the same time, we have become confronted with the fact that the fossil fuels we have so eagerly burned over the past

[1] V Smil, *Energy Transitions: History, Requirements, Prospects* (Praeger 2010) 25ff; see also US Energy Information Administration, 'Energy sources have changed throughout the history of the United States' (*Today in Energy*, 3 July 2013) <www.eia.gov/todayinenergy/detail.php?id=11951> accessed 20 July 2020.

[2] See D Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (Free Press 2008) ch 6 'The Oil Wars: The Rise of Royal Dutch, the Fall of Imperial Russia'.

[3] See eg US Energy Information Administration, Data on US imports of crude oil 1920–2020 <www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRIMUS1&f=M> accessed 20 July 2020.

[4] See D Yergin, *The Quest: Energy Security and the Remaking of the Modern World* (Penguin Press 2011) ch 16 'The Natural Gas Revolution'.

century have brought a negative externality: climate change.[5] As a consequence, our collective ambitions compel us to transition once more into an era of clean energy and to provide for our needs in a competitive, secure, sustainable and CO_2 neutral way.

These energy transitions have changed our stance towards energy. Industrialization was primarily focused on ever-growing production and consumption, but in 2020 the need for a new approach oriented towards sustainable development and climate change mitigation can no longer be ignored. Yet, the rise in the global population means that the world's energy consumption keeps on increasing, despite our ongoing efforts to curb emissions.[6] What is more, as globalization increases, so does international trade in energy, causing international trade rules to come into play.

The relevance of multilateral energy trading rules was for a long time overlooked, downplayed and underestimated. One explanation for this may be that for many years energy was almost exclusively traded by international, vertically integrated and often state-owned companies. However, the above-mentioned transitions have changed the global energy trading landscape significantly. The energy trade is no longer confined to oil tankers transporting barrels from the Gulf; it now extends to wind turbines and solar panels. The last three decades have indeed brought revolutionary advancements in renewable and clean energy. The clean energy transition has been accompanied by increasing regulation, which in turn has triggered disputes in the context of the World Trade Organization (WTO).[7] And this rise in international trade disputes relating to both renewable and non-renewable energy has led to a growing awareness of the importance of regulating international trade in energy. Moreover, an increasing number of major energy producing, exporting and transporting countries are joining the WTO,

[5] The Preamble to the COP21 Paris Agreement states: 'Recognizing that climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions'. United Framework Convention on Climate Change (UNFCCC), 'Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015' (29 January 2016) UN Doc FCCC/CP/2015/L9/Rev 1, 2.

[6] IEA, 'World Energy Outlook 2019: Executive Summary' (2019) 1.

[7] See eg *Canada – Renewable Energy / Canada – Feed-In Tariff Program*, panel and Appellate Body reports.

acceding to the Energy Charter Treaty (ECT) and/or concluding preferential trade agreements (PTAs) that include provisions relevant to energy.

This book offers an in-depth study of energy regulation in international trade law against the backdrop of energy markets that have radically changed over recent decades. In Part I, through a thorough discussion of the concepts, history and law of various legal frameworks applicable to international energy trade, it seeks to clarify what we mean by 'energy' in the context of international trade rules. Part II then addresses the relationship between the existing rules and the huge challenges faced by energy markets today – notably, their decentralization and decarbonization – in the light of the ongoing quest for energy security. Through several case studies, it will demonstrate that current international rules are often unable to meet the challenges faced by today's changing energy markets.

Chapter 1 discusses energy as a concept that has transformed over time and explains how the rules of international trade law are relevant to the energy sector, paying particular attention to the challenges of decarbonization, decentralization and energy security. Chapter 2 examines the treatment of energy from the inception of the General Agreement on Tariffs and Trade (GATT) in 1947 to the present time. Chapter 3 continues by discussing the current legal framework of the WTO, providing an overview of WTO agreements relevant to energy. It is here that we expose some challenges – such as export restrictions and fossil fuel subsidies in the energy sector in the light of international trade law – which will be further elaborated upon in Part II. Chapter 4 enquires into energy commitments beyond the WTO, namely in the ECT and in selected PTAs. By means of a comparative study, the chapter scrutinizes the nexus between the WTO and the ECT. It looks at the interplay between these international treaty regimes, including their overlap and potential conflict. Chapter 5 introduces the second part of the book and considers the challenge of decentralizing energy markets. It lays bare the difficulties WTO law has with respect to strategic, unevenly distributed natural resources and cartels maintained by states. It does so by taking the practices of the world's best-known energy cartel, the Organization of Petroleum Exporting Countries (OPEC), as an example. It additionally looks at decentralization policies put in place by the European Union (EU) and how international trade rules enable or constrain such policies. Chapter 6 examines the challenge of decarbonizing energy markets by looking at the treatment of environmentally harmful fossil fuel subsidies

under WTO law. Lastly, Chapter 7 sheds light on the growing relevance of energy security in international trade law, including its use as a defence in WTO dispute settlement. By way of conclusion, Chapter 8 considers some policy options for enhanced energy governance at the institutional level.

At the time of writing, the multilateral trading system is undergoing a deep crisis. Energy is by no means the only subject in need of revision within the global trading system but is certainly a topic that, given today's changing markets, can no longer be overlooked.

PART I

Energy in International Trade Law: Concepts, History and Legal Framework

1

Energy in the Context of International Trade Law: Concepts and Changing Markets

1.1 Introduction

This book studies the regulation of energy in international trade law in the light of changing markets. To understand how the rules of international trade law are relevant to energy, it is first necessary to conceptualize what is meant by the elusive term 'energy' used throughout this monograph. The purpose of this introductory chapter is therefore threefold: (1) to explain energy as a concept that has transformed over time and highlight the difference between primary, secondary, renewable, clean and non-renewable energy sources; (2) to describe how the rules of international trade law are relevant for the energy sector in general including how various types of energy are classified in the Harmonized System Convention[1]; and finally (3) to explores what major changes energy markets have undergone in recent decades, focusing on decarbonization, decentralization and the eternal quest for energy security.

1.2 Framing Energy: Defining an Evolving Concept

The term 'energy' has many meanings. In everyday language it covers many things, from globally traded fossil fuels such as crude oil and natural gas to the heat and electricity those fuels generate and on which our cities depend.[2] This, however, is rather a crude description of

[1] The HS Convention (International Convention on the Harmonized Commodity Description and Coding System (adopted 14 June 1983, entered into force 1988) 1503 UNTS 167) is the system according to which all schedules are structured; see World Customs Organization <www.wcoomd.org/home.htm> accessed 20 July 2020.

[2] The Oxford English Dictionary defines energy, inter alia, as '[p]ower or force derived from the exploitation of physical and chemical resources in order to operate machines and devices, to provide light and heat, etc., and frequently regarded as a resource or commodity' <www.oed.com> accessed 2 October 2019.

a process that in reality is not so straightforward. The generation of energy in the conventional sense involves, first, the extraction of some natural resources or raw materials, which are then traded as fossil fuels (such as crude petroleum or natural gas), after which they undergo a combustion process to create energy (power and heat) by the laws of physics.[3] The question, then, is at what stage in this process we should label something as 'energy'. Can fossil fuels, for instance, be considered as 'energy' before they are extracted from the ground? Or is 'energy' rather the electricity generated by these raw materials and distributed through grids to power our homes and offices?

Furthermore, energy is an evolving concept; what we understand by it has been shifting over time. Before industrialization, wood – a renewable, though not very clean, source of energy – was the primary fuel used by mankind.[4] From industrialization to the moment when the first modern-day renewables arrived on the scene in the 1970s or thereabouts, energy generally meant fossil fuels such as crude petroleum, coal and natural gas, and the electricity, power and heat generated from them.[5] Since then, our understanding of 'energy' has changed yet again, as it now extends to clean and renewable sources from which energy can be generated, such as wind, water and sunshine.

To unravel the legal questions raised by energy regulation in international trade, we therefore first need to find a common understanding of the defining concept of energy. For the purpose of this study, it is important to explain and dissect the concept of energy and classify its different forms into workable definitions for two reasons. Identifying the different types of energy that exist and their distinctive characteristics enables us, first, to better understand how this influences the various aspects of their tradability and, second, to associate the different types of energy with the appropriate agreements in international trade law. For example, does a particular type of energy qualify as a good or rather

[3] In physics, energy is defined as '[t]he potential or capacity of a body or system to do work by virtue of its motion, position, chemical structure, etc., frequently regarded as a quantifiable attribute or property which can be acquired, transferred, and expended' <www.oed.com> accessed 2 October 2019.

[4] See Food and Agriculture Organization of the United Nations (UNFAO), 'Wood Energy' <www.fao.org/forestry/energy/en/> accessed 20 July 2020.

[5] The (renewed) interest in renewable energy technologies only arose during the 1973–74 oil embargo, when several technically viable solutions emerged; see B Sørensen, 'A History of Renewable Energy Technology' (1991) 19 Energy Policy 8, 10.

a service?[6] Do the processes of extracting and selling a tradable product, typical of the energy sector, contain aspects of both?[7] And, with regard to non-discrimination, do we consider two particular energy products as like or unlike each other? Can natural gas be equated with liquefied natural gas (LNG), and fossil fuels with renewables?[8] Similar questions arise in relation to electricity generated by different means (eg from coal or through solar power).[9] The first part of this chapter will therefore seek to provide a better understanding of energy (and terms often used interchangeably with 'energy' like 'natural resources' and 'raw materials').

In the discipline of energy statistics, the term 'energy' traditionally refers to heat and power generated through combustion, as in the burning of fossil fuels[10]. However, the term is also commonly used more broadly to refer to fuels, gas and electricity. 'Energy commodities' would therefore seem to be a more precise way of referring to heat and power and the means used to produce them.[11]

In this book, in keeping with common usage, 'energy' will refer to the means by which the power and heat we rely on in our everyday lives are generated, and will cover both renewable, clean and non-renewable sources. It should also be pointed out that this study focuses on energy as a commodity tradable across international borders and for commercial

[6] This is pertinent to the divide between the General Agreement on Tariffs and Trade 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A (signed 15 April 1994) 1867 UNTS 187, 33 ILM 1153 (1994) (GATT) and the General Agreement on Trade in Services, Marrakesh Agreement Establishing the World Trade Organization, Annex 1B (signed 15 April 1994) 1869 UNTS 183, 33 ILM 1167 (1994) (GATS).

[7] WTO, Council for Trade in Services – Energy Services – Background Note by the Secretariat' (9 September 1998) Doc S/C/W/52, 1–4.

[8] On the likeness of LNG and pipeline transport services and service suppliers, see *EU – Energy Package*, panel report, paras 7.1398–7.1439. See also DC Crosby, 'Energy Discrimination and International Rules in Hard Times: What's New This Time Around, and What Can Be Done?' (2012) Journal of World Energy Law and Business 1, 9.

[9] These are complex questions, to which the answers may vary depending on the case and context. See Crosby (n 8) 9–11, pointing out that this debate remains open since some process and production matters can differ widely yet result in the same end product (electricity). On cross-border electricity trade generally, see also T Cottier and I Espa (eds), *International Trade in Sustainable Electricity* (CUP 2017).

[10] The second law of thermodynamics imposes limitations on the capacity of a system to transfer energy by performing work, since some of the system's energy might necessarily be consumed in the form of heat instead; see eg RL Lehrman, 'Energy Is Not the Ability to Do Work' (1973) 11 Physics Teacher 15, 15–18.

[11] OECD, IEA and Eurostat, *Energy Statistics Manual* (OECD/IEA 2005) 17.

gain. It will follow the classifications of energy sources developed by the International Energy Agency (IEA) in cooperation with the United Nations Statistics Division (UNSD),[12] while also making use of the more elaborate definitions and explanations found in the data and reports of several international organizations dealing in detail with the topic, such as the United Nations Conference on Trade and Development (UNCTAD), the Organisation for Economic Co-operation and Development (OECD), Eurostat, the World Trade Organization and the World Customs Organization (WCO).

Below we focus in particular on primary and secondary energy commodities and the related concepts of natural resources and raw materials. These four expressions closely interrelate and overlap with each other and are frequently confused through being used interchangeably. We will also consider another, parallel divide, namely between non-renewable, renewable and clean energy.

1.2.1 *Natural Resources and Raw Materials*

Natural resources are relevant to energy, as they ultimately are to all goods, whose production depends on them or can be traced back to them in one way or another.[13] Natural resources are the starting point of all products we use, and thus for all forms of energy, too. Taking this line of argument to the extreme, all goods could thus logically be labelled natural resources. However, it would be unworkable to do so and of little practical use.[14] Although manufactured goods are made of natural resources, we generally do not consider them as such in themselves. The opposing argument would be to say that the resources we use are truly natural resources only when they are found in their natural state, in other words not yet harvested or processed for economic gain.[15] Yet this view, too, falls short, since natural resources do have to be processed in one way or another before they can be used for economic gain, as when they are traded, for example. It follows that the dividing line between what is to be considered a natural resource and what not will at times be subjective and have to be decided on a case-by-case basis.[16] There is no strict legal definition of the term 'natural resources', although the

[12] See <www.iea.org> and <https://unstats.un.org/> accessed 20 July 2020.
[13] WTO, *World Trade Report 2010: Trade in Natural Resources* (WTO 2010) 46.
[14] ibid.
[15] ibid.
[16] ibid.

definition of the related term 'biological diversity' can help to give us a better understanding of what natural resources are.[17] According to Article 2.1 of the 1992 UN Convention on Biological Diversity, this term refers to 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part'. Beyerlin and Holzer correctly submit that the expression 'natural resources' is broader than 'biological diversity', as natural resources cover 'not only the total of living organisms, in particular the variety of species of flora and fauna, but also non-living organisms which are not part of "biological diversity", such as water, soil and land'.[18] Dam-de Jong cites definitions that describe natural resources as 'those materials and substances of a place which can be used to sustain life or for economic exploitation' and as 'any material from nature having potential economic value or providing for the sustenance of life'.[19]

The World Trade Organization's *World Trade Report 2010*, whose focus was trade in natural resources, likewise adopts a perspective oriented towards consumption and economic gain, describing natural resources in terms of their tradability as 'stocks of material that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing'.[20] The main product groups the WTO identifies as natural resources are fish, forestry products, fuels, ores and other minerals, and non-ferrous metals (the last two groups are jointly referred to as mining products).[21] Similarly, the OECD describes natural resources as 'natural assets (raw materials) occurring in nature that can be used for

[17] Several authors have attempted to define the concept; see U Beyerlin and V Holzer, 'Conservation of Natural Resources' in R Wolfrum (ed), *Max Planck Encyclopedia of Public International Law* (OUP 2008) online edn.

[18] ibid.

[19] D Dam-de Jong, *International Law and Governance of Natural Resources in Conflict and Post-Conflict Situations* (CUP 2015) 24. The definitions are respectively from the Oxford English Dictionary Online and *Black's Law Dictionary*, which also describes them as 'raw or unprocessed material[s] that [are] extracted or harvested and also require very little processing before consumption'. See also N Schrijver, *Development without Destruction: The UN and Global Resource Management* (UN Intellectual History Project Series, Indiana University Press 2010) 2–3.

[20] The WTO further explains that 'scarce and economically useful' means that the natural resources 'must command a positive price in markets and can be used either as inputs in production or directly as a source of utility to consumers'; see *World Trade Report 2010* (n 13) 46, 71.

[21] ibid.