

The fragmented governance of the global energy economy: a legal-institutional analysis

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The objective of this article is to promote global energy security by evaluating the existing patchwork of institutions and processes linked to the governance of the global energy economy. What we mean by 'global energy security' is the satisfaction of humankind's energy needs to maintain lifestyle levels in the developed world and to promote development and improve the quality of life across the world, including least-developed and developing countries.

The article focuses on the global energy economy, its fragmented governance and its implications for global energy security. Inter-State governance over the global energy economy is neither global nor cohesive. Rather, the various aspects pertinent to it—among others, economic development, climate change, trade, investment protection, finance and human security—are managed in a disparate and disjointed manner. What is more, the absence of a global energy security regime to address 'global'—ie humankind's collective—energy needs justifies the need to investigate the implications of the current state of play for global energy security.

To do so, the article will examine all relevant institutions and processes linked to the global energy economy in order to assess their individual and combined implications for global energy security. This article therefore aims to promote an understanding of, and an attitude towards, the global energy economy that acknowledges that it is a composite affair with a high degree of interplay between its constituent parts, and that there are systemic reasons why the current state of play fails to address global energy security needs.

The aim of the article is to perform an extensive mapping-out and analysis of the institutions and processes linked to the governance of the global energy economy, and of those purportedly concerned with global energy security, in order to answer the following three questions:

1. How does the current governance system of the global energy economy affect global energy security?
2. What challenges does the current global energy governance system pose to global energy security?
3. Which models of global energy governance should be applied to promote and improve global energy governance generally and global energy security in particular?

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1. Introduction to global energy governance: an inescapable eventuality or an elusive dream?

Energy engages almost every aspect of human endeavour in modern times. In the words of the Secretary-General of the United Nations (UN) Ban Ki-moon: 'it is unimaginable that today's economies could function without electricity and other modern energy services. From job creation to economic development, from security concerns to the status of women, energy lies at the heart of all countries' core interests.'¹ Moreover, according to the International Energy Agency (IEA), 'energy alone is not sufficient for creating the conditions for economic growth, but it is certainly necessary. It is impossible to operate a factory, run a shop, grow crops or deliver goods to consumers without using some form of energy'.² Furthermore, energy is the mainstay of today's economy in the developed world, in the rapidly industrializing developing world and in other parts of the world. Such is its importance to the modern economy that energy security has been linked to national security. Yet one in five people in the world today has no access to electricity,³ and there are large inequalities in per capita electricity consumption across countries (see Figure 1). Such inequalities often have their roots in history, but some crucial questions arise: Is the global energy economy being collectively managed in an effective way that is steering us towards greater energy security for all? Is the global governance framework for energy security comprehensive and inclusive?

Understandably, therefore, any inordinate disruption to energy supplies—the 'oxygen' of the economy⁴—would make any State's government particularly twitchy. Power cuts and fuel shortages are the sort of events that have repercussions for all fields of economic activity and that powerfully impress images of State failure on the public imagination. This—coupled with the fact that the current mainstay of the energy supply disproportionately relies on fossil fuels (ie petroleum, gas and carbon)⁵ that are finite, unevenly distributed and highly polluting—necessarily makes energy an ostensibly global issue given, among other things, energy's climatic, transport and economic development implications. In other words, it is a common concern for all of humanity.

Initial investigation has revealed that 'global energy governance' today is a theoretical concept that does not exist in actuality; there is a marked absence of a global mechanism—or cohesive set of mechanisms—purposely set up by the international community to address its collective energy security needs. What we have instead is a mixed bag

¹ 'Sustainable Energy for All' (2011) 2, <http://www.sustainableenergyforall.org/component/k2/item/download/40_1ea311a9f4d9afc3772cdf137bf25e09> accessed 14 July 2013.

² <<http://www.worldenergyoutlook.org/resources/energydevelopment/accesstoelectricity/>> accessed 14 July 2013.

³ W Hongbo, Keynote address at the Sustainable Energy for All Ministerial Panel, Abu Dhabi International Renewable Energy Conference, 15 January 2013, <<http://www.un.org/en/development/desa/usb/statements/mr-wu/2013/01/sustainable-energy-for-all-2.html>> accessed 14 July 2013.

⁴ See Peter Voser's foreword to the World Economic Forum 2012 'energy vision update' report titled *Energy for Economic Growth* (at 2), <http://www3.weforum.org/docs/WEF_EN_EnergyEconomicGrowth_IndustryAgenda_2012.pdf> accessed 14 July 2013.

⁵ In 2009, 80.9 per cent of the 12,150 million tonnes of oil equivalent (Mtoe) global primary energy supply came from fossil fuels. In 1973, 86.6 per cent of the total global primary energy supply of 6,111 Mtoe came from fossil fuels. Although the share of coal and gas has increased at the cost of oil within the fossil fuel mix of primary energy supply over that period, oil continues to be the most dominant primary energy source, eg 46 per cent during 1973 and 32.8 per cent during 2009. See International Energy Agency, *Key World Energy Statistics* (2011) at 6.

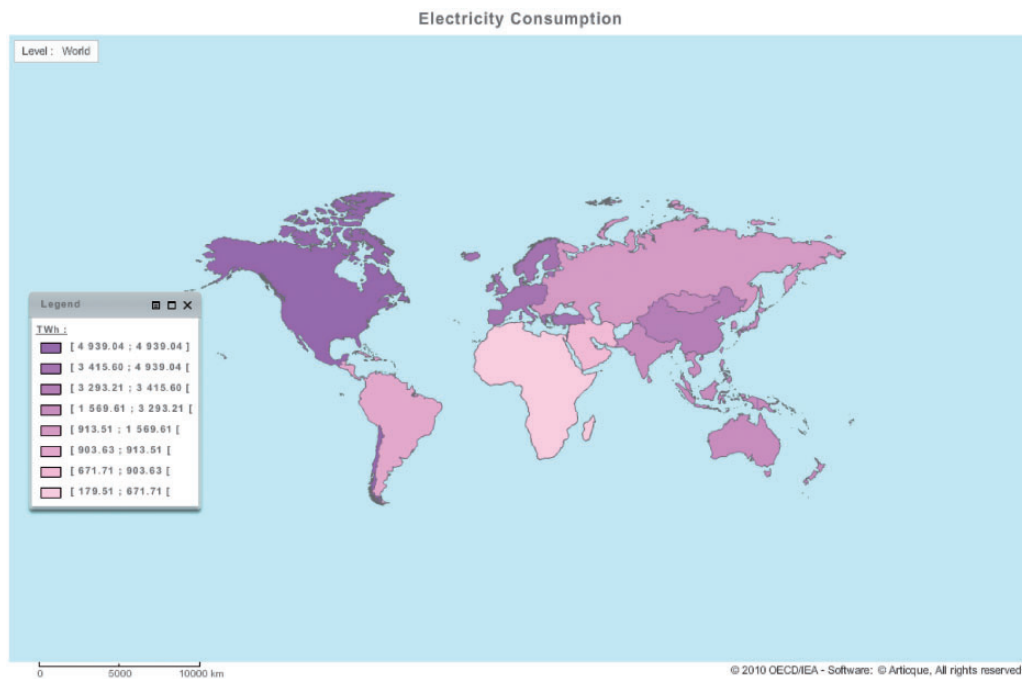


Figure 1. Per capita electricity consumption (2010).

of incidental outcomes arising from an array of disjointed institutions and processes operating at various scales (bilateral, regional, etc), often each with its own selective membership. The various initiatives span a wide range of energy-related topics pertinent to various countries, such as trade,⁶ investment protection⁷ and climate change,⁸ which are not necessarily functioning in coordination with each other. Overall, the global energy governance regime appears to be highly fragmented.

This article examines the structure, mandate, membership, regulatory framework and extent of interconnection of the various pieces that comprise the patchwork that forms global energy governance today. It aims to identify specific major omissions, failings and gaps in the global energy governance system. It concerns the relationship between, on the one hand, the various institutions at the inter-State level that are linked to the global energy economy, and, on the other, global energy security as a common concern of the global community of sovereign actors. The very nature of energy—namely, its centrality to almost every field of human endeavour—and the very nature of traditional energy resources—namely finiteness, patchy global distribution and high desirability—lead to the politicization of energy by creating the conditions for intense competition for control

⁶ R Leal-Arcas, 'Proliferation of Regional Trade Agreements: Complementing or Supplanting Multilateralism?' (2011) 11(2) *Chicago Journal of International Law* 597–629.

⁷ R Leal-Arcas, 'The Multilateralization of International Investment Law' (2009) 35(1) *North Carolina Journal of International Law and Commercial Regulation* 33–135.

⁸ R Leal-Arcas, 'Unilateral Trade-related Climate Change Measures' (2012) 13(6) *The Journal of World Investment and Trade* 875–927.

over energy resources between actors.⁹ The global energy economy engages all types of inter-State policy fields, including those of monetary policy and finance; trade and investment; environmental protection; human security;¹⁰ corruption;¹¹ and energy security.¹² While energy supply and consumption are important aspects of the global energy economy,¹³ they do not exist in an equilibrrious relationship. Rather, they are heavily mediated by political considerations and by the very operation of global markets, which dictate the extent to which energy needs are ultimately met.¹⁴ Moreover, this article seeks to enumerate and discuss the principal normative aspects of the global energy economy, including the relevant institutional architecture and legal norms involved in its 'governance'.¹⁵

We argue that the currently fragmented and multi-layered global energy governance is not conducive to energy security that is truly global for a number of reasons. Despite the seeming overlaps between institutions and regimes dealing with the global energy governance system, gaps seem to emerge where one to examine it in relation to its capacity to address global energy governance issues.¹⁶ It is not surprising that the current governance system over the global energy economy fails to address global energy security needs. A plausible way to improve global energy security for the near future is to promote more cohesive models and methods of inter-State cooperation and to promote more cohesive collaboration among the various institutions and processes that are connected to the global energy economy. It is necessary to address the weaknesses of the current energy governance system due to its fragmented nature through cooperation and partnerships, whether bilaterally, regionally or multilaterally. A thorough assessment of the evolution and workings of the current global energy governance regime is necessary, for which we need to consider the following factors:

1. Lack of cohesiveness of the energy governance system: that is to say, the energy governance system exists incidentally as an aggregation of various institutions and processes linked to the energy economy. In fact, very little suggests that the

⁹ See A Anghie, *Imperialism, Sovereignty, and the Making of International Law* (CUP 2007); P Andrews-Speed (ed), *International Competition for Resources: The Role of the Law, the State, and of Markets* (Dundee University Press 2008); M Koskenniemi, *From Apology to Utopia: The Structure of International Legal Argument* (CUP 2005); N Schrijver, *Sovereignty over Natural Resources: Balancing Rights and Duties* (CUP 1997); M Sornarajah, *The International Law on Foreign Investment* (CUP 2004); B Sovacool and A Florini, 'Examining the Complications of Global Energy Governance' (2012) 30(3) *Journal of Energy and Natural Resources Law*; A Wenger and others (eds), *Energy and the Transformation of International Relations: Towards a New Producer-Consumer Framework* (OUP 2009); D Yergin, 'Ensuring Energy Security' (2006) 85(2) *Foreign Affairs*.

¹⁰ See RA Leibert, 'The War on Energy: Why the United States and the International Community need Cohesive Energy Infrastructure Security Policy' (2007) 29 *Houston Journal of International Law* 453 (regarding calls for military intervention to protect energy infrastructures).

¹¹ Transparency International and Revenue Watch Institute, Joint Report, *Promoting Revenue Transparency: Report on Oil and Gas Companies* (2011).

¹² G Luciani, *Security of Oil Supplies: Issues & Remedies* (Claeys & Casteels 2013).

¹³ D Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (Free Press 2008); D Yergin, *The Quest: Energy, Security, and the Remaking of the Modern World* (Penguin Press 2011).

¹⁴ Yergin (n 9).

¹⁵ Other commentators have tried a similar exercise. See Sovacool and Florini (n 9).

¹⁶ S Bhattacharyya, *Energy Economics: Concepts, Issues, Markets, and Governance* (Springer 2011); A Florini and BK Sovacool, 'Who Governs Energy? The Challenges Facing Global Energy Governance' (2009) 37 *Energy Policy* 5239–98.

international community handles the global energy economy as a cohesive entity or concept. In this respect, it lacks the ontological basis—that is to say, both the mandate and the cohesive structure—to address global energy security.

2. Fragmentation of the global energy governance regime:

(a) First, the fragmentation of the global energy governance regime reflects the progressive nature of its development. For instance, in 1947 a number of sovereign actors came together to lay down arrangements for the General Agreement on Tariffs and Trade (GATT) to provide disciplines focusing on global trade. Some years later, several States ratified the Kyoto Protocol in order to deal with greenhouse gas (GHG) emissions in the context of climate change mitigation. Although neither of the two examples (namely the trading system and the climate change regime) is exclusively concerned with the global energy economy, they are significant elements of the global energy economy's trade and climate change aspects, respectively.

(b) Secondly, the fragmentation of the governance system over the global energy economy may also be viewed as reflecting the fact that sovereign States engage with one another to the extent that it is in their national interest. Efforts among States to promote their collective—let alone universal—energy security are considerably undercut by systemic constraints: namely by the very nature of international relations that are profoundly conditioned by market dynamics and by the fact that the international community is composed of States fiercely defensive of their respective national interests.¹⁷

3. Plethora of relevant entities: there is a plurality of international institutions, organizations and bodies that affect the global energy economy. Moreover, there is an obvious diversity of interests, including conflicts of interests, at the national, regional and international levels, pertaining to the energy economy and energy security. This plurality of international organizations relating to global energy as well as the diversity and variety of energy interests illustrate the sophisticated and fragmented complexity of global energy governance. At the same time, they render global energy economy governance not only highly fragmented, but also incoherent, controversial and unstable, encompassing several conflicts of interests.

4. Diversity of energy sources: current over-reliance on traditional sources of energy (eg coal, petroleum, natural gas), which are finite and patchily distributed, leads to intense competition and renders energy security that is truly global less attainable.¹⁸ There have even been calls to defend energy infrastructure militarily.¹⁹ Were we to shift reliance of energy production to the exploitation of renewables (eg power derived from the sun, wind, oceans and from the heat of the earth), which are abundant, more sustainable and distributed more widely, the zero-sum logic that underlines inter-State energy relations could become obsolete.

¹⁷ See generally Wenger and others (n 9).

¹⁸ P Andrews-Speed (ed), *International Competition for Resources: The Role of the Law, the State, and of Markets* (Dundee University Press 2008).

¹⁹ See for instance Leibert (n 10).

5. Pursuit of national interests: for its most part, the genesis and evolution of international law suggests it to be a creature of consent between hegemonic States and, in the final analysis, to reflect the balance of their interests.²⁰ The international community is merely a totality of disparate actors in that sovereign States have distinct interests and disparate levels of economic strength. Inter-State cooperation takes place to the extent that the interests of the most influential States sufficiently coincide. On certain aspects of the global energy economy—namely in relation to its trade aspects—there is sufficient agreement of interests that has resulted in degrees of global governance; on others, there is not. For instance, the exploration, extraction, production and allocation of energy resources currently take place on a very different footing to that of addressing global energy security. Namely, it takes place to the extent that it is profitable to the actors at the various stages of energy exploration and exploitation.²¹ In an increasingly more globalized economy, in which, to paraphrase Henry Kissinger, sovereign States consider their national interests over their ad-hoc alliances, it is perhaps naïve to currently expect there to be sufficient political will to set up a global energy security governance regime. Or rather, it is perhaps naïve to consider that the international community is composed of States that are economically equal or whose interests are sufficiently aligned to make such a global governance regime likely.

Starting from a universal perspective, it becomes clear that there is no unitary, cohesive and comprehensive universal regime exclusively set up to address global energy security. One may view the UN Charter, and the organization it has set up, as providing some loose top-level global governance that has incidental implications for the global economy, including for the global energy economy. For instance, it contains a normative framework with which inter-State relations ought to comply. It effectively prohibits international acts of aggression and preserves sovereign prerogatives over domestic matters, including the management of natural resources and especially of energy-related resources.²² Other than this, arguably, there is neither a universal regime nor norms that could be said to be truly universal or that may be universally espoused. This is particularly the case in relation to the position under general international law relating to the protection of investor interests.²³

While one witnesses instances of inter-State cooperation on energy security, these are evidently not global. For instance, although the regime under the Energy Charter Treaty (ECT)—principally concerned with promoting trade and investment interests in the energy/extractive industries of its Members—may, at best, promote the energy security of its membership, it is not of universal scope. Indeed, by addressing the energy security of its limited membership, such a regime may incidentally undermine global energy security in ways that will be analysed later. Consequently, inter-State efforts relating to

²⁰ Koskenniemi (n 9); Anghie (n 9).

²¹ D Victor and L Yueh, 'The New Energy Order: Managing Insecurities in the Twenty-first Century' (2010) 89(1) *Foreign Affairs*.

²² Schrijver (n 9).

²³ Sornarajah (n 9).

energy security have not gone as far as to address global energy security needs. In that respect, the current plethora of institutions and processes linked to the global energy economy cannot be held to go far enough, in their combined effect, to address global energy security. There is a misalignment between their various purposes, which results in gaps and in an overall systemic failure when addressing global energy security.

Given the enormity of the subject in scope, it would be reasonable to assume that there is a high degree of international cooperation around the governance of energy.²⁴ In reality, as shall become clearer later, global energy governance—if indeed such a thing exists—is fragmented along thematic lines, and is normatively patchy at that (see Table 1). This is unsurprising given the realities of international cooperation. International cooperation does not occur on a disinterested basis; it occurs to the extent that it draws in the most influential States relevant to the matter in hand, and, conceivably, when their respective interests are sufficiently accommodated.²⁵

After a brief introduction in Section 1, Section 2 conceptualizes the article, while Section 3 provides a discussion on international cooperation in energy. Section 4 includes some key figures around global energy supply and consumption for one to gauge the extent of the global energy economy. Section 5 then examines what might be the impact of the key aspects of the global energy economy on global energy security. Section 6 concludes the article.

2. Conceptualization of the article

Some definitional issues first: a valid definition of global energy governance is the fact of ‘making and enforcing rules to avoid the collective action problems related to energy at a scale beyond the nation-state’.²⁶ By ‘global energy economy’, the authors mean a closed system or totality that one could consider to exist that contains the total global energy supply as well as the institutions and infrastructure that facilitate, or are engaged by, energy supply flows. This necessarily contains the global markets and any other pertinent systems and processes.

What is meant by ‘global energy security’ is, in the final analysis, the fulfilment of global energy needs. However, this notion still remains unclear. Depending on subjective factors, such as the distinct policy priorities of each State, this definition may be extended to mean ‘affordable’ and/or ‘sustainable’. What is more, when discussed within the context of energy producing/net-exporting States, this could be stretched to mean security of ‘demand’.²⁷ However, when energy security is discussed in terms of ‘global’, its content is less precise, and the deployment of the term ‘global energy security’ can be deceptive.²⁸

²⁴ For more details, see N Dubash and A Florini, ‘Mapping Global Energy Governance’ (2011) 2 *Global Policy* 6–18; N Hirst and A Froggatt, ‘The Reform of Global Energy Governance’ (2012) Grantham Institute for Climate Change, Discussion Paper No 3.

²⁵ See J Goldsmith and E Posner, *The Limits of International Law* (OUP 2005).

²⁶ Sovacool and Florini (n 9) 238.

²⁷ See Victor and Yueh (n 21), where this notion is cited as the position of the Organization of the Petroleum Exporting Countries.

²⁸ J Taylor and P Van Doren, ‘The Energy Security Obsession’ (2008) 6 *Georgetown Journal of Law & Public Policy* 475; M Smith and N Htoo, ‘Energy Security: Security for Whom?’ (2008) 11 *Yale Human Rights & Development Law Journal* 217.

Table 1. Gauging normativity

	Number of members	Normativity	Potential for global energy security
UN	193	Treaty-based legal relations. UN Charter and other UN agreements create legal relations.	Potentially enormously positive; however, its potential is fraught by political realities. Top-down regime <i>par excellence</i> , with no express mandate for global energy policy.
EU/EEA	28/30*	Treaty-based economic relations. Successive EU treaties have deepened and widened legal relations among its Member States.	Sophisticated energy policy that advances the energy security of its membership. Its potential for the global setting is unclear.
NAFTA	3	Treaty-based economic relations.	Unclear.
ASEAN/AFTA	10	Treaty-based economic relations.	Unclear.
ECC	54	Treaty-based economic relations.	Potentially positive through the facilitation of energy investments and flows.
GECF	13	Low—discussions forum.	Uncertain. The GECF purports to be set up to promote its members' sovereign rights over their gas endowments and to promote security of energy demand. In that sense, it is a producer association. That said, the exchange of energy data between its membership could help better plan the exploration of gas reserves and thus contribute to global energy security.
G8/G8+5	8/13	Low—discussions forum.	Potentially positive.
G20	20	Low—discussions forum.	Potentially positive.
IEA	28	Set up within the framework of the OECD creating legal obligations.	Potentially positive if all energy-significant States are engaged.
IEF	89	Low—discussions forum.	Positive through the wide level of participation and the sharing of energy-related data.
MEF	17	Low—discussions forum.	Potentially positive, particularly in relation to sustainable/green energy security.

(continued)

Table 1. Continued

	Number of members	Normativity	Potential for global energy security
OPEC	12	Medium—although OPEC status and effect are unlike a legal treaty-based organization, it is more than a discussions forum for its membership.	Uncertain. OPEC arose as a backlash to historic dominance by Western oil companies. OPEC could be seen as progressive when compared with the previous state of play. On the other hand, manipulating supply could harm global energy security.
UNFCCC	195	Medium—parties are grouped into categories with distinct legal obligations under the UNFCCC/Kyoto Protocol to take environmental protection measures.	Unclear.
WPC	65	Low—discussions forum.	Positive.
WTO	159	Treaty-based economic relations. Several legal agreements.	Uncertain. Potentially positive by facilitating trade in energy commodities (including fuel and technology).

*At the time of publication of this article, Croatia, the 28th and newest EU Member State, was negotiating its membership in the EEA.

So while domestic ‘energy security’ is a straightforward concept, it is less so at the international level, as it leaves several questions unaddressed including: What does ‘global’ mean in this context?; is it achievable in the current normative and broader systemic setting?; who/which body is charged with the responsibility of addressing global energy security needs?; what changes would be necessary to achieve this?; and what are the implications for State sovereignty? While this article does not attempt to address all of these questions, it proceeds on the following bases: that a global energy security that is truly global should seek to address the universal collective needs of humanity, and that a global energy security strategy ought to be bifurcated in that it should aim to negate all zero-sum approaches to energy security, and to fully explore all non-polluting non-exhaustible/renewable energy sources through projects based on the broadest possible international cooperation.²⁹

²⁹ What is more, by promoting reliance on less polluting energy resources, one must be cautious not to give rise to problems elsewhere. For instance, the diversion of land and water resources to produce plant-derived ethanol may pose threats to food security, with severe repercussions for global food security needs. See, eg concerns expressed on the Food and Agriculture

Although energy security is a concern common to all sovereign actors, it is currently not a collective objective as is, for instance, human security (ie the prohibition of aggression) under the UN Charter. What we witness when we examine instances of inter-State cooperation in relation to energy security is that most of these are concerned with partial—not universal—energy security needs, namely the needs of the States involved. As discussed above, the furthest States go in terms of ‘global’ energy governance is to deal with matters that engage energy in a thematically fragmented manner and to the extent that it is politically acceptable to them. The furthest they go in addressing their energy security needs is to the extent that each State deems a collective approach to yield more favourable results than going it alone. In terms of inter-State cooperation on energy security, the furthest States go appears to be limited to engaging in bilateral arrangements, to setting up regional arrangements—eg the North American Free Trade Agreement (NAFTA) and the European Union/European Economic Area (and their bilaterals with significant producer and transit States such as Ukraine³⁰ and Russia³¹)—or to setting up other types of multilateral sector-specific arrangements—the example *par excellence* being the ECT regime. In that respect, current inter-State energy security arrangements are far from ‘global’. That said, it would be interesting to see whether the combined effect of these different regimes actually enhances global energy security in the sense that, arguably, the proliferation of preferential trade arrangements (PTAs)—eg customs unions (CUs) and free trade areas—has contributed to trade liberalization.

We have listed energy security as a theme relevant to instances of institutionalized energy-related international cooperation. For its part, energy security is an imprecise term in both the domestic and global context.³² What is more, the various themes we have listed above interact. For instance, arguably, an effective trade system and energy transit system enhances energy security for those economies concerned in the relevant instances of international cooperation. At the domestic level, a single agent—eg the

Organization web site (<<http://www.fao.org/energy/befs/en/>> accessed 14 July 2013). Furthermore, see S Zarrilli, ‘The Development of the Emerging Biofuels Market’ in A Goldthau and JM Witte (eds), *Global Energy Governance: The New Rules of the Game* (Brookings Institution Press 2010) 73 onwards for an exposition of the main contours of the emerging biofuels market, including key figures, trends and the features of the structure of this market. Moreover, see the 2009 World Bank report ‘*Global Economic Prospects 2009: Commodities at the Cross-Roads*’, where it is stated (at 7) that: ‘because farmers have responded to high maize prices by increasingly growing maize in fields where they once grew wheat and soybeans, prices of these (and other) commodities have also become increasingly sensitive to oil prices. Given that the energy market is much larger than the market for maize (if all the world’s maize were used to produce biofuels, it would only meet 8 percent of energy demand), biofuel demand has the potential to change permanently the nature (and price) of agricultural commodities. The International Energy Agency (IEA), for example, suggests that biofuel demand for grains could increase by 7.8 percent a year over the next 20 years (compared with 1.2 percent annual increases for food demand). If this prognosis is borne out, 40 percent of global grain production could be going to biofuels by 2030’ (emphasis added).

³⁰ For instance, the EU concluded a deep and comprehensive free trade agreement with Ukraine. See <<http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/ukraine/>> accessed 14 July 2013.

³¹ See <<http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/russia/>> accessed 14 July 2013 for a run-down on EU–Russia trade relations, where it is stated that ‘Russia is the third trading partner of the EU and the EU the first trading partner of Russia’. The main EU imports from Russia are oil and gas. ‘For these products, as well as for other important raw materials, Russia has committed to freeze or reduce its export duties.’ The EU is the largest foreign investor in Russia.

³² Bhattacharyya (n 16); D Korkmaz, ‘Internal and External Dynamics of European Energy Security’ (2010), <<http://www.jhubc.it/ecpr-porto/virtualpaperroom/034.pdf>> accessed 14 July 2013; Smith and Htoo (n 28); Taylor and Van Doren (n 28); Victor and Yueh (n 21).

State—is the authority that adopts measures towards the energy security of the territory/economy that it controls.³³ Such an agent is not omnipotent in its attempts towards energy security, given that the latter often relies on factors—eg availability and price of energy commodities—over which such a sovereign actor might have little or no control. At the global level, there is a plurality of actors³⁴ who have influence over the global energy economy. While energy security is a concern of all sovereign actors, this reality unites all such actors to the extent that global energy security becomes a common concern. The plurality of actors and the variety of interests at play—eg interests across the national–regional–universal spectrum and the public–private spectrum—mean that, at the global level, the achievement of global energy security becomes less feasible, and that no truly universal regime exists charged with the task of providing governance for the global energy economy or for addressing energy security interests.³⁵

There is a patchwork of institutions that seek to facilitate and regulate matters that engage energy at the inter-State level. One such institution is the World Trade Organization (WTO), which provides degrees of governance over the trade flows between its members to the extent that they fall within WTO norms. The WTO does not currently handle energy commodities any differently than other tradable commodities. In that sense, it provides governance over the trade aspects of energy flows between its membership. Another example is the IEA, which provides a degree of energy security governance for its limited membership. A further example is the implications of the ECT, which provides some rules-based energy governance—namely over the investment protection aspects of energy between contracting States.³⁶ A multitude of institutions exists that provide degrees of governance over aspects of energy at the inter-State level.³⁷

The effect of this patchwork of institutions and regimes amounts to a global energy governance system of sorts. However, such a putative system is neither cohesive nor unitary; nor does it provide cohesive global governance over energy.³⁸ This putative system presents some overlaps in that eg the WTO system may extend over the trade aspects of energy, but also contains provisions that extend over the environmental impacts of trade in energy, while the regimes under the United Nations Convention on Climate Change (UNFCCC) and its Kyoto Protocol may also address the environmental impacts of energy. Similarly, there is overlap between the WTO system and the ECT-related system regarding the trade, investment and environmental protection aspects of energy between the memberships they share.

³³ MJ Graetz, *The End of Energy: The Unmaking of America's Environment, Security, and Independence* (MIT Press 2011).

³⁴ Korkmaz (n 32); Sovacool and Florini (n 9); BK Sovacool (ed), *The Routledge Handbook of Energy Security* (Routledge 2011).

³⁵ Goldthau and Witte (eds) (n 29); Korkmaz (n 32); Sovacool and Florini (n 9); C Kuzemko (ed), *Dynamics of Energy Governance in Europe and Russia* (Palgrave Macmillan 2012); L Anceschi and others (eds), *Energy Security in the Era of Climate Change: The Asia-Pacific Experience* (Palgrave Macmillan 2011).

³⁶ AF Lowenfeld, *International Economic Law* (OUP 2008); Y Selivanova (ed), *Regulation of Energy in International Trade Law: WTO, NAFTA, and Energy Charter* (Wolters Kluwer 2011); T Wälde, *The Energy Charter Treaty: An East-West Gateway for Investment and Trade* (Kluwer Law International 1996).

³⁷ Goldthau and Witte (eds) (n 29); Sovacool and Florini (n 9); Victor and Yueh (n 21).

³⁸ Bhattacharyya (n 16); F Baumann, 'Europe's Way to Energy Security. The Outer Dimensions of Energy Security: From Power Politics to Energy Governance' (2010) 15 *European Foreign Affairs Review*.

Finally, while energy supply and the normative framework around the global energy economy are important features of the latter, one should also not lose sight of the fact that other factors/phenomena with significant implications for the global energy economy exist. For instance, global markets and market dynamics, while facilitated by the normative framework under review, are formidable forces that transcend it. On that point, given that these ultimately dictate the allocation of a great part of the energy supply, perhaps it is global markets—that after all are transnational—that by default fill in the gaps in the global energy governance edifice. What is more, the rise of national oil and or gas companies (let us use the shorthand ‘NOCs’) and the activity of some of these abroad have important implications for the global energy economy.³⁹

In sum, there is neither some overarching top-down universal arrangement to provide global energy governance nor is there one to deal with global energy security *per se*. Numerous instances of inter-State cooperation, which converge on their association to energy, intersect to weave together a normative patchwork with implications for the global energy economy, and, consequently, for global energy security. As one might imagine the case with such default arrangements to be, despite the overlaps,⁴⁰ gaps emerge when one assesses the emerging system through a particular prism, in our case, through that of its implications for global energy security. Where there is almost universal governance over an energy-related matter (eg the WTO system in relation to governance of a large proportion of global energy trade), there is usually insufficient cohesion with other areas of inter-State cooperation over distinct yet interlinked energy-related issues (eg environmental protection, investment protection and anti-corruption, to name but a few⁴¹).

3. International cooperation in energy

The interests that underpin a State’s response to a call for international cooperation are much broader than its specific interest in relation to the particular global policy issue in hand. States may be motivated to adopt a particular position on account of their subjective interests over which many a learned analyst would labour to understand in a manner that a psychoanalyst delves beyond the phenomenological to deduce some rational basis in his/her subject’s behaviour. There are all kinds of horse-trading between States habitually taking place through diplomatic means that, incidentally, are outside the scope of the present article. However, it is helpful to bear this in mind in understanding

³⁹ See section titled ‘National Oil Companies’.

⁴⁰ See Table 3.

⁴¹ In relation to this point, should there be sufficient political will, the WTO could amend rules to encourage subsidies in the development of renewable energy and the diffusion of environmental goods and services, along with changing rules, to encourage environmental methods of production, which would consequently make it WTO-compliant to discriminate between ‘like’ products, eg CO₂-free or CO₂-low laptops or tires. In other words, if WTO rules were amended, then some discrimination between ‘like’ products—eg no tariffs for popular electronic goods such as laptops that have low or no CO₂ emissions and higher tariffs for CO₂-heavy laptops—could be accommodated within the WTO system. This would then allow for environmental objectives to be given more weight in cases that pitch trade versus environmental concerns.

why it might be politically unrealistic to achieve concerted cohesive action over certain global policy issues.

Effective international cooperation often involves the setting up of institutions and the laying down of normative frameworks—that is to say, the rules of the game by which all parties ought to abide. Regarding international cooperation, at one end of the spectrum we witness sophisticated institutions with rules and effective enforcement mechanisms, and at the other end of the spectrum there are talking shops, eg transnational policy networks/global public policy networks, where States engage in discussions over global issues and where concrete decisions on action are made only when this is politically acceptable to them.⁴²

In relation to energy, international cooperation is necessary because of the high level of uncertainty in the markets. International cooperation occurs along thematic lines and in successive waves, rather than in a universal joined-up manner. Consequently, the global energy governance structure is not unitary and cohesive. Rather, one finds it to be fragmented and patchy. Surveying the global energy-related landscape from a 2012 standpoint, it is evident that no purposively set-up universal expansive top-down arrangement⁴³ exists that draws in the entire international ‘community’ over all energy-related matters. Rather, what appears to emerge is a patchwork of instances of international cooperation broadly or more directly linked to energy. In that sense, ‘global energy governance’ is an artificial abstraction that unjustifiably suggests universality and a degree of cohesion and comprehensiveness that is not reflected in reality. In our view, it would be more in keeping with reality to approach the global energy economy as one where, while there is no global energy governance *per se*, there exist instances of inter-State activity/international cooperation in matters that are linked to energy. During the course of this article, we shall examine several fields of international cooperation, and instances therein, with implications for the global energy economy.

As one might expect, assessing whether the current state of play is satisfactory is an endeavour contingent on subjective factors such as the objectives and values of the agent that carries out such an assessment. Returning to the concept of an international ‘community’—this abstraction can also be misleading in that it may unjustifiably suggest a grouping of States of equivalent or similar qualities. In reality, the international community of sovereign States involves a heterogeneous ‘community’ of States with divergent interests and disparate levels of economic might and, therefore, influence in the increasingly globalized world. In that respect, while one State might view existing ‘global energy

⁴² See for instance the work by P Turner and A Hatzold, ‘Inter-Organizational Networks in the Global Energy Sector. Part I: The IGO-Network in Fossil Fuels’ June 2010, not published, <http://www.asna.ch/fileadmin/user_upload/2010/Papers/Thurner-Hatzold_Paper.pdf> accessed 14 July 2013.

⁴³ A top-down approach refers to the way in which an agreement is managed, which is essentially based upon a multilateral/universal membership. A top-down approach to a problem is a situation that begins at the highest conceptual level and works down to the details, ie an approach in which an agenda for negotiations that defines the overall shape of the agenda is prepared first, before considering how to deal with individual components. Within formal international organizations, top-down architecture and centralization are to be found, for instance, in the International Monetary Fund and the World Bank Group. The decision-making process of these two institutions differs from that of the UNFCCC, where consensus is required. Based upon international agreements, operations are managed by bodies representing Member States within the charter of the organizations concerned. Top-down architectures have been seen to have difficulties in adjusting to new challenges. See A Lowenfeld, *International Economic Law* (2nd edn, OUP 2008) 610–22, 644ff.

governance' arrangements to be frightfully inadequate, another might view them as sufficiently adequate, with all the shades of opinion between these two poles.

Other agents that might aspire to approach this issue in a professedly disinterested manner—eg social scientists from across the disciplinary spectrum—may, for instance, take a realist view of the existing arrangement as amounting to a global energy governance system 'of sorts' that has risen both organically and in response to the political expediencies that ultimately underscore all inter-State activity. Such an approach is less concerned with pronouncing on suitability; rather, it is more concerned with understanding the phenomenon and its causes. In that regard, the existing fragmentation in the field of energy is an artefact of the realities of international cooperation. For instance, international cooperation may take place in a non-linear and patchy manner. It may develop against too many variables such as the composition of the parties involved, their respective interests and historical grievances, the power relations at play, and the purported policy objectives of cooperation, *inter alia*. In figurative speech, it is as if one is carrying a tower of wobbly jelly while balancing on a unicycle with the earth trembling beneath. There are too many considerations at play, too wide a disparity between the actors and too dissonant their respective sets of interests.

Another view by a professedly disinterested agent might be more concerned with carrying out an assessment of the current arrangement through the prism of some external factor such as, in our case, the implications of the existing state of play regarding global energy governance for global energy security. Such an investigation, therefore, may potentially conclude that the current situation is not satisfactory. Again, with a potential plethora of opinions between these two approaches.

One might also—correctly in our view—start from the position that there is no global energy governance *per se* and that, rather, what could be held to exist are instances of degrees of international governance over discrete matters that are linked to energy. Let us call this international governance 'inter-State', which, incidentally, is hardly ever global. At most, some examples of inter-State governance are not 'energy governance' *per se*, although they engage various aspects of energy. For instance, the WTO system—which plays a significant part in the 'global' governance of energy trade—neither exclusively, nor specifically, nor formally focuses on energy trade. It extends to all intra-WTO trade, irrespective of the trade sector (to the extent that its Members have previously agreed in their specific schedules of trade concessions upon forming, or acceding to, the WTO). In that respect, the WTO's significance to global energy trade is incidental, though not inconsiderable, given its importance to the global trade system *per se*.

Moreover, the WTO also may sensibly be held to relate to the global environmental protection system, given that it contains provisions that could sensibly be considered to be part of the overall composite normative framework on environmental protection. In addition, the WTO also contains provisions relevant to intellectual property rights (IPRs) protection and to the freedom of transit (of commodities), which are matters that enhance the trade aspects of energy. In that regard, the WTO regime extends to more than one matter linked to energy, namely to trade in energy, environmental protection and transit aspects.

Further examples are the European Union (EU) and the European Economic Area (EEA), which are sophisticated regional trade agreements (RTAs) and customs union arrangements that provide for detailed policies on, among other things, energy markets, environmental protection, investment protection and transit issues, all of which are matters linked to energy. In that respect, both examples cited—namely, the WTO and the EU/EEA—are neither exclusively concerned nor purposely set up to deal with the energy economy of their respective membership. This is diagonally different from, for instance, the regime set up under the ECT, which contains provisions on trade and on environmental and investment protection, and that is expressly concerned with the energy sectors of, or the ‘energy economy’ between, its members. Rather, what the WTO and EU/EEA do is apply to the energy economies of their respective membership and, therefore, have implications for their energy security through their operations. All three examples (ie the WTO, the EU/EEA and the ECT) shall be explored subsequently.

The advent of the UN order, industrialization and progressive economic integration between States have arguably led to international relations becoming more standardized and disciplined than they had been before and during the colonial era. Those times had involved contests for resources and trade posts between, among others, American, British, French, Prussian, Spanish and Russian imperialisms that were ostensibly driven by mercantilist considerations. One might consider this transformation in reality to be more formal than substantive in that the persistent trend in recent history—namely, in the post-WWII era—regarding globalization is essentially about the unbridled speculation of capital through, among other things, market penetration in the quest for returns higher than those possible domestically. This almost universal commitment of the industrialized world towards trade liberalization—in other words, by those economies whose industries are better placed to commercially exploit the commercial opportunities that further liberalization makes possible—on terms favourable to it points towards a neo-mercantilist dimension in their economic relations. This return to neo-mercantilist ways becomes more evident at times of economic downturn, when protectionism becomes increasingly more appealing as a policy option for trade.⁴⁴

⁴⁴ See EU Commission, *Ninth Report on Potentially Trade Restrictive Measures Identified in the Context of the Financial and Economic Crisis*, 2012 (<http://trade.ec.europa.eu/doclib/docs/2012/june/tradoc_149526.pdf> accessed 14 July 2013), which examined the period between September 2011 and May 2012 and concluded (see 3) that: ‘Despite the pledges made by G20 leaders, this report shows that since September 2011 the number of potentially trade restrictive measures has steadily continued to rise with 123 measures in only eight months, and that only a limited number of 13 measures have been terminated. In particular, emerging economies such as Argentina, Brazil, India, Indonesia and Russia appear more inclined to apply potentially trade-distorting measures’ (emphasis in original). Do note, however, the World Bank had earlier (April 2010) looked at protectionism and, although it concluded that ‘there is no widespread increase in protectionism via tariff policies since the global financial crisis has unfolded’, it had looked at the causality between economic downturn, the collapse in trade, and protectionism in the reverse manner—namely to assess to what extent any instances of protectionism had caused the collapse in trade. It proceeds to state that: ‘While many countries have adjusted tariffs upward on selected products, only a handful of countries, such as Malawi, Russia, Argentina, Turkey and China focus on products that have significant impacts on trade flows. The United States and the European Union, by contrast, rely mainly on anti-dumping duties to shield domestic industries. Overall, while the rise in tariffs and anti-dumping duties in these countries may have jointly caused global trade to drop by as much as US\$43 billion during the crisis period, it explains less than 2 percent of the collapse in world trade’ (see the abstract to World Bank Policy Research Work Paper 5274 ‘Is Protectionism on the Rise? Assessing National Trade Policies during the Crisis of 2008,’ Hiau Looi Kee *et al.* April 2010 (<<https://openknowledge.worldbank.org/bitstream/handle/10986/3761/WPS5274.pdf?sequence=1>> accessed 14 July 2013)).

Returning to the fact that historically in modern times the mainstay of energy derives from resources that are finite and unevenly distributed across the globe, the pursuit of energy security on the part of each State necessarily involves a zero-sum mentality that encourages neo-mercantilist approaches to energy trade. For instance, despite the increased consolidation and fluidity of the global oil markets, large amounts of oil are bound in contracts and bilateral investment treaties (BITs) between net producer States and downstream actors (eg domestic and foreign oil distribution companies). Furthermore, extensive reserves are held by States, thus impacting global oil supply.⁴⁵ In terms of further examples, net consumer States—the People's Republic of China being a case in point—engage in inter-State relations with the clear aim to securing a steady energy supply for their ever-increasing domestic needs.⁴⁶ For oil producing net exporter States, there are efforts to collude in relation to supply in order to secure demand (and therefore steady revenues from their supplies⁴⁷) and to promote market dominance for their energy sector actors, with the Russian Federation's Gazprom being a case in point.⁴⁸

That said, States continue to engage multilaterally to secure their energy needs, and there are instances of inter-State cooperation that shall be explored below. Briefly citing the EU as an example of this, it has developed a sophisticated long-term common energy policy that promotes the energy security of its 28 Members. Therefore, there is a need to improve international cooperation.

4. Facts and figures around energy supply and consumption

The latest figures available indicate that during 2010 global primary energy supply stood at 12,717 million tonnes of oil equivalent (Mtoe)—or 12.71 trillion tonnes of oil equivalent.⁴⁹ In terms of global final energy consumption, this was around the 8,677 Mtoe (8.6 trillion toe) mark.⁵⁰ During 2010, global supply of energy exceeded global consumption by 4,040 Mtoe (c. 4 trillion toe). For 2009, global energy supply exceeded consumption by 3,797 Mtoe (3.7 trillion toe).⁵¹ In relation to 2008 figures,⁵² global supply exceeded consumption by 3,839 Mtoe (3.8 trillion toe). For good measure, let us examine the 2005, 2006 and 2007 figures for an insight into global energy trends before

⁴⁵ Roughly 50 per cent of global oil supplies are made available on global markets with no restrictions on who ends up being the purchaser. See A Goldthau and JM Witte, 'The Role of Rules and Institutions in Global Energy: An Introduction' in Goldthau and Witte (eds) (n 29) 4–5.

⁴⁶ In relation to instances of energy diplomacy, see A Goldthau, 'Energy Diplomacy in Trade and Investment in Oil and Gas' in Goldthau and Witte (eds) (n 29) 25–47.

⁴⁷ OPEC being a case in point. See Goldthau and Witte (eds) (n 29) 4, fn 2.

⁴⁸ Goldthau (n 46) 28.

⁴⁹ See International Energy Agency, *2012 Key World Energy Statistics*, OECD/IEA, 2012 (at 8).

⁵⁰ *ibid* 28.

⁵¹ See International Energy Agency, *2011 Key World Energy Statistics*, OECD/IEA, 2011 (at 6 and 28 for these figures). Final consumption globally during 2009 was 8,353 Mtoe. The breakdown is: 41.3 per cent from oil; 17.3 per cent from electricity; 15.2 per cent from natural gas; 12.9 per cent biofuels and waste; 10 per cent from coal and peat; and 3.2 per cent from other sources including renewable non-emitting sources. Note that electricity requires the input of one of the primary resources, or the harnessing of renewable sources, for it to be produced, rather than being a primary energy resource itself. See also Bhattacharyya (n 16), for economic analyses surrounding energy.

⁵² See International Energy Agency, *2010 Key World Energy Statistics*, OECD/IEA, 2010.

the outbreak of the 2008 global financial crisis. In 2005, global supply exceeded consumption by 3,523 Mtoe (3.5 trillion toe). In 2006, supply exceeded consumption by 3,657 Mtoe (3.6 trillion toe).⁵³ In 2007, the supply surplus stood at 3,743 Mtoe.⁵⁴ First, in a world that is patchily industrialized, no energy supply surplus is excessive or redundant when it could be put to good use, particularly when so many people go without electricity in the 21st century.⁵⁵ However, this persistent energy supply surplus (see Table 2) might have serious implications for investment in the upstream side of this sector given that it may signal to investors a less profitable field of speculation, since demand appears uncertain.⁵⁶ This is not to be dismissed lightly, given that IEA projections call for investments of at least USD 6.3 trillion by 2030 for the oil sector alone⁵⁷ to meet growing global energy demand.⁵⁸

While the quantification of the global energy supply and consumption is relatively straightforward, this is not so for the total energy needs of humankind. Historical supply and consumption figures, while helpful, present an incomplete picture of 'global' energy needs given that they do not gauge what may be the necessary energy needs of the developing countries in order to harmonize global development levels. For instance, how might these figures be used to deduce the total energy requirements for upwardly harmonizing global industrialization levels to achieve parity in the standards of life for the entire humanity? While energy security alone is clearly not sufficient to achieve this, it remains a key factor given that industrialization is a complex matter relying on a multitude of other economic and social factors.

5. Fields of inter-state cooperation relating to energy

Below is an analysis of some key aspects of energy governance: trade, investment, environmental protection, energy transit, energy security and other phenomena with implications for the global energy economy (see Figure 2 for a graphic view of the various aspects of energy governance). To that end, this section provides an analysis of the relevant institutions in each one of the aspects mentioned above. The purpose of

⁵³ All figures have been taken from International Energy Agency reports for 2007, 2008 and 2010. Note that annual figures are published in the reports after two years, eg 2005 figures were published in the 2007 report, and so on. Reports used are available at <http://www.worldenergyoutlook.org/media/weowsite/2008-1994/WEO_2007.pdf> accessed 14 July 2013; <<http://www.worldenergyoutlook.org/media/weowsite/2008-1994/WEO2008.pdf>> accessed 14 July 2013; and <<http://www.worldenergyoutlook.org/publications/weo-2010/>> accessed 14 July 2013.

⁵⁴ In 2007, 12,029 Mtoe (c.12 trillion toe) of energy were produced globally, and 8,286 Mtoe (8.2 trillion toe) of energy were consumed globally. See International Energy Agency, *2009 Key World Energy Statistics*, OECD/IEA, 2009 (at 6 and 28).

⁵⁵ Further to the issue of industrialization, do note that there are currently nearly two billion people that go without modern forms of energy such as electricity. See the World Bank Report 'Meeting the Challenge for Rural Energy and Development' foreword, <http://siteresources.worldbank.org/INTENERGY/Resources/Rural_Energy_Development_Paper_Improving_Energy_Supplies.pdf> accessed 14 July 2013.

⁵⁶ See Victor and Yueh (n 21) 61–73 (at 61), where it is stated, rather counter-intuitively, that in the current energy landscape 'the biggest energy suppliers are questioning whether demand is certain enough to justify the big investments needed to develop new capacity'.

⁵⁷ See International Energy Agency, *World Energy Outlook 2008*, OECD/IEA, 2008 (89).

⁵⁸ Incidentally, for the entire energy sector, the IEA calls for investments of USD 33 trillion by 2035. See the International Energy Agency's 2010 *World Energy Outlook* report, where it is stated at 93 that: 'Cumulative investment of \$33 trillion (year-2009 dollars) over 2010-2035 is needed in energy-supply infrastructure... This investment enables the replacement of reserves and production facilities that are retired, as well as the expansion of production and transport capacity to meet demand growth.'

Table 2. Global energy figures* (all figures in million tonnes of oil equivalent)

Year	Global production	Global consumption	Surplus
2012 [†]	NA [‡]	12,476	NA
2011 [§]	NA [¶]	12,274	NA
2010 ¹	12,717	8,677	4,040
2009 ²	12,150	8,353	3,797
2008 ³	12,267	8,428	3,839
2007 ⁴	12,029	8,286	3,743
2006 ⁵	11,741	8,084	3,657
2005 ⁶	11,435	7,912	3,523

*Note that we have drawn from two sets of data for this compilation. The 2007–2010 figures are compiled from the IEA's publications, while figures for 2011 and 2012 are from British Petroleum's publications. This is due to the fact that, as of June 2013, the IEA's latest figures did not extend to years 2011 and 2012. Do also note that the IEA set of data cover oil, gas, coal, nuclear, hydroelectricity, combustible renewables and waste, and others by which the IEA means solar, wind, heat and geothermal energy. The IEA provides figures for these sources for global energy production and consumption, whereas BP only provides figures for these sources for global energy consumption. Moreover, in relation to global energy production, BP's 2012 and 2013 reports only provide figures for oil, gas and coal. Therefore, for the purposes of this compilation, one should bear in mind that we have used two different sets of data.

[†]The figures listed for 2012 are calculated on the basis of the sums on oil, gas, and coal production and consumption during 2012 as these appear in the *BP Statistical Review of World Energy June 2013* (<http://www.bp.com/content/dam/bp/pdf/statistical-review/statistical_review_of_world_energy_2013.pdf> accessed 14 July 2013) (at 10, 11, 24, 25, 32 and 33).

[‡]The BP figures omit global production figures for primary energy generated via nuclear, hydroelectricity, renewables (solar, geothermal, heat and wind), and combustible renewables (biofuel) and waste, all of which are included in the IEA's estimates for the years for which IEA reports have been published. In 2012, global energy production of oil, gas, and coal amounted to 10,997 Mtoe.

[§]The figures listed for 2011 are calculated on the basis of the sums on oil, gas and coal production and consumption during 2011 as these appear in the *BP Statistical Review of World Energy June 2012* (<http://www.bp.com/content/dam/bp/pdf/Statistical-Review-2012/statistical_review_of_world_energy_2012.pdf> accessed 14 July 2013) (at 10, 11, 24, 25, 32 and 33).

[¶]The BP figures omit global production figures for primary energy generated via nuclear, hydroelectricity, renewables (solar, geothermal, heat and wind), and combustible renewables (biofuel) and waste, all of which are included in the IEA's estimates for the years for which IEA reports have been published. In 2011, global energy production of oil, gas and coal amounted to 10,906 Mtoe.

¹See International Energy Agency, *2012 Key World Energy Statistics*, OECD/IEA, 2012 (at 8 and 28).

²See International Energy Agency, *2011 Key World Energy Statistics*, OECD/IEA, 2011 (at 6 and 28).

³See International Energy Agency, *2010 Key World Energy Statistics*, OECD/IEA, 2010 (at 6 and 28).

⁴See International Energy Agency, *2009 Key World Energy Statistics*, OECD/IEA, 2009 (at 6 and 28).

⁵See International Energy Agency, *2008 Key World Energy Statistics*, OECD/IEA, 2008 (at 6 and 28).

⁶See International Energy Agency, *2007 Key World Energy Statistics*, OECD/IEA, 2007 (at 8 and 28).

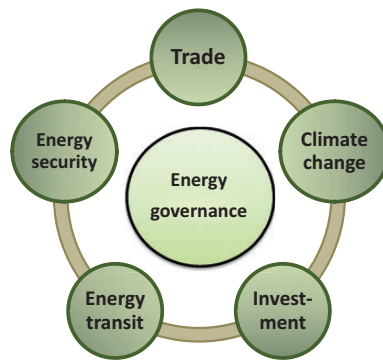


Figure 2. The various aspects of energy governance.

examining the various institutions and processes is to establish how open they are to a more cohesive governance of the global energy economy and whether they lead to greater global energy security. Overall, the institutions and processes linked to the global energy economy appear to impact global energy security in the following ways:

- Negatively, by creating obstacles, as is the case of the Organization of the Petroleum Exporting Countries (OPEC) with its prescribed production restrictions, or, potentially, with institutions that promote energy security interests specific to their memberships (for instance, the EU, the ECT and the NAFTA) in a way that may undermine the energy security of outsiders.
- Positively, through the work of the UN inter-agency mechanism on energy security, or through the work of the IEA, whose Members have taken precautionary steps by setting up and contributing to an emergency oil reserve to draw from when events threaten their energy security, without undermining the energy security of outsiders. Moreover, positive impacts can take place thanks to cooperation between producing and consuming countries through the creation of the International Energy Forum (IEF), where 89 countries gather to promote global energy security through data sharing, data analysis and dialogue. Another example of positive global cooperation is the joint report by the IEA, OPEC, the Organization for Economic Cooperation and Development (OECD) and the World Bank on fossil fuel and other energy subsidies, which highlights the extent of subsidies and other support for fossil-fuel production and consumption as well as the economic and environmental benefits from reform in energy subsidies.⁵⁹
- Ambivalently/inconclusively, by containing aspects that could be considered to both support and undermine global energy security, as is the case of the WTO, which, on the one hand, by streamlining trade in energy commodities, may be contributing to global energy security, while, on the other, by facilitating the allocation of energy

⁵⁹ IEA, OPEC, OECD and World Bank, 'Joint report by IEA, OPEC, OECD and World Bank on fossil-fuel and other energy subsidies: An Update on the G20 Pittsburgh and Toronto Commitments' (2011).

resources to the highest bidders, may be undermining global energy security by leading to the exclusion of others.

Trade

International trade allows energy supply to expand and travel transnationally. Despite this link between trade and energy, it is surprising that the trade regime has not dealt with energy issues more directly. At the international level, there is no truly universal framework exclusively governing global trade, let alone governing global trade in energy. In its absence, a multi-layered patchwork of regimes has emerged, the largest cog of which is the WTO. If one were to take this patchwork to amount to an overarching global 'energy trade' governance system, it would surely contain various elements including: the WTO, the trade aspects of various PTAs—eg among others, the EU, the NAFTA and the Association of Southeast Asian Nations (ASEAN)—along with the trade aspects of organizations with a specific focus on energy, an example *par excellence* being the Energy Charter Conference (ECC). In that respect, none of these institutions possesses vertical exclusive competence over global energy trade, or over one another. Rather, it is more their interplay that one might consider to provide a degree of global governance over energy trade, with each component's scope limited to its specific membership.⁶⁰

The WTO

The WTO is the most widely acceded organization to multilateral trade in existence.⁶¹ Most energy-significant States—be it in terms of consumption or production—are within its fold. Notably, Russia became a fully-fledged WTO Member in August 2012 and the greater part of the remaining energy-significant States that are currently not WTO Members—including Azerbaijan, Belarus, Iran, Iraq, Kazakhstan, Libya and Sudan—are in the process of negotiations to accede to the WTO.⁶² The WTO governs trade relations among its Members. Trade in energy-related commodities among WTO Members also falls within its remit. In that sense, the WTO system is an important element of the global energy economy in relation to the trade aspects of the global energy economy.

⁶⁰ There are exceptions to this; for instance, the ECT and NAFTA regimes systemically show deference towards the WTO regime, were there to be any conflict. See R Leal-Arcas, *International Trade and Investment Law: Multilateral, Regional and Bilateral Governance* (Edward Elgar 2010) Pt 3; R Leal-Arcas, 'Choice of Jurisdiction in International Trade Disputes: Going Regional or Global?' (2007) 16(1) *Minnesota Journal of International Law* 1–59.

⁶¹ The WTO membership currently stands at 159 Members (see <http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm> accessed 14 July 2013). Compare this to the membership of the United Nations, which currently stands at 193 (see <<http://www.un.org/en/aboutun/index.shtml>> accessed 14 July 2013).

⁶² Turkmenistan seems to be in no rush to join the WTO. Presumably, this might be to keep its significant export flows of energy outside the ambit of WTO disciplines, given that the latter extend beyond direct trade considerations to include norms on export restrictions and preferential trade practices, subsidies and intellectual property rights (IPRs). This may be particularly significant to Turkmenistan, given its close energy export relationship with China and Iran, subsidies and intellectual property rights protection. Turkmenistan is a net exporter of electricity (circa 1.5 billion kWh per annum in 2009), oil exporter (circa 40,160 barrels per day in 2009) and natural gas exporter (24.9 billion m3 per annum in 2010). It has 600 million barrels of proved oil reserves and 7.5 trillion m3 of natural gas reserves (in 2012), while it produces circa 15 billion kWh of electricity annually (in 2009). See CIA Factbook resource available at <<https://www.cia.gov/library/publications/the-world-factbook/geos/tx.html>> accessed 14 July 2013 (all figures cited as appeared in late November 2012).

WTO figures suggest that at least 18 per cent of total intra-WTO trade involves energy goods⁶³—in other words, almost 1 in 5 USD spent on intra-WTO trade in goods is spent on energy. Despite this fact, the WTO does not handle the energy trade sector any differently from any other trade sector. Where the WTO system discriminates is in providing separate regimes for commodities that are deemed to be either ‘goods’ or ‘services’. However, this distinction cuts across the trade sectors and treats energy trade—be it in goods or services—indiscriminately. Namely, those regimes are, in relation to ‘goods’, the GATT and, in relation to ‘services’, the General Agreement on Trade in Services (GATS).⁶⁴ Incidentally, trade in services is considerably less liberalized than trade in goods, given the idiosyncrasies of cross-border services transactions. Returning to the energy sector, it is worth noting that there is disagreement as to whether electricity as a tradable commodity ought to be classified as a good or a service.⁶⁵ Further, as the world may shift towards renewable energy (however expensive the process of moving away from fossil fuels to renewables may be),⁶⁶ longer distances of electricity transportation are envisaged. Such a development could be a reason for creating an energy-specific multilateral trade agreement.⁶⁷ In such a case, would the WTO be the right forum to design a framework agreement on trade in energy? Is such an agreement necessary and realistic? Or is it more realistic to add energy-related provisions to the current WTO rules, which would imply avoiding the complex process of ratification of a new international agreement?

While it is true that the WTO system does not discriminate in any way when it comes to trade in energy, it is also true that the WTO system allows for concerns potentially linked to energy—chiefly in relation to the conservation of natural resources,⁶⁸ the protection of the environment,⁶⁹ or the protection of human, animal or plant health or life from pathogens in imports⁷⁰—to modify the effect of core WTO rules.⁷¹ That is not to say, however, that it treats this sector differently; it is simply to say that concerns ‘potentially’ linked, rather than ‘inherent’, to energy may modify the application of core WTO rules. This, however, is not unique to energy tradables/the energy sector, as these

⁶³ See WTO, ‘World Trade Report 2010: Trade in Natural Resources’ (2010) 54, where it is stated that during 2008 fuels alone made up 18 per cent of total intra-WTO trade in goods.

⁶⁴ Other multilateral and plurilateral agreements adopted within the WTO may also apply to trade in goods or services. See <http://www.wto.org/english/docs_e/legal_e/final_e.htm> accessed 14 July 2013, for a list of potentially relevant agreements.

⁶⁵ See P Pierros, ‘Exploring Certain Trade-Related Aspects of Energy under GATT/WTO: Demarcation Questions Regarding Electricity’ (1999) 5(1) *International Trade Law and Regulation* 26–27, where he explores how electricity is dealt with under the EU, NAFTA and WTO regimes.

⁶⁶ However, there is currently a shale gas revolution in the USA. Further, coal and other highly polluting hydrocarbons are on the increase. See for instance A Yang and Y Cui, ‘Global Coal Risk Assessment: Data Analysis and Market Research’ WRI Working Paper, World Resources Institute, 2012, where it is reported that more than 1,000 coal-fired plants were being proposed across 59 States as of 2012.

⁶⁷ See notably the work by T Cottier and others, ‘Energy in WTO Law and Policy’ in T Cottier and P Delimatsis (eds), *The Prospects of International Trade Regulation: From Fragmentation to Coherence* (CUP 2011).

⁶⁸ Art XX(g) GATT. For further details, see E Abu-Gosh and R Leal-Arcas, ‘The Conservation of Exhaustible Natural Resources in the GATT and WTO: Implications for the Conservation of Oil Resources’ (2013) 14(3) *The Journal of World Investment and Trade*.

⁶⁹ Art XX(b) GATT. See also the analysis by N Schrijver, *Development without Destruction: The UN and Global Resource Management* (Indiana University Press 2010).

⁷⁰ Art 2 Sanitary and Phytosanitary Agreement.

⁷¹ On the regulation of trade in energy, see Selivanova (n 36).

concerns may well be cited in relation to other trade sectors, including foodstuffs and chemicals.

For the purposes of the present article, however, it suffices to sum up the overall WTO system as one that fails to provide universal/global governance over all energy-related trade. Moreover, the WTO rules are fully applicable to trade in energy as well as to energy goods and services.

PTAs

As discussed above, international cooperation comes in a range of forms. States engage bilaterally and multilaterally to set up regimes of varying degrees of normativity. PTAs—eg free trade agreements (FTAs)/RTAs and CUs—are invariably treaty-based regimes under public international law that create legal relations between States.

In most cases, these PTAs complement rather than undermine the wider multilateral trade system—namely the WTO—in a way that the trade aspects of the PTAs along with the WTO system may sensibly be considered elements of an overarching normative framework/governance system for global trade.⁷² The WTO system contains provisions that accommodate the PTA phenomenon.⁷³ What is more, on balance, the proliferation of PTAs has not undermined the multilateral trade system; rather, their interplay may have made for a more—not less—liberalized market and globalized world.⁷⁴ For instance, PTAs such as the EEA⁷⁵, the NAFTA and the ASEAN Free Trade Area (AFTA)⁷⁶ have liberalized trade between their respective memberships while not making trade relations more onerous for their trade partners external to them.⁷⁷ What is more, the PTAs cited above go further than the multilateral trade system in that they provide for energy sector specific disciplines.

Let us examine perhaps the most comprehensive out of these three PTAs. The body of EU internal market rules that the EEA espouses is highly developed in that it contains several EU legislative acts that govern or otherwise relate to energy trade.⁷⁸ What is more,

⁷² Leal-Arcas (n 6) .

⁷³ See Art XXIV GATT in relation to goods and Art V GATS in relation to services. For an exposition on the FTA phenomenon *vis-à-vis* the WTO multilateral system, see P Mavroidis, 'WTO and PTAs: A Preference for Multilateralism? (or the Dog That Tried to Stop the Bus)' (2010) 44 (5) *Journal of World Trade* 1145–54.

⁷⁴ See A Sapir, 'The Political Economy of EC Regionalism' (1998) 42 *European Economic Review* 717–32.

⁷⁵ The EEA is a free-trade area formed on the basis of an agreement between, on the one hand, all but one of the Members of the European Free Trade Association (EFTA) (namely Switzerland) and, on the other, the countries of the European Union (EU). The entire EU internal market *acquis*—save for that on fisheries and agriculture—applies to the EEA. See <<http://eeas.europa.eu/eea/> for more details on the EEA> accessed 14 July 2013.

⁷⁶ AFTA is based on the 1992 Agreement on the Common Effective Preferential Tariff Scheme for the ASEAN Free Trade Area (AFTA-CEPT Agreement) signed in Singapore on 28 January 1992. See Art 2.A of the Framework Agreements on Enhancing ASEAN Economic Cooperation, Singapore, 28 January 1992 (within the context of the AFTA-CEPT Agreement) in relation to the duty for trade cooperation.

⁷⁷ See, for instance, the Appellate Body report in *Turkey—Restrictions on Imports of Textile and Clothing Products*, of 22 October 1999 (WT/DS34/AB/R), in which the WTO Appellate Body found that, although FTAs and CUs are permitted to confer exclusive privileges to parties to them, they may not, consequently, introduce more restrictive trade terms for third parties. In that case, in forming a CU with the EU, Turkey introduced quantitative restrictions that engaged, among other things, Art XI GATT.

⁷⁸ See <<http://www.energy.eu/#directives>> accessed 14 July 2013. See also K Deketelaere (ed), *Codex EU Energy Law* (Lexxion Publisher 2012).

there is a distinct portfolio in the EU Commission for energy matters, including a long-term EU energy security strategy.⁷⁹ In that sense, the EEA/EU structure goes well beyond energy trade to also provide energy security governance in relation to its Members.⁸⁰ The EU, in that sense, is an instance of inter-State cooperation that is remarkably comprehensive in relation to energy. While the EU has not been purposely set up to deal with the energy security of its membership,⁸¹ its comprehensive and sophisticated nature has led it to pursue its, among other things, environmental, trade,⁸² investment and energy-security policy objectives in the most cohesive of manners.

While this might seem to run against our earlier assertion that the global energy governance system is fragmented, and that, for its most part, inter-State cooperation occurs along thematic lines, we would suggest that the EU be viewed as an exception—albeit an admirable one—to the rule. It should be borne in mind that the EU is primarily concerned with the internal market of its Member States and its *en bloc* economic relations with the outside world. While the EU might lack the political mandate to expand its remit at will, it possesses the clout and global legitimacy, which flow from its institutional capacity and overall positive external relations to take cohesive action. What is more, the EU and the USA account for about half of global GDP, a third of global trade flows, and possess ‘the most integrated relationship in the world’.⁸³ In 2007, they set up the Transatlantic Economic Council (TEC) with a view to deepening their integration, including through cooperating on energy-related matters.⁸⁴

When one views the EU through the prism of global energy governance, the EU is merely an element—albeit unparalleled in its comprehensiveness—of the global energy governance system that seems to emerge. It contains provisions on trade, energy security and on investment protection, all of which are matters that engage the energy sector. In that sense, it provides ‘incidental’ governance—albeit limited to its 28 Member States—over a range of energy-related matters. From that point of view, the EU’s inception and dynamic evolution could certainly serve as an effective blueprint for other such systems, were the necessary political will to materialize.

Briefly referring to the other PTAs mentioned above, NAFTA devotes an entire chapter in its constituent agreement⁸⁵ on energy trade among its three (energy-significant)

⁷⁹ For more information, see <http://ec.europa.eu/energy/index_en.htm> accessed 14 July 2013. See also <http://ec.europa.eu/energy/energy2020/roadmap/index_en.htm> accessed 14 July 2013, in relation to longitudinal strategies.

⁸⁰ For more detailed analysis, see R Leal-Arcas and A Filis, ‘Conceptualizing EU Energy Security through an EU Constitutional Law Perspective’ (2013) 36 *Fordham International Law Journal*.

⁸¹ Having said that, one should bear in mind the fact that the EU has its origins in the European Coal and Steel Community, which was set up to lock key resources between the historically belligerent German and French nations under a common administration to make armed conflict less likely. See the following link for the constitutive treaty that established that institution: <http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_ecsc_en.htm> accessed 14 July 2013.

⁸² See for instance R Leal-Arcas, *Theory and Practice of EC External Trade Law and Policy* (Cameron May 2008), for a comprehensive analysis of EU trade law. See also R Leal-Arcas, ‘Reflections on EU International Trade Law: An Introspective View’ (2012) 7(1) *Frontiers of Law in China* 1–20.

⁸³ See <<http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/united-states/>> accessed 14 July 2013.

⁸⁴ See the December 2010 TEC joint statement that mentions cooperation in, among other things, energy matters. See <http://www.whitehouse.gov/sites/default/files/TEC_Joint_Statement_12-17-10.pdf> accessed 14 July 2013.

⁸⁵ Ch VI (Arts 601–608) of NAFTA, 32 ILM (1993).

Members—Canada, Mexico⁸⁶ and the USA. The ASEAN-dominated AFTA, for its part, obliges its Members to cooperate on energy matters, including the production and supply of energy.⁸⁷ For the purposes of this article, we have considered it sufficient to refer to the above three examples of PTAs to highlight their relationship to a global ‘energy trade’ governance system.⁸⁸

The ECC

The ECC is an inter-governmental organization set up under the ECT⁸⁹ mentioned earlier to administer its provisions and acts as the decision-making body for the Energy Charter process.⁹⁰ One can think of the ECT as Plan B to what had been Plan A of western net energy importing States—namely the developed West—to conclude an energy-specific agreement within the context of the GATT/WTO system.⁹¹ Part II of the ECT (Articles 3–9) is devoted to trade. What is more, it contains provisions that promote WTO obligations and that make clear that the ECT regime in no way weakens the obligations ECT parties owe under the WTO.⁹²

Unlike the PTAs discussed above, not only is the ECT regime not location-restricted/regional, it is a single-sector multilateral agreement in that it exclusively deals with the energy sectors of parties to it. In this sense, it is worth noting that, for the purposes of the WTO, the ECT regime cannot be considered an RTA/FTA, given that WTO rules require that substantively all trade areas be within the scope of such an inter-State arrangement.⁹³ Nevertheless, the specificity of the ECT’s trade aspects—ie the exclusive focus on energy—makes this regime also an important feature of the putative overall ‘global’ energy trade governance edifice. What is more, the ECT regime also extends to other energy-related matters, including investment and environmental protection, with a focus on their interplay with energy exploration and trade.

Incidentally, it is worth noting that in November 2012 ECT parties agreed to begin the process of updating the ECT during successive rounds of negotiations—known as the ‘Warsaw Process’—to take place in Warsaw, Poland. This has been argued as necessary to meet current demands and to also draw in membership from other regions.⁹⁴

⁸⁶ Certain reservations on the part of Mexico have been subsumed into the NAFTA Agreement (see Annexes 602.3 and 603.6).

⁸⁷ See Art 2B of the Framework Agreements on Enhancing ASEAN Economic Cooperation. It is preceded by Art 2A, which places a duty on Members for trade cooperation. Art 2B relates to the duty to cooperate in ‘industry, minerals, and energy’, and contains provisions relating to, among other things, research and development, the sharing of know-how and the exploration and production of energy resources. In that sense, it may also be considered an aspect of a broader governance of energy framework between AFTA Members.

⁸⁸ One could think of other major PTAs under negotiation as of 2013, where energy security may place an important role. These are the Trans-Pacific Partnership, the Regional Comprehensive Economic Partnership and the Transatlantic Trade and Investment Partnership.

⁸⁹ UNTS 2080/1999.

⁹⁰ For background information, see <<http://www.encharter.org/index.php?id=25>> accessed 14 July 2013.

⁹¹ See generally Wälde (n 36).

⁹² See Art 4 ECT, which prohibits derogation from the GATT, and Annex G to ECT, which conditions the exercise of WTO rules between ECT Members.

⁹³ See Art XXIV:8(b) GATT, the Understanding on the Interpretation of Art XXIV GATT and Art V:1(a) & (b) GATS.

⁹⁴ See <http://www.encharter.org/index.php?id=21&id_article=334&L=0> accessed 14 July 2013, where it is stated that: ‘Today the Energy Charter Conference at its 23rd Meeting adopted a historic decision to proceed with the modernization of the 1991

OPEC

OPEC has been included as an element of the putative global energy trade governance edifice, given that OPEC members control roughly 81 per cent of global oil reserves,⁹⁵ about 43 per cent of global oil production and 60 per cent of global oil trade, thus affording it considerable influence over global oil supply.⁹⁶ This has implications for trade volumes and flows of oil, given that, as we have seen earlier, oil remains a significant share of the primary energy supply. Compare this degree of influence with those of the next-in-size groups of producers, namely those involved in the OECD and in the Commonwealth of Independent States (CIS)⁹⁷—ie the transition economies that had formerly been part of the Soviet Union—which, during 2005, produced just 23.8 per cent and 14.8 per cent of global oil production respectively.⁹⁸

OPEC is ostensibly concerned with defending the interests of the 12 oil producing/exporting States that are OPEC members.⁹⁹ In that sense, it can more appropriately be considered an institutionalized cartel with potentially trade-distortive implications for global oil trade and, therefore, for the global energy economy, particularly when its membership colludes to set production quotas. Furthermore, OPEC has a negative impact on global energy security by creating obstacles with its prescribed production restrictions. Given that the majority of its members—with the exception of Algeria, Iraq and Iran—are WTO Members, the compliance of their OPEC-related activities with the WTO system comes under examination. However, placing production quotas, whatever the trade implications, does not, on its own strength, become WTO inconsistent. While the WTO unequivocally prohibits quantitative restrictions—including export and import related—on trade flows (namely through Article XI GATT), it is unlikely that this prohibition will extend to the pre-extractive stage of energy resources.

Once resources have been extracted and are in tradable form, they ought not be subject to quantitative restrictions that are otherwise not WTO-compliant. In other words, WTO disciplines—as they currently stand—do not extend to the pre-extraction/production stage of energy. This could be understood to preserve the voluntarist basis upon which WTO Members have acceded to the WTO, and to safeguard the sovereign

Energy Charter, the founding document of the Energy Charter Process. Fully supporting the fundamental principles contained in the 1991 Charter, under which they have all put their signatures over the years, Charter member countries agreed that this important document required updating. The realities of the world of energy of the 21st century need to be addressed by the Energy Charter Process, as does the changing focus of the Charter, which now goes beyond the traditional link between Western Europe and Former Soviet countries and on to new regions of the globe.”

⁹⁵ See answer to the question ‘What are OPEC’s proven oil reserves?’ in the FAQ section on the OPEC web site at <http://www.opec.org/opec_web/en/press_room/178.htm> accessed 14 July 2013.

⁹⁶ See <<http://alturl.com/s8oib>> accessed 14 July 2013, where it is stated that during 2005, the annual share of production had been 41.7 per cent. See also answer to question ‘Does OPEC control the oil market?’ in the FAQ section on the OPEC web site at <http://www.opec.org/opec_web/en/press_room/178.htm> accessed 14 July 2013, where the figures of 43 per cent annual share of global oil production and 60 per cent annual share of global oil trade have been listed by OPEC.

⁹⁷ The CIS is a loose, quasi-economic association of independent States following the dissolution of the USSR. Its membership includes Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan and Ukraine. International agreements have been signed within its auspices towards the progressive development on a free-trade area between parts of or its entire membership. See <<http://www.cisstat.com/eng/cis.htm>> accessed 14 July 2013.

⁹⁸ Compare these figures with OPEC’s 41.7 per cent annual share of global oil production in 2005. See <<http://alturl.com/yhq8u>> accessed 14 July 2013.

⁹⁹ <http://www.opec.org/opec_web/en/about_us/25.htm> accessed 14 July 2013.

prerogatives—in our case, in relation to sovereignty over natural resources from incursions not otherwise justified under the existing state of public international law.

The Gas Exporting Countries Forum

The Gas Exporting Countries Forum (GECF) could be understood as the OPEC-equivalent for net natural gas producers, albeit a more influential institution. It counts among its membership 13 producers over four continents, namely Algeria, Bolivia, Equatorial Guinea, Egypt, Iran, Libya, Nigeria, Oman, Qatar, Russia, Trinidad and Tobago, United Arab Emirates and Venezuela.¹⁰⁰ It represents 70 per cent of gas reserves, 38 per cent of global pipeline trade, 85 per cent of global production of liquefied natural gas (LNG),¹⁰¹ 45 per cent of global gas production and 90 per cent of global gas trade in all its forms.¹⁰² The realities inherent to gas—eg cost-intensive processing to transport outside of pipeline infrastructure by liquefying and then regassing—have contributed to a less globalized gas market.¹⁰³ It remains to be seen what the GECF's implications shall be for the global gas supply and the global energy economy at large; whether it would seek to mimic OPEC or take an altogether different approach so as to unify the global gas market by encouraging the membership-wide development of infrastructure to process and transport gas and, thus, to contribute to global energy security.

Investment

What has so far been said in relation to the global trade system could also be said regarding the global investment protection system. Namely, no truly universal framework exists,¹⁰⁴ let alone one concerned with global investment protection in energy. What one might imagine to exist is a putative composite framework constituted by various independent elements. As discussed above, the international community is neither monolithic nor homogenous; it is made up of numerous States that could broadly be lumped together in different groups in relation to their economic strength and levels of industrialization/development. In that respect, the interests of least or less developed countries on the question, say, of foreign investment interests protection had, in the past, not been identical to those of the developed world.¹⁰⁵ This is less the case now, following the end of

¹⁰⁰ See <<http://www.gecf.org/aboutus/faq>> accessed 14 July 2013. Iraq, Kazakhstan, the Netherlands and Norway have 'observer' status.

¹⁰¹ 'GECF members together control over 70% of the world's natural gas reserves, 38% of the pipeline trade and 85% of the liquefied natural gas (LNG) production. The three largest reserve-holders in the GECF - Russia, Iran and Qatar - alone hold about 57% of global gas reserves.' See GECF FAQ's, 'Who are GECF Member Countries? What is the total strength of GECF now?' <<http://www.gecf.org/aboutus/faq>> accessed 14 July 2013.

¹⁰² These figures are based on an analysis of BP in 2008, *Statistical Review of World Energy*, as cited by Dick de Jong and others in Goldthau and Witte (eds) (n 29) 227.

¹⁰³ See D de Jong and others, 'The Evolving Role of LNG in the Gas Market' in Goldthau and Witte (eds) (n 29) 221–45.

¹⁰⁴ See for instance Leal-Arcas (n 7).

¹⁰⁵ The adoption of multilateral frameworks for investment protection within the context of the WTO and the OECD has been unsuccessful, given the difficulties of securing the buy-in from least and less developed countries. See Sornarajah (n 9) Ch 6, where he discusses the less economically developed world's preference for a 'new international economic order' that would advance its developmental needs over an OECD-sponsored Multilateral Agreement on Investment that ultimately failed to be adopted. See also Schrijver (n 9) Ch 6 (at 187–90) regarding the aborted efforts for the adoption of multilateral investment protection schemes (eg the Multilateral Investment Guarantee Agency Convention within the World Bank context) and others within the context of the OECD. This issue is also covered in Sornarajah (n 9) Ch 6.

the Cold War, where it appears that whatever misgivings existed on the part of the less industrialized world about capitalist-based paths to development seem to have been suspended, given that States in the less industrialized world seek to outcompete one another in their quest to attract foreign direct investment and to further integrate into the global economy.

Although investment is major issue for energy production, in relation to the global governance of energy investments, there is no overarching regime. In fact, without access to energy, our daily lives would collapse. One might imagine that the various existing investment regimes converge to the extent that their respective provisions apply to the energy sectors of their respective memberships to form a putative global energy-related investment governance regime that is multi-layered, the layers of which are non-uniform and non-coextensive.

ECC

Earlier we discussed the ECT regime's trade aspects. The ECT's purported aim according to Article 2 (Purpose of the Treaty) is to establish 'a legal framework in order to promote long-term co-operation in the energy field, based on complementarities and mutual benefits, in accordance with the objectives and principles of the Charter'. The ECT facilitates the exploration of the energy sectors of the 49 States¹⁰⁶ that have ratified it so far.¹⁰⁷ It does this principally by legally obligating parties to it to respect foreign investment interests in their jurisdictions and to offer more robust investment protection¹⁰⁸ than that which appears to exist under general international law.¹⁰⁹ The ECT investment protection regime is essentially the only multilateral investment treaty that exclusively deals with the energy sector and as such—despite its limited membership—it is a principal element in the putative global governance system in relation to energy-related investments.¹¹⁰

¹⁰⁶ The last country to join the ECC was Afghanistan, in 2013. See <http://www.encharter.org/index.php?id=21&id_article=349&L=0> accessed 14 July 2013.

¹⁰⁷ See <<http://www.encharter.org/index.php?id=61&L=0>> accessed 14 July 2013, for a list of Members and observers. There are 54 Members, of which 49 have ratified. Also note that parties that have ratified may withdraw; however, this cannot be until five years post-ratification. Parties who had ratified before withdrawing from the ECT remain bound by ECT investment protection obligations for 20 years post-withdrawal (see Art 47 ECT). For those parties who have signed but not ratified, it is possible to withdraw with effect within a shorter timeframe—namely 60 calendar days (see Art 45(3)(a)), as has been the case with Russia, which had not ratified the ECT before its notification to the Energy Charter Secretariat to withdraw from the provisional application of the ECT. See Leal-Arcas (n 60) Ch 7; R Leal-Arcas, 'The EU and Russia as Energy Trading Partners: Friends or Foes?' (2009) 14(3) *European Foreign Affairs Review* 337–66. See also K Hober, 'Arbitrating Disputes under the Energy Charter Treaty' (2009) 2 *Oil, Gas & Energy Law Intelligence*.

¹⁰⁸ See Pt III ECT (Arts 10 to 17), which exclusively deals with obligations to protect foreign investment, thus elevating investor interests to legally protected rights flowing from the ECT. These include the right to compensation (see Art 12(2) ECT, which embeds the Hull formula of compensation that is 'prompt, adequate, and efficient' named after Cordell Hull, the US Secretary of State in 1938, who articulated the US's position in relation to the expropriations carried out of its interests in Mexico during the Mexican Revolution of 1910). For further details, see Leal-Arcas (n 7). The ECT also heavily restricts sovereign rights of expropriation so that expropriations may be permissible to the extent they are ECT-compliant (see Art 13 ECT).

¹⁰⁹ For a fuller analysis of the protection that might exist under general international law, see Ch 3 'Controls by the host State' (in particular its sub-s 3 'Constraints on control: the customary international law') in Sornarajah (n 9) (at 135 onwards).

¹¹⁰ Do note, however, that the ECT's efficacy has significantly been undercut by the withdrawal of Russia from the ECT's provisional application, a State of considerable energy-relevance in terms of energy-related natural resource reserves. On

As it currently stands, the ECT does not apply the Most-Favoured-Nation (MFN) treatment¹¹¹ or National Treatment (NT)¹¹² at the pre-investment stage. This therefore leads us to conclude that the ECT neither obligates its parties to liberalize their energy markets and to open up their energy sectors to foreign investment nor does it provide energy exploitation contracts to all ECT parties on a non-discriminatory basis.¹¹³ The ECT only obligates parties to ensure that, once foreign investments have been accepted into their territories, they provide ECT protection, including MFN and NT, to such investments. Broadly, the ECT provides disciplines for energy sector foreign investment once this has been welcomed in the territory of an ECT party. In sum, once investments have been accepted by ECT parties in their territories, they must provide indiscriminate treatment to all foreign investors, as well as between foreign investors and domestic investors (that is to say, on the MFN and NT bases). Russia's notification to withdraw from the provisional application of ECT has undercut the clout of the ECT, given Russia's significance in terms of its energy exports.

The ECT is therefore a regime that promotes, among other things, investment protection in the energy sectors of its parties. The provisions are more robust than those under general international law. Thus, the ECT may be viewed as an element of the global energy economy in relation to the investment aspects of the global energy economy.

The WTO System

Within the context of the UN, there have been efforts to set up a comprehensive trade regime [the International Trade Organization (ITO)] that would have contained, among other things, investment protection provisions. These efforts were ultimately unsuccessful. While the trade-specific aspects of that ill-fated regime, ie the ITO, survived in the GATT and its eventual evolution into the WTO system,¹¹⁴ this had not been the case with its investment protection aspects. However, the necessity for an overarching investment

the Russian proposal regarding an energy security convention, see also A Belyi, S Nappert and V Pogoretsky, 'Modernizing the Energy Charter Process? The Energy Charter Conference Road Map and the Russian Draft Convention on Energy Security' (2011) 29(3) *Journal of Energy and Natural Resource Law*.

¹¹¹ As defined in an UNCTAD report, MFN treatment in the context of international investment law means that 'a host country treats investors from one foreign country no less favourably than investors from any other foreign country'. See UNCTAD, *Most-Favoured-Nation Treatment*, UNCTAD Series on Issues in International Investment Agreements, New York and Geneva, United Nations, 1999, 1. For further detail, see A Newcombe and LL Paradell, *Law and Practice of Investment Treaties: Standards of Treatment* (Kluwer Law International 2009) ch 5.

¹¹² As defined in an UNCTAD report, national treatment is the principle whereby a host country extends to foreign investors treatment that is at least as favourable as the treatment that it accords to national investors in like circumstances. In this way, the national treatment standard seeks to ensure a degree of competitive equality between national and foreign investors. See UNCTAD, *National Treatment*, UNCTAD Series on Issues in International Investment Agreements, New York and Geneva, United Nations, 1999, 1. For further detail, see Newcombe and Paradell (n 111).

¹¹³ See the section entitled 'An Introduction to the Energy Charter Treaty' of the *Energy Charter Treaty and Related Documents*, where it is stated that: 'In its present form, the Treaty obliges Contracting Parties to accord non-discriminatory treatment only to existing investments made by investors of other Contracting Parties. The adoption of a Supplementary Treaty that would extend this obligation to ensure non-discriminatory treatment also in the pre-investment phase (the so-called "Making of Investments" stage) remains under discussion among the Energy Charter's member states' (at 14).

¹¹⁴ For more details on the ill-fated International Trade Organization under the 1948 Havana Charter and on investment matters within WTO, see <http://www.wto.org/english/thewto_e/whatis_e/tif_e/bey3_e.htm> accessed 14 July 2013 and <http://www.wto.org/english/tratop_e/invest_e/invest_e.htm> accessed 14 July 2013.

protection regime found some expression within the WTO at a later stage in that the WTO Agreement on Trade-related Investment Measures (TRIMs), and the GATS contain provisions related to investment protection. These do not single out energy trade, or any other trade sector, but their provisions may apply to measures taken by WTO Members that seem to be WTO-inconsistent.

For instance, the Annex to the TRIMs Agreement includes an illustrative list of the sort of TRIMs in relation to goods that might violate core WTO obligations. Namely, discouraging the use of imported parts, or encouraging the use of domestically produced parts, in the domestic production process may amount to a *prima facie* breach of Article III GATT in relation to the duty to provide NT to goods that are imported. Restricting the importation of parts to be used in the domestic production process, the exportation of goods, or restricting access to foreign exchange may all amount to a *prima facie* breach of Article XI GATT. Presumably, both such measures may harm foreign investment interests as it conditions how those investments must be used in ways that may be against the interests of the investors.

While the TRIMs Agreement does not single out the energy sector, it provides a layer of protection for foreign investment interests in the energy sector in that it discourages export restrictions, prohibits requirements that investors favour domestically produced goods to be used in the production process, and also prohibits importation restrictions on parts that are used in the production process.

Similarly, while the GATS does not single out the energy sector, its provisions apply to all sectors of trade in services in which market access specific commitments on the part of each WTO Member have been made to the extent that they have stated in their respective schedules. Depending on how trade in services takes place—that is to say, depending on the modality of the provision of services—it may be necessary for the service provider to set up operations in a host territory in order to render services to consumers in that territory.¹¹⁵ Those operations require investments, and those investments require sufficient degrees of protection.

The GATS promotes sufficient protection of foreign investor interests in trade in services. It prohibits discriminatory and other bad faith restrictions on such operations, including in relation to foreign investment interests.¹¹⁶ It does not single out the energy sector nor does it apply to it on the strength of the energy sector alone. Rather, it may apply to it to the extent that the WTO Member that has taken the offending measure has made specific commitments in its schedules that relate to the energy sector.

In conclusion, given the broad membership of the WTO and on account of the potential engagement of the TRIMs Agreement and the GATS, the WTO becomes an important element of the putative global governance regime over energy-related investments.

¹¹⁵ As contemplated in Art I:2(c) GATS.

¹¹⁶ See Art XVI on market access obligations and Article XI in relation to the prohibition of restrictions over transfers and payments.

Proliferation of bilateral and multilateral investment treaties

As discussed previously, States contract legal relationships with one another in all manner of configurations eg bilateral, multilateral, regional or on the basis of specific shared interests (eg ECT and the energy sector).¹¹⁷ The explosion in BITs¹¹⁸ makes this phenomenon a significant element of the putative global investment protection governance system in that it provides a further layer of investment protection to the extent that an inter-State relationship may also be conditioned by the existence of a BIT. It is worth noting that the proliferation of BITs does not in itself lead to the crystallization of investment protection norms in international customary law.¹¹⁹ In that respect, one ought not deduce that the norms contained in such agreements—however, widely these might be witnessed—amount to international custom binding on all States. Rather, one should understand the BIT practice to amount, along with the other elements under review, to a putative global energy investment governance system. While this phenomenon does not single out the energy sector *per se*, its incidence is particularly relevant to energy diplomacy.¹²⁰

The Convention on the Settlement of Investment Disputes

The 1965 Convention on the Settlement of Investment Disputes between States and Nationals of Other States (ICSID Convention)¹²¹ sets up a dispute resolution regime for investment disputes between a host State and a national of another State. Out of 158 States that have signed the ICSID Convention, 147 have ratified it. Given such wide membership, it is an important element of the putative global investment protection governance regime. That said, it should be noted that whether it offers robust protection *per se* is highly dependent upon the norms that may come to apply to a particular dispute. As the ICSID Convention provides for arbitration on the basis of the domestic law of the host State, ‘including its rules on the conflict of laws and such other rules of international law as may be applicable’,¹²² investment protection under ICSID can be patchy, given the disparity between the investment-protection regimes of States parties to ICSID.

¹¹⁷ See Leal-Arcas (n 60) Pt 2.

¹¹⁸ BITs form the bulk of international investment agreements (IIAs), namely 2,833 out of 3,164 IIAs. During 2011, 33 in 47 IIAs signed were BITs. Sixty-nine BITs were signed in 2010. This drop should also be understood against the backdrop of the considerable surge during the dawn of the 21st century. Furthermore, it should also be considered against the rise of regionalism through preferential trade arrangements—eg RTAs/FTAs and CUs—which invariably include investment protection provisions. See UN Conference on Trade and Development, ‘World Investment Report 2012: Towards a New Generation of Investment Policies’ UNCTAD 2012 (at xx, cvii and 84).

¹¹⁹ Also see Schrijver (n 9) Ch 6, in relation to the view that this proliferation of BITs, though illustrative of State practice, ‘may not in itself be able to reflect or generate customary international law including *opinio juris communis*’ (at 193).

¹²⁰ See, for instance, EU efforts to engage Russia and the Ukraine in separate bilaterals discussed above. For further information on each EU trade negotiation partner, see <<http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/>> accessed 14 July 2013.

¹²¹ 4 ILM 532 (1965).

¹²² See Art 42(1) ICSID Convention.

Environmental protection

As has been the case with the other aspects of energy mentioned above, environmental protection is also a field of inter-State activity that lacks an overarching universal governance framework that is cohesive.¹²³ Legal obligations at the inter-State level flow from a variety of legal agreements that, taken cumulatively, could be taken to amount to an overarching environmental protection regime, albeit to the extent that its constituent elements apply to their respective disparate sets of members.

There is a plethora of international legal agreements that promote environmental protection to the extent that these bind the parties that have ratified them.¹²⁴ As has been the case with the other aspects of energy, there is no universal governance regime in relation to the environmental aspects of energy. A patchwork of regimes and provisions could be understood to amount to a putative global governance regime over the environmental aspects of energy.¹²⁵ The level of inter-State cooperation to meaningfully govern the interplay between energy and the environment is frightfully poor given that fossil-fuel combustion is responsible for 82 per cent of anthropogenic GHG emissions.¹²⁶ The value of global energy consumption is annually somewhere around USD 3 trillion, which amounts to about 7 per cent of global GDP.¹²⁷ Apparently, it could cost as much to meaningfully contain CO₂ emissions.¹²⁸ The 2006 Stern Review projects that to contain CO₂ emissions by 2050 to necessary levels could cost anything between 1 per cent and 3.5 per cent of annual global GDP¹²⁹ which, alone, makes the case for colossal capital investments on the part of all States according to their polluting history and economic ability.¹³⁰

¹²³ See D Helm, *The Carbon Crunch: How We're Getting Climate Change Wrong – and How to Fix It* (Yale University Press 2012).

¹²⁴ See, for example, Pt XII of the 1982 UN Convention on the Law of the Sea and the Protection and Preservation of the Marine Environment; the 1985 Vienna Convention on the Protection of the Ozone Layer and its 1987 Protocol (Montreal Protocol); the 1989 Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal; the 1992 UN Framework Convention on Climate Change and its 1997 Protocol (Kyoto Protocol); and the 1992 Convention on Biological Diversity. For an analysis of some of these agreements, see R Leal-Arcas, *Climate Change and International Trade* (Edward Elgar 2013) Chs 3–6.

¹²⁵ See Schrijver (n 9) Ch 8, for a fuller analysis on the interplay between natural resources—including those that are energy-related—and international environmental law.

¹²⁶ See the 2001 figures published by the US Energy Information Agency at <<http://www.eia.gov/oiaf/1605/ggcebro/chapter1.html>> accessed 14 July 2013.

¹²⁷ See W Blyth, 'How do Emerging Carbon Markets influence Energy Sector Investments?' in Goldthau and Witte (eds) (n 29) Ch 7 (at 133). Note that during 2011, global gross world product (GWP) stood at USD 70 trillion, according to the World Bank (see figures at <<http://search.worldbank.org/data?qterm=global%20gdp&language=EN>> accessed 14 July 2013) and anything between USD 69.99 and 80.33 trillion, according to the CIA (see <<https://www.cia.gov/library/publications/the-world-fact-book/geos/xx.html>> accessed 14 July 2013).

¹²⁸ See International Energy Agency, *World Energy Outlook 2008*, at 47, where different scenarios for climate change action are outlined, including the range of costs associated with these.

¹²⁹ See the Executive Summary to the Stern Review: *The Economics of Climate Change*, at 12 (available at <<http://goo.gl/7tFXJ>> accessed 14 July 2013).

¹³⁰ Were it politically feasible, some international organization within the context of the UN could be constituted, in which all States assume robust obligations in line with their polluting history and beyond the level of differentiation that the UNFCCC accommodates. This could assist in quantifying the level of contributions each State should make for the development of the vast infrastructure necessary to macro-manage and exploit all possible renewable resources. This infrastructure ought to remain a public good under the management of that international organization in a manner that the International Seabed Authority, pursuant to the UN Convention on the Law of the Seas, manages those resources which lie outside the jurisdictional reach of States, and that are considered the 'common heritage of mankind'. See UNCLOS Pt XI, Arts 136, and 156–58. As has been the case elsewhere, solutions exist. It is the political expediencies at play between national capitalisms that make such meaningful cohesive action difficult.

UNFCCC and its Kyoto Protocol

The 1992 UNFCCC encourages parties to it to reduce GHG emissions, while its 1997 Kyoto Protocol mandates that those who have ratified the Protocol not exceed the permissible GHG emission levels under that instrument.¹³¹ Within the context of the UNFCCC, States have also agreed a set of propositions contained in the 2007 Bali Action Plan¹³² on next steps after the expiry of the first phase of the Kyoto Protocol, which took place at the end of 2012.

The strength of the Kyoto Protocol lies in that it has 192 parties of which 191 have ratified it, with the prominent exception of the USA; its weakness lies in that it is of little consequence in the greater scheme of things.¹³³ Note, for instance, that the most onerous aspect of the UNFCCC regime is that the EU plus the 36 Annex B States that are parties to the Kyoto Protocol ensure that they reduce their 1990-level of emissions by at least 5 per cent within the five-year period between 2008 and 2012.¹³⁴ This does not surprise given that States—particularly at the international level—are loath to assume restrictions on their GHG emitting that may compromise the competitiveness of their industries. Consequently, consensus on such an acute matter, as is the case of climate change mitigation, ends up achieved on a lowest common denominator basis.¹³⁵

Perhaps whatever has been agreed is as good as it gets under the present circumstances. Although this might be the case, it is neither sufficient nor satisfactory, given what is at stake.¹³⁶ As an example, it is relevant to mention one of the outcomes of the Conference of the Parties (COP)-18 in Doha, where New Zealand, Japan, Russia and Canada refused to take on commitments for the second phase of the Kyoto Protocol. This translates mathematically into the Kyoto Protocol only covering 15 per cent of global GHG emissions.¹³⁷

An interesting feature of the UNFCCC regime and its Kyoto Protocol is the co-option of markets as part of the solution—or more worryingly, in our view, the penetration of the market/speculation into a field of common concern and endeavour. Namely, there

¹³¹ See <http://unfccc.int/kyoto_protocol/items/2830.php> accessed 14 July 2013, for a run-down on the Kyoto Protocol. For a comprehensive analysis, see Leal-Arcas (n 124) Ch 5; R Leal-Arcas, 'Kyoto and the COPs: Lessons Learned and Looking Ahead' (2011) 23 Hague Yearbook of International Law 17–90.

¹³² See <<http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>> accessed 14 July 2013.

¹³³ It is astonishing to note that the Clean Development Mechanism under the UNFCCC has only resulted in a 1 per cent containment of global CO₂ levels. See Blyth (n 127) 146.

¹³⁴ See Art 3.1 of the Kyoto Protocol in relation to this duty, and Annexes A and B of the Kyoto Protocol in relation to the greenhouse gases and to the States, respectively, to which this duty extends. Do note that it does not extend to the USA, which has not ratified the Kyoto Protocol, nor to Canada, which withdrew from the Kyoto Protocol. Kyoto Protocol Annex B States are required to restrict their aggregate emissions by at least 5 per cent below 1990 levels, while parties to Annex I of the UNFCCC must restrict their emissions to levels based on a formula contained in Art 3 of the Kyoto Protocol.

¹³⁵ R Leal-Arcas, 'Is the Kyoto Protocol an Adequate Environmental Agreement to Solve the Climate Change Problem?' (2001) 10(10) European Environmental Law Review 282–94.

¹³⁶ Alternative approaches to climate change mitigation have been proposed. See for instance, Leal-Arcas (n 124) Chs 6–8; R Leal-Arcas, 'Alternative Architecture for Climate Change: Major Economies' (2011) 4(1) European Journal of Legal Studies 25–56; R Leal-Arcas, 'Top-down versus Bottom-up Approaches for Climate Change Negotiations: An Analysis' (2011) 6(4) The IUP Journal of Governance and Public Policy 7–52; R Leal-Arcas, 'A Bottom-up Approach for Climate Change: The Trade Experience' (2011) 2(4) Asian Journal of Law and Economics 1–54; R Leal-Arcas and A Filis-Yelaghtis, 'Geoengineering a Future for Humankind: Some Technical and Ethical Considerations' (2012) 6(2) Carbon and Climate Law Review 128–48.

¹³⁷ Earth Negotiations Bulletin, 'Summary of the Doha Climate Change Conference' (2012) 12(567) International Institute for Sustainable Development 26.

is a global market for carbon emission credits subsequent to the advent of the UNFCCC-related regimes. A recent World Bank report has quantified the value of this market to be around USD 176 billion in 2011 alone, involving 10.3 billion tonnes of CO₂ equivalent (CO₂e).¹³⁸

WTO

The WTO¹³⁹ has been listed here given that the protection and preservation of the environment is included in the purported aims of the WTO's constituent instrument, ie the Marrakesh Agreement Establishing the WTO.¹⁴⁰ However, there are no specific agreements contracted within the WTO context—with the exception of the Agreement on Sanitary and Phytosanitary Measures (SPS Agreement)—that are principally concerned with environmental matters. What exists is a number of provisions relating to concerns about human, animal and plant health or life. These provisions might justify *bona fide*—that is to say, agreements that are neither intentionally protectionist nor discriminatory—trade-restrictive measures on the part of WTO Members aimed at protecting the environment.¹⁴¹ The ongoing Doha Development Agenda negotiations feature the relationship between the multilateral trade system and the environment.

There is also a purposely set-up body within the WTO—the Committee on Trade and Environment (CTE)—created under the 1994 Ministerial Decision on Trade and Environment with a broad mandate that effectively functions as a talking-shop on the interplay between trade and the environment for the WTO Members that have joined it.¹⁴²

In sum, given that the WTO is principally concerned about disciplining trade within its membership, arguably, its environmental protection aspects are incidental to the entire WTO project. That said, the WTO is a dynamic organization in which suitable diplomatic mechanisms exist for its membership to consider adopting subsequent norms, or to modify the interpretation of the existing norms to allow for current broader policy concerns—including over the environment—to be sufficiently accommodated.¹⁴³ This is a matter that requires sufficient political will.

¹³⁸ See A Kossoy and P Guigon, *State and Trends of the Carbon Market 2012* (2012) 9.

¹³⁹ See <http://www.wto.org/english/tratop_e/envir_e/envt_intro_e.htm> accessed 14 July 2013, in relation to the environment within the WTO context.

¹⁴⁰ See its first recital, which states that: 'Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development.' On the world's resources, see also O Schachter, *Sharing the World's Resources* (Columbia University Press 1977).

¹⁴¹ See for instance Arts XX and XI GATT; various provisions in the Agreement on the Application of Sanitary and Phytosanitary Measures, including Art 2.1; provisions of the Agreement on Technical Barriers to Trade; and Art XIV(b) GATS. There is a number of cases dealt with by the adjudicative agency of the WTO that engage the environment; for a list of disputes per subject, see <http://www.wto.org/english/tratop_e/dispu_e/dispu_subjects_index_e.htm> accessed 14 July 2013.

¹⁴² See <http://www.wto.org/english/tratop_e/envir_e/wrk_committee_e.htm> accessed 14 July 2013, for background information on the CTE.

¹⁴³ See Art IX:2 of the WTO Agreement. Under it, the WTO Ministerial Conference and the General Council have exclusive authority to decide on questions of interpretation on a three-fourths majority. Though greater use of this mechanism could be to promote environmental objectives, in reality, the same difficulties of majority vote would be encountered in those 'fora' to

Finally, in relation to the global governance of energy implications for the environment, the WTO, on account of its very broad membership, should be considered an important cog of any such putative system.

ECC

The ECC and the regime under the ECT are essentially about the energy security of the ECC membership and parties to the ECT. The principal concerns of this regime surround the investment protection and trade aspects of energy. That said, the ECT contains provisions that relate to the environment.¹⁴⁴ In fact, an entire Protocol—the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA)—to the ECT relates to the environmental aspects of energy. The majority of the ECT parties have ratified the PEEREA.¹⁴⁵

EU

The EU is a comprehensive PTA of its own kind with sophisticated provisions in relation to, among other things, the protection of the environment. Articles 191 to 193 of the Treaty on the Functioning of the European Union (TFEU) contain the high-level coordinates of EU environmental policy. This is supplemented by a vast array of EU legislation.¹⁴⁶ What is more, the EU has set up a sophisticated emissions trading scheme (EU ETS) under which it is progressively drawing all major polluting industries, including aviation and prospectively the shipping industry.¹⁴⁷ This has annoyed many a non-EU State, given that the EU ETS has been extended to all airline operators with flights that enter, or depart from, EU territory; moreover, it has also been opposed by the EU aviation industry.¹⁴⁸ Following this sustained opposition, the EU caved in and announced a year-long moratorium on 12 November 2012 that suspends the application of the EU ETS on flights that are not entirely limited to EU territory.¹⁴⁹

Despite the protectionist stance of the aviation sector, and of a few non-EU States, the EU ETS should surely be supported and replicated, given that it goes far beyond any other instance of inter-State cooperation on the protection of the environment taken within the

secure the requisite consensus to do this. It is worth noting that the WTO Dispute Settlement Body (DSB), tasked with adopting reports issued by the WTO judicial agency (namely the Appellate Body, following a Panel determination), is the *alter ego* of the General Council. In that regard, processes are in place to expedite the promotion of environmental objectives over those concerned with trade. In other words, the apparent idleness here is political, not systemic.

¹⁴⁴ See Art 19 ECT.

¹⁴⁵ See <http://www.encharter.org/fileadmin/user_upload/document/PEEREA_ratification_status.pdf> accessed 14 July 2013, for details on ratification.

¹⁴⁶ EU environmental legislation is available at <http://europa.eu/legislation_summaries/environment/index_en.htm> accessed 14 July 2013.

¹⁴⁷ Fuller background information on the EU ETS is available at <http://ec.europa.eu/clima/policies/ets/index_en.htm> accessed 14 July 2013. See also Leal-Arcas (n 8).

¹⁴⁸ See <<http://ictsd.org/i/news/bridgesweekly/134007>> accessed 14 July 2013. Also, note that China, India and Saudi Arabia, among others, have instructed their airlines to not comply with the EU carbon tax. See A Leung and H Suhartono, 'China Airlines Won't Pay EU Carbon Tax' *Reuters* (6 January 2012).

¹⁴⁹ See <<http://ictsd.org/i/news/bridgesweekly/134007/>> accessed 14 July 2013.

context of the UNFCCC or the WTO.¹⁵⁰ The EU ETS has proven worthwhile in that, during 2011, of the 8,081 million tonnes of CO₂e that were globally traded through emission credits, 7,853 million tonnes CO₂e were traded through the EU ETS—in other words, the value of EU ETS transactions was USD 147.8 billion, whereas global transactions were USD 148.8 billion.¹⁵¹ Since the EU ETS relates to the climate change aspects of GHG emissions—including those caused by the consumption of fossil fuels—within EU territory, it could be viewed as an element of the global energy economy in relation to the climate change aspects of the global energy economy.

NAFTA

Similarly to the WTO, the NAFTA includes provisions that permit *bona fide* trade-restrictive measures concerned with the protection of the environment.¹⁵² It goes further to condition how GATT/WTO provisions in relation to the environment may be applied among NAFTA parties. Although it has similar provisions to the WTO system in relation to permissible trade-restrictive measures taken on environmental grounds, it places greater emphasis on their potential trade implications in assessing their permissibility.¹⁵³ In that sense, it appears to prioritize the trade aspects over the environmental protection aspects of intra-NAFTA trade (including of intra-NAFTA energy trade).

Energy transit

Global energy consumption continues to draw heavily on primary energy resources that, in addition to being highly polluting, are finite and patchily distributed across the globe. Very few States are truly energy sufficient and energy independent. Against this backdrop, it is no surprise that the cross-border and cross-regional transportation of energy resources (hereinafter ‘energy transit’) is no new phenomenon. This energy transit relies on a variety of means, including vessels and other means of transportation, and conduits such as cross-border overland and underwater pipelines, for bringing energy goods to markets. For instance, States such as Turkey and Ukraine are important energy transit States for EU energy imports from the Caspian Sea region and from Russia.¹⁵⁴ Spats between, for instance, energy exporting States and transit States may cause such shocks to energy flows that have negative implications for consumer States’ energy security. One such incident was the Russia–Ukraine dispute,¹⁵⁵ which brought the issue of energy

¹⁵⁰ See Kossoy and Guigon (n 138) 73–104, in relation to initiatives elsewhere, including Australia, South Korea and the USA.

¹⁵¹ *ibid* 10.

¹⁵² See Art 2101 NAFTA.

¹⁵³ See Art 715.2 NAFTA.

¹⁵⁴ See for instance the report for the Committee on Foreign Relations, US Senate, ‘Energy and Security from the Caspian to Europe’ 112th Congress, Second Session, 12 December 2012.

¹⁵⁵ Ukraine has historically enjoyed preferential prices for Russian gas imports destined for consumption in Ukraine. Presumably, the attempts from sections of Ukraine’s economic and political elites to take a more pro-Western stance—eg through seeking NATO membership—may have led to Russia’s decision to increase the price of gas sold for consumption in Ukraine. Ukraine reacted by continuing to use gas as if it had been purchased at historical rates and, as a consequence, less Russian gas transiting Ukraine pipelines destined for markets outside Ukraine ended up in those destinations. This resulted in several EU States

transit sharply into focus by affecting EU energy markets and consumers, given that up to 20 per cent of EU gas supplies transit via Ukraine.¹⁵⁶

Inter-State cooperation in relation to energy transit issues is less institutionalized than other areas of inter-State cooperation engaging energy (such as trade, investment protection or environmental protection) since there are no international agreements solely devoted to transit; rather, there are norms here and there that come together to produce some sort of inter-State governance framework for transit. The ‘freedom of transit’ provisions of a number of international agreements and the ‘freedom of transit’ norms of general international law (that is to say, norms not flowing from particular international law) are important elements of whatever inter-State governance exists in relation to energy transit.

UN and its legal order

On the occasion of the adoption of the 1958 Convention on the High Seas,¹⁵⁷ which enshrined the notion of a ‘freedom of transit’ in a multilateral international agreement—an innovation up to that point—Lauterpacht carried out a comprehensive review of the notion of ‘freedom of transit’ in international law, linking it to historical notions and to practices that had taken place between States, be these practices due to conventional or customary norms or due to other circumstances. In that respect, the legal notion of ‘freedom of transit’ and its implications for such acute matters—such as sovereign prerogatives (eg to exclude others from their territory) and the voluntarist nature of international law—may properly be understood with reference to Lauterpacht’s extensive study.¹⁵⁸ There is debate as to the status of the notion of ‘freedom of transit’ under customary international law.¹⁵⁹ This has implications for energy transit. In the absence of ‘freedom of transit’ norms that flow from international agreements relevant to the States concerned, it remains unclear to what extent general international law countenances ‘freedom of transit’.

experiencing energy shortages. For a rundown of this dispute, see <<http://news.bbc.co.uk/1/hi/world/europe/7240462.stm>> accessed 14 July 2013.

¹⁵⁶ See the 2011 EU Commission Communication to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, ‘On security of energy supply and international cooperation – “The EU Energy Policy: Engaging with Partners beyond Our Borders”’, 7 September 2011 (COM (2011) 539 final) (at 5). The IEA estimates that up to 84 per cent of Russian gas supplies to the EU transit through Ukraine. See <<http://www.iea.org/countries/non-membercountries/ukraine/>> accessed 14 July 2013.

¹⁵⁷ 450 UNTS 11. Done in Geneva on 29 April 1958 and entered into force on 30 September 1962. This international legal agreement at the time involved 46 signatories and currently involves 63 parties. See its status at <http://treaties.un.org/pages/ShowMTDsgDetails.aspx?src=UNTS&tabid=2&mtdsg_no=XXI-2&chapter=21&lang=en#Participants> accessed 14 July 2013.

¹⁵⁸ E Lauterpacht, ‘Freedom of Transit in International Law’ (1958) 44 Transactions of the Grotius Society Problems of Public and Private International Law, Transactions for the Year 1958–1959.

¹⁵⁹ For instance, Ehring and Selivanova refer to this as a controversial notion that cannot be assumed to be reflected in customary international law. Their argument is predicated on the view that given that States had historically included transit provisions frequently in their bilateral treaties, that this may suggest the absence of an equivalent binding norm in customary international law. See L Ehring and Y Selivanova, ‘Energy Transit’ in Selivanova (n 36)(at 51–52).

Successive international agreements adopted within the context of the UN—namely, the 1958 Convention on the High Seas,¹⁶⁰ the 1958 Convention on the Territorial Sea and Contiguous Zone,¹⁶¹ the 1958 Convention on the Continental Shelf¹⁶² and the 1982 Convention on the Law of the Sea (UNCLOS)¹⁶³—have come to strengthen the notion of ‘freedom of transit’ in modern international maritime law. In that respect, these international agreements may be important elements to the notion of maritime energy transit—and, consequently, to inter-State governance of energy transit—to the extent that the States concerned are parties to these agreements. What is more, where these agreements are inapplicable, one would have to identify the strictures of customary international law that come to bear to such matters.

¹⁶⁰ See Art 3, which states that: ‘[1] In order to enjoy the freedom of the seas on equal terms with coastal States, States having no sea coast should have free access to the sea. To this end States situated between the sea and a State having no sea coast shall by common agreement with the latter, and in conformity with existing international conventions, accord: (a) To the State having no sea coast, on a basis of reciprocity, free transit through their territory; and (b) To ships flying the flag of that State treatment equal to that accorded to their own ships, or to the ships of any other States, as regards access to seaports and the use of such ports, [2] States situated between the sea and a State having no sea coast shall settle, by mutual agreement with the latter, and taking into account the rights of the coastal State or State of transit and the special conditions of the State having no sea coast, all matters relating to freedom of transit and equal treatment in ports, in case such States are not already parties to existing international conventions.’

¹⁶¹ See s III *Right of Innocent Passage* (Arts 14–20), which restricts sovereign acts in the territorial sea of coastal States to the extent that the right of innocent passage is protected. See part of Art 14: ‘[1] . . . ships of all States, whether coastal or not, shall enjoy the right of innocent passage through the territorial sea [2] Passage means navigation through the territorial sea for the purpose either of traversing that sea without entering internal waters, or of proceeding to internal waters, or of making for the high seas from internal waters [3] Passage includes stopping and anchoring, but only insofar as the same are incidental to ordinary navigation or are rendered necessary by force majeure or by distress [4] Passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State. Such passage shall take place in conformity with these articles and with other rules of international law [5] Passage of foreign fishing vessels shall not be considered innocent if they do not observe such laws and regulations as the coastal State may make and publish in order to prevent these vessels from fishing in the territorial sea.’ Also see Art 15 (1): ‘The coastal State must not hamper innocent passage through the territorial sea.’

¹⁶² See Art 4, which states: ‘Subject to its right to take reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources, the coastal State may not impede the laying or maintenance of submarine cables or pipelines on the continental shelf.’ Also see Art 5.1, which states that: ‘The exploration of the continental shelf and the exploitation of its natural resources must not result in any unjustifiable interference with navigation, fishing or the conservation of the living resources of the sea, nor result in any interference with fundamental oceanographic or other scientific research carried out with the intention of open publication.’ Furthermore, while this international agreement allows coastal States to set up safety zones around their continental shelf installations from which to curtail the freedom of navigation and of laying cables or pipelines by third States, these safety zones should not exceed 500 m beyond the installations in question (see Arts 15.2 and 15.3).

¹⁶³ UNCLOS has come to revolutionize international maritime law by codifying norms over a wide range of maritime issues, including the delimitation of the territorial sea, continental shelf, and exclusive economic zone of coastal States, and the rights and obligations of third party States, including landlocked States. What is more, it promotes the ‘freedom of transit’ in that several UNCLOS provisions touch upon transit/navigation and communication matters. While UNCLOS lays down extensive rules that enshrine coastal States’ rights to their territorial sea and other adjacent maritime areas, it also places restrictions on their sovereign control of these maritime areas in order to promote the interests of other States to navigation and communication. For instance, Pt II, s 3 (Arts 17–32) relates to the right of innocent passage through the territorial sea of coastal States; Pt III, s 2 (Arts 34–44) relates to the rights of States concerning the use of straits for international navigation; Pt III, s 3 relates to innocent passage (Art 45); Art 58 relates to the rights and obligations of other States in the exclusive economic zone of coastal States; Pt IV, Art 79 relates to the rights of other States to lay cables and pipelines on the continental shelf of coastal States; Pt VII, Art 87 relates to the freedom of the high seas, and Art 90 on the rights of navigation on the high seas; Pt X (Arts 124–32) relates to the rights of landlocked States to and from the sea and their freedom of transit. For analyses on the delimitation of exclusive economic zones specifically in the East Mediterranean Basin, see E Abu-Gosh and R Leal-Arcas, ‘Gas and Oil Explorations in the Levant Basin: The Case of Lebanon and Israel’ (2013) 11(3) Oil, Gas & Energy Law Journal 1–32; A Filis and R Leal-Arcas, ‘Legal Aspects of Inter-State Maritime Delimitation in the Eastern Mediterranean Basin’ (2013) 11(3) Oil, Gas & Energy Law Journal 1–23.

WTO

Within the WTO legal order, Article V GATT enshrines the ‘freedom of transit’ of such commodities deemed to be ‘traffic in transit’ (Article V:1). What is considered for the purposes of the WTO system to be ‘traffic in transit’ is commodities from State X that are temporarily traversing the territory of State Y in order to be consumed in one (or more) third State. Under Article V, such ‘traffic in transit’ ought to be exempt from customs duties and other encumbrances.¹⁶⁴ Moreover, Article V:2 expressly requires that the ‘most convenient’ route for international transit be made available to such traffic. This means whatever route is most convenient for the purposes of international trade, rather than for the purposes of the transit State. However, it is not entirely clear how the tension is resolved between what is convenient to the transit State and what is convenient to the exporting and/or importing States.¹⁶⁵ As in the entire WTO legal system, Article V (namely Article V:2 & V:5) prohibits the application of the ‘freedom of transit’ in a manner that discriminates between WTO members. What is more, as also is the case with other WTO provisions, Article V does not single out energy commodities, or any other type of commodity for that matter. In that sense, Article V incidentally, rather than expressly, applies to the transit of energy commodities, given that it is a general provision with scope over all intra-WTO trade in goods. That said, it is less clear what the implications of Article V are for energy commodities that are being transported via fixed infrastructure through the territory of a transit State. Does Article V mandate that a transit State ought to make, say, gas or oil pipelines in its territory—in other words, infrastructure that is fixed to its territory—available to all its WTO peers in an even-handed manner?

There is some controversy around this point. Azaria argues that we cannot assume that Article V applies automatically to such infrastructure.¹⁶⁶ Cossy, on the other hand, argues that nothing in the wording of Article V suggests that transportation via fixed structures ought to be excluded under Article V. She refers to the express exclusion in Article V of aircraft in transit and therefore seeks to argue that transit through fixed infrastructure falls within Article V.¹⁶⁷ Faced with the strength of these arguments, and given what is at stake—namely the imposition of a potentially wider and more onerous obligation

¹⁶⁴ Art V:3 GATT.

¹⁶⁵ See D Azaria, ‘Energy Transit under the Energy Charter Treaty and the General Agreement on Tariffs and Trade’ (2009) 27(4) *Journal of Energy & Natural Resources Law* (at 570–74), who highlights this ambiguity.

¹⁶⁶ Azaria argues that we cannot assume that Art V applies automatically to such infrastructure. Azaria argues this point by relating it to how the ‘freedom of transit’ is envisaged elsewhere—namely in the ECT. ECT Art 7 expressly applies to fixed infrastructures. Incidentally, Azaria also makes a finer point about the possible interplay of Art V GATT and Art 7 ECT to state that, whilst GATT systemically influences the interpretation of ECT norms (for instance, Art 4 ECT expressly mandates non-derogation from GATT obligations, and, notably, the ECT mentions the term ‘GATT’ on 100 occasions), the reverse is not the case. See Azaria (n 165) (at 571). Furthermore, she argues that the interpretation of Art 7 ECT is not influenced by Art 5 GATT, in that Art 7 ECT, on its own strength, mandates ECT contracting parties—who incidentally are also GATT/WTO parties—to facilitate transit, including via fixed pipes. Art V GATT does not condition this effect. Nor does the Art 7 ECT norm, on its own strength, condition how Art V GATT ought to be applied between WTO parties *inter se*.

¹⁶⁷ Cossy seems to rely on the interpretative principle that to expressly refer to one matter would imply the exclusion of whatever is not mentioned (namely *expressio unius est exclusio alterius*) by arguing that transit through fixed structures is within the scope of Art V. See M Cossy, ‘Energy Transport and Transit in the WTO’ in J Pauwelyn (ed), *Global Challenges at the Intersection of Trade, Energy, and the Environment* (Centre for Trade and Economic Integration 2010) 113–21.

on WTO members that could amount to an unjustified incursion to their sovereign prerogatives—the authors consider Azaria's to be the better view.

It should be noted that 'freedom of transit' within the WTO system has not concerned much the WTO's dispute resolution mechanism. There is a 2009 report by a WTO Panel¹⁶⁸ in which the Panel interpreted the Article V 'freedom of transit' as one that must be extended by a WTO member to all traffic in transit via the most convenient routes for the purposes of the trading WTO peer who seeks its goods to traverse the territory of the former. The case involved the restriction on the part of Colombia of the points of entry for imports and for traffic in transit relating to textiles, apparel and footwear. This restriction was underpinned by Colombia's concerns on the smuggling of such goods via Panama. The Panel found the measure inconsistent with Article V in that it restricted access in ways that were not convenient to trade flows, and in ways that discriminated between goods and the between places of origin. This offended the requirement for unrestricted and non-discriminatory access for traffic in transit under Article V. The Panel's finding, however, has no special relevance to energy transit. What is more, it does not address whether 'freedom of transit' under Article V within the WTO context extends to fixed infrastructure such as gas and oil pipelines. This is hardly surprising given that the dispute in question did not relate to energy resources.¹⁶⁹

ECT

Within the ECT regime, freedom of transit is considered 'a critical issue for the collective energy security [of ECT parties] . . . since energy resources are increasingly being transported across multiple national boundaries on their way from producer to consumer'.¹⁷⁰ Article 7 ECT is a far more comprehensive provision than Article V GATT, not least due to Article 7 ECT being part of an energy sector specific regime. Similarly to Article V GATT, Article 7 prohibits discrimination in how the freedom of transit is extended between ECT parties.¹⁷¹ Furthermore, Article 7 contains provisions on dispute resolution,¹⁷² and expressly refers to the 'freedom of transit' extending to such fixed infrastructure as to include oil and gas pipelines.¹⁷³ Unsurprising for an energy-focused regime, ECT provides the most elaborate governance for energy transit between its parties.

¹⁶⁸ See WTO Panel Report, *Colombia—Indicative Prices and Restrictions on Ports of Entry*, WT/DS366/R (20 May 2009).

¹⁶⁹ See Ehrling and Selivanova (n 159) Ch 2.

¹⁷⁰ See Energy Charter Secretariat, *The Energy Charter Treaty and Related Documents: A Legal Framework for International Energy Cooperation*, 2004 (at 15) available at <http://www.encharter.org/fileadmin/user_upload/document/EN.pdf> accessed 14 July 2013.

¹⁷¹ See Art 7§1 & 7§3. However, under Art 7§3, discrimination due to 'an existing international agreement' would not necessarily amount to a breach. In that sense, while there is a general *erga omnes partes* obligation to extend the freedom of transit 'in a manner no less favorable', this is displaced when there is a particular legal agreement in place. In that respect, the 'most favored nation' principle—that is to say, that a party extends towards all parties the most favorable conditions that are enjoyed by another party—does not apply to the Art 7 ECT freedom of transit. Also, note that Art 7§8 states that: 'Nothing in this Article shall derogate from a Contracting Party's rights and obligations under international law including customary international law, existing bilateral or multilateral agreements, including rules concerning submarine cables and pipelines,' thus elevating particular norms that may exist.

¹⁷² Namely Art 7§6 & 7§7.

¹⁷³ See Art 7§10 (b), which includes within scope: ' . . . high-pressure gas transmission pipelines, high-voltage electricity transmission grids and lines, crude oil transmission pipelines, coal slurry pipelines, oil product pipelines, and other fixed facilities

Shortly after the ECT came into force in 1998, the ECC decided in 2000 to launch negotiations for more specific rules on energy transit for the adoption of a separate 'Transit Protocol' that have yet to result in any such agreement. These negotiations started in 2000 and were concerned with matters such as secure, efficient, uninterrupted and unimpeded transit; the efficient use of transit infrastructure, and the facilitation of construction and/or updating of transit infrastructure. However, on 29 November 2011, the ECC repealed the negotiation mandate for a Transit Protocol. This has not fully closed the door to future negotiations. The ECC Trade and Transit Group intended to consult on the prospects of future negotiations and to make recommendations to the ECC.¹⁷⁴

NAFTA

According to the web site of the US Department of Transportation's Federal Motor Carrier Safety Administration, the principal means of commercial transportation between the parties to NAFTA—namely Canada, Mexico and the USA—is territorial and vehicular via trucks.¹⁷⁵ At that site, there is a rundown of the principal provisions with implications for transit issues. US trucks are not permitted to operate in Mexico, while Mexican trucks operations are restricted to certain border zones within the USA.¹⁷⁶ This is despite the initial plan for these restrictions to be entirely phased out between 1995 and 2000. This evidently places restrictions on transportation; however, it is not clear what the 'freedom of transit' implications are concerning, say, traffic in transit originating in the territory of whichever NAFTA member, traversing the territory of either of the other NAFTA members in and destined for consumption in the remaining NAFTA member and/or any other State. What appears to have been happening is that traffic in transit, say, from Mexico to Canada or any other point in the USA was required to be unloaded and then reloaded on other trucks in a buffer zone within the USA for onward transportation.¹⁷⁷

Mexico appended Annex 602.3 to NAFTA to reserve the exclusive right to strategic activities, including the transportation of energy.¹⁷⁸ While it is not clear what the

specifically for handling Energy Materials and Products.' However, ECT parties are bound by a list of 'understandings', including one on Art 7, which states that: 'The European Communities and their Member States and Austria, Norway, Sweden and Finland declare that the provisions of Article 7 are subject to the conventional rules of international law on jurisdiction over submarine cables and pipelines or, where there are no such rules, to general international law. They further declare that Article 7 is not intended to affect the interpretation of existing international law on jurisdiction over submarine cables and pipelines, and cannot be considered as doing so.' See Energy Charter Secretariat, *The Energy Charter Treaty and Related Documents: A Legal Framework for International Energy Cooperation* (at 31) available at <http://www.encharter.org/fileadmin/user_upload/document/EN.pdf> accessed 14 July 2013.

¹⁷⁴ As of April 2013, no announcements had been publicized on the resumption of Transit Protocol negotiations. See the historical rundown in relation to the Transit Protocol negotiations and related activity at <<http://www.encharter.org/index.php?id=37>> accessed 14 July 2013.

¹⁷⁵ <<http://www.fmcsa.dot.gov/intl-programs/naftatrans.htm>> accessed 14 July 2013.

¹⁷⁶ *ibid.*

¹⁷⁷ See <<http://www.fmcsa.dot.gov/intl-programs/naftatrans.htm>> accessed 14 July 2013, for a more expansive version. Also, see the following article on this matter referring to a brief piloting of lifting these restrictions <<http://transportationnation.org/2011/10/25/first-ever-mexican-truck-crosses-border-under-nafta/>> accessed 14 July 2013.

¹⁷⁸ See Annex 602.3: Reservations and Special Provisions: 'The Mexican State reserves to itself the following strategic activities, including investment in such activities and the provision of services in such activities: a) exploration and exploitation of crude oil and natural gas; refining or processing of crude oil and natural gas; and production of artificial gas, basic petrochemicals and

implications on the 'freedom of transit' may be in terms of Canada or US energy transit traversing Mexico for consumption to a third State, this appears to be a significant restriction to unbridled access to each other party's road infrastructure.

In relation to energy transit, the reservation on the part of Mexico illustrates that it is less free than general traffic in transit. All three NAFTA parties are WTO members. In that respect, the relationship between their obligations to ensure that there be 'freedom of transit' according to Article V GATT and their NAFTA commitments and reservations would be of particular interest in instances where another WTO member such as Nicaragua commissions Mexican transportation services to transfer coal from Nicaragua to Canada, via Mexico and the USA. In this arrangement, a third party—namely Nicaragua—would want to argue that the loading and reloading requirement breaches its 'freedom of transit' rights under Article V.

ASEAN

ASEAN provides for some governance of transit between its members. However, this is not energy sector specific, although it does extend over energy goods in transit, given that these have not been excluded. Similarly to the WTO's Article V GATT regime, Article 5 of the 1998 ASEAN Agreement on the Facilitation of Goods in Transit relates to the freedom of transit, to which it refers in Article 3 and throughout the Agreement as 'transit transport'.¹⁷⁹ Furthermore, the 2009 ASEAN Agreement on the Facilitation of Inter-State Transport further supports the freedom of transit of ASEAN members by obligating parties to that Agreement to grant each other the right to 'inter-State transport' by allowing transport operators of each party to undertake transport of goods into and/or from the territories of the other parties, and to grant the right to load and discharge goods destined for or coming from other parties.¹⁸⁰ The 2009 Agreement defines 'inter-state transport' to mean transport of goods and the movement of means of transport into and/or from parties to that Agreement.¹⁸¹

Neither the 1998 nor the 2009 Agreement make any reference to traffic in transit/transit transport/inter-State transport in relation to fixed infrastructure such as pipelines,

their feedstocks and pipelines; b) foreign trade; *transportation, storage and distribution, up to and including the first hand sales of the following goods: (i) crude oil, (ii) natural and artificial gas, (iii) goods covered by this Chapter obtained from the refining or processing of crude oil and natural gas, and (iv) basic petrochemicals*; c) the supply of electricity as a public service in Mexico, including, except as provided in paragraph 5, the generation, transmission, transformation, distribution and sale of electricity; and d) exploration, exploitation and processing of radioactive minerals, the nuclear fuel cycle, the generation of nuclear energy, the transportation and storage of nuclear waste, the use and reprocessing of nuclear fuel and the regulation of their applications for other purposes and the production of heavy water. In the event of an inconsistency between this paragraph and another provision of this Agreement, this paragraph shall prevail to the extent of that inconsistency' (emphasis added).

¹⁷⁹ See Art 3 (a): "Transit transport" means transit of goods and means of transport across the territory of one or more Contracting Parties, when the passage across such territory or territories, with or without trans-shipment, warehousing, breaking bulk or change in the mode of transport, is only a portion of a complete journey beginning and terminating beyond the frontier of one or more Contracting Parties across whose territory the traffic passes...."

¹⁸⁰ See Art 5.1 (a) & (b).

¹⁸¹ See Art 3(e).

or even to energy, for that matter.¹⁸² That said, energy-specific agreements exist within the context of ASEAN. The 1986 ASEAN Agreement on Energy Cooperation sets out the fields of cooperation. This Agreement was amended by the 1995 Protocol to it to add further fields of inter-State cooperation, including over the transportation and distribution of energy.¹⁸³ This is an element of the governance of energy transit within the context of ASEAN.

Furthermore, a 2002 Memorandum of Understanding between ASEAN members on the trans-ASEAN Gas Pipeline requires parties to conduct relevant studies on several cross-border matters, including transit issues.¹⁸⁴ There is also a 2007 Memorandum of Understanding on the ASEAN Power Grid that lays the foundations for cooperation over the progressive development of an ASEAN-wide electricity power grid, which would also be viewed as an important element of ASEAN governance over energy transit.

EU

The freedom of movement of goods across the EU is constitutionally entrenched.¹⁸⁵ This applies for energy flows across EU territory. However, the EU has also energy-specific legislation in place to facilitate the integration of the energy markets across the EU.¹⁸⁶ Currently, the EU energy market and its infrastructure are not fully integrated. This is not down to the lack of a normative framework, but to the economic and geographic relations of energy. According to the TFEU, EU energy policy ought to aim at the promotion of the interconnection of energy networks.¹⁸⁷ The EU seeks to fully integrate its 28 members' electricity and gas markets by 2014 into the Internal Energy Market (IEM).¹⁸⁸

The EU has drawn several neighbouring States into energy relations on the basis of the Energy Community Treaty¹⁸⁹ with the aim of enhancing EU energy security by

¹⁸² The 1998 Agreement (at Art 3(c)) refers to *means of transport* to mean: 'road vehicles, railway rolling stock, sea and inland waterways craft and aircraft' and the 2009 Agreement (at Art 3(f)) refers to *means of transport* to mean: 'road vehicle, including those on-board roll-on/roll-off vessels.'

¹⁸³ See Art 1 of 1995 Protocol, which amends Art 1.2 of the 1986 Agreement so as to include the 'processing, handling, transport and distribution of various energy forms' as a field of cooperation between the parties to that Agreement. See <<http://www.asean.org/news/item/protocol-amending-the-agreement-on-asean-energy-cooperation-bangkok-15-december-1995>> accessed 14 July 2013.

¹⁸⁴ See Art III(f), which refers to: 'acceptable measures which would facilitate the issuance of permits, licenses, consents, or other authorizations for transit Pipelines and natural gas being transported through the territory of such Member Country' as the transit issues within scope of this duty to carry out studies. For more information on the gas pipeline project, see <<http://www.petronas.com.my/our-business/gas-power/gas-processing-transmission/Pages/gas-processing-transmission/trans-asean-gas-pipeline.aspx>> accessed 14 July 2013.

¹⁸⁵ See Art 26 TFEU.

¹⁸⁶ Under Art 4§1(i) TFEU, 'energy', in its wide sense, is expressly referred to as a matter of shared competence. This allows the EU to act (including to legislate) in relation to energy in a manner that is proportionate and effective without unduly encroaching on the sovereign rights of EU member states. That said, certain energy related matters however are the exclusive competence of the EU under Art 3 TFEU, given that they may engage the competitive conditions of energy trade within the internal market, the question of tariffs when third country energy commodities cross an EU border.

¹⁸⁷ Art 194§1(d) TFEU.

¹⁸⁸ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, 'Energy Roadmap 2050', Brussels, 15 December 2011 (COM (2011) 885 final) (19).

¹⁸⁹ <http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/Treaty> accessed 14 July 2013.

promoting regulatory convergence among the parties with a view to future integration of their respective gas and electricity markets.¹⁹⁰ In that respect, intra-EU energy transit and energy transit with neighbouring partners are certainly no afterthought within the EU order. The TFEU (Article 26 and Title XXI TFEU) along with EU policies pursuant to it (eg the IEM and the Energy Community) are important elements of EU governance over energy transit within the EU and several neighbouring third-party States.

So far, the above provisions relate to energy transit within the EU, but not with the outside world. However, the relationship of the EU with the outside world also contains 'freedom of transit' obligations. For instance, the EU alongside its 28 members (and the broader membership of the EEA) are parties to the WTO and thus subject to GATT Article V 'freedom of transit' obligations owed to WTO members. What is more, the EU is also a member of the ECT—in that respect, ECT Article 7 'freedom of transit' obligations (which, as we have seen are energy specific and extend to transit through fixed infrastructure) that are owed to its ECT peers must also be respected.

Energy security

As mentioned above, what we ultimately mean by 'global energy security' is the satisfaction of humankind's energy needs to maintain lifestyle levels in the developed world and to promote development and improve the quality of life across the world, including least-developed and developing countries. Although 'energy security' at the nation-state level is a more straightforward concept, this is not the case at the global level, where the deployment of this term can be deceptive.¹⁹¹ While energy security is a concern common to all sovereign actors, it is currently not a collective objective as is, for instance, human security (ie the prohibition of aggression) under the UN Charter. Moreover, the aim of energy is to be affordable, secure and sustainable. Yet, the world is still far from achieving these goals.

The global energy economy is a reality that exists not because it has been set up or otherwise prescribed. When we discuss, say, the 'global' governance systems for trade (discussed above) or monetary matters (eg the interplay between, say, the International Monetary Fund, the Bank for International Settlements and any other relevant bodies), we examine their constituent elements and analyse their mandates and effects. However, when we look at the global energy economy, we are not examining a system *per se*; rather, we are examining an expansive reality—a totality that encompasses *inter alia* energy needs, supplies, infrastructure, processes and institutions—to which we retrospectively link a plethora of institutions and other related elements.

From the dawn of human society, there have been energy needs, on the one hand, and energy resources, on the other. One could argue that the global energy economy

¹⁹⁰ The Energy Community Treaty is an international agreement between the EU and several third-party States. It currently involves 10 parties—the EU, Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Moldova, Montenegro, Serbia and Ukraine. The European Commission states that the Energy Community ought to be promoted with third-party States who are negotiating or concluding an FTA with the EU. See Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, 'On Security of energy supply and International Cooperation, 'The EU Energy Policy: Engaging with Partners beyond Our Borders', Brussels, 7 August 2011, COM (2011) 539 final (at 7).

¹⁹¹ Taylor and Van Doren (n 28); Smith and Htoo (n 28).

conceptually takes form only once we start asking questions about energy needs, energy flows, energy costs, environmental impacts of energy use and so on. In such cases, we actively attempt to put together the puzzle that is the global energy economy. Arguably, is it not the case that inter-State cooperation in relation to all energy matters is essentially entirely conditioned, if not driven, by their energy security needs? In other words, is it not a special relationship between energy security and the global energy economy? One perhaps that is not seen when we relate the other fields of inter-State cooperation under review—namely environmental protection, investment protection and trade—with the notion of the ‘global energy economy’.

As is the case for the other fields under review, energy security is also a field of inter-State cooperation that has not amounted to effective global energy governance. There are various instances of inter-State cooperation at play that may be taken to amount to some sort of overall energy security governance structure that neglects to address in any effective manner the ‘global’ aspects of energy security. Below we list the most ostensible instances of inter-State cooperation that are concerned with, or contain provisions on, collective energy security.

IEA

Due to its name, arguably, the most supposedly relevant body in connection to energy security appears to be the International Energy Agency (IEA), an offshoot of the OECD. The IEA is ostensibly concerned with the energy security of its membership to the extent that it legally obligates them to hold oil reserves worth 90 days of their oil consumption.¹⁹² Moreover, the IEA membership criteria include that a candidate meet the criteria of the OECD.¹⁹³ Currently, the IEA membership stands at 28 States. The IEA was set up to defend its membership’s interests to their collective energy security. In that sense, it is not concerned with global energy security *per se*. That said, were there to be similar examples to those of the IEA springing up regionally, one might consider their implications for global energy security to potentially be positive, as has arguably been the case concerning the relationship between PTAs proliferation and global trade liberalization.¹⁹⁴ This successful bottom-up approach in trade governance could be emulated for the case of energy security governance.

The IEA membership criteria seriously undercut the potential of the IEA to expand its reach. Traditionally, the IEA has been a club of consumers. In that respect, the fact that acutely significant States in terms of energy-resource deposits—including Russia, Iran and Kazakhstan, as well as other countries in the Middle East, Central Asia, Latin America and Africa—are not represented in this body does not surprise. Broadening its membership to include States with proved energy resources would significantly augment the

¹⁹² Namely through the IEA’s Coordinated Emergency Response Mechanism. See <<http://www.iea.org/topics/energysecurity/>> accessed 14 July 2013, for further information.

¹⁹³ Not all OECD Members have chosen to become Members of the IEA. The IEA applies a second set of criteria, including the ability of prospective Members to assist with energy shocks by contributing to IEA membership collective energy security efforts. For more details, see <<http://www.iea.org/aboutus/faqs/membership/>> accessed 14 July 2013.

¹⁹⁴ See Mavroidis (n 73).

capacity of the IEA to respond to energy shocks. Also, broadening its membership by drawing in the emerging net consumers, that is China and India,¹⁹⁵ would help give this body more clout, as it currently fails to represent the entire community of net consumers by a significant margin. Notably the OECD share of global energy consumption has steadily decreased since 1990, which, the IEA projects, is likely to account for roughly 25 per cent by 2035.¹⁹⁶ Expanding its membership presumably poses political difficulties as this may require its core membership—eg the founding members of the IEA/OECD—to redraft their membership criteria to make these more inclusive.

For instance, those requirements that relate to free-market conditions may be anachronistic, given that, in a post-Cold War increasingly globalized world, most States—including China¹⁹⁷—opened up their economies to unprecedented degrees. In that sense, criteria in relation to the opening up of markets could be more easily amended. However, the abandonment of the criteria relating to liberal democratic processes is a separate matter. The current globalized arena is significantly different than it was during the post-World War II years. The purported values of those world powers that at the time set up the principal international institutions of the global economy might have to be recast to meet their current political expediencies. Perhaps we see the sacrifice of such principles on the part of the OECD/IEA club in order to draw in China and other net consumers for the purposes of becoming more relevant.¹⁹⁸ Indeed, as of April 2013, the IEA was planning to welcome China and other six emerging economies¹⁹⁹ to the IEA as associated members of the IEA for purposes of data sharing.²⁰⁰

It should be noted that the IEA seeks to engage with non-members primarily in the field of transparency and data sharing. If there are two great challenges that the international community seems to face in relation to global energy security, these seem to surely relate to insufficient data sharing and upstream investments for future demand. For instance, supply and demand data may be difficult to obtain from States such as Saudi Arabia because such States might be unwilling or unable to submit accurate data.²⁰¹ The

¹⁹⁵ Note that the IEA projects that India and China would account for roughly 45 per cent of the anticipated increase in global energy consumption between 2005 and 2035, which means more GHG emissions in the case of India since it does not have a policy on renewables. See IEA, *World Energy Outlook 2007: China and India Insights*, Executive Summary (at 3), available at <<http://www.iea.org/Textbase/npsum/WEO2007SUM.pdf>> accessed 14 July 2013.

¹⁹⁶ In 1990 the OECD's share of global energy consumption stood at around 50 per cent; by 2010 it dropped to about 40 per cent, and by 2035 the IEA projects it would stand at around 25 per cent. See the presentation prepared by Maria Argiri on the 2010 IEA World Energy Outlook report on renewables in MENA, available at <<http://www.oecd.org/mena/investment/46769903.pdf>> accessed 14 July 2013, 5.

¹⁹⁷ In relation to China, see R Staiger and A Sykes, '“Currency Manipulation” and World Trade' (2010) 9 *World Trade Review*, 583–627, regarding the degree to which China has opened up its economy to world trade. This article seeks to put into context the accusations that China manipulates its currency for export purposes by citing relevant International Monetary Fund and WTO norms, and concludes that the accusations are legally baseless. It has been cited here due to the impressive analysis regarding the degree of liberalization of the Chinese economy following its accession to the WTO in 2001.

¹⁹⁸ This situation reminds us of one of Groucho Marx's quips: 'Those are my principles, and if you don't like them . . . well, I have others.'

¹⁹⁹ These are India, Russia, Brazil, South Africa, Mexico and Indonesia.

²⁰⁰ A Makan and J Blas, 'IEA plans to welcome China into the fold' *Financial Times* (London, 4 April 2013), <<http://www.ft.com/cms/s/0/9d6e0c00-9d3e-11e2-88e9-00144feabdc0.html#axzz2PWEPXmAF>> accessed 14 July 2013.

²⁰¹ That said, a promising dialogue is underway between the IEA and OPEC in connection to 'bringing more transparency to oil markets by providing data on oil production and trade' through the ad hoc International Energy Forum. See Victor and Yueh (n 21) 61–73 (at 67).

IEA seeks to encourage non-States to share data in order to build a more accurate picture around global energy volumes and trends.²⁰²

IEF

It is encouraging to note the recent efforts by the IEA and OPEC, which arguably represent opposing interests, finding sufficient common ground to work together. This has resulted in the IEF, which is an ad hoc forum of informal dialogues. The IEF boasts a membership of 89 countries, six continents, and to cover 90 per cent of the world's oil and gas supply and demand with a vision to make possible 'global energy security through dialogue'.²⁰³ It has a Charter, which is not a legal document, but a political commitment of 'key governments to a dialogue process which builds trust among member countries',²⁰⁴ which has been signed by all 89 members.

The advantage of this body is that it includes transition economies²⁰⁵ and those of Brazil, China and India. This is important, given that it is the emerging economies—the powerhouses, or rather, the workshops, of the globalized world—whose energy consumption is increasingly eclipsing that of the industrialized world.²⁰⁶ Moreover, along with net producers and net consumers, it draws in transit States. In that respect, it is as representative as these instances of inter-State cooperation come. While it does not create legal obligations, the IEF seeks to foster cooperation in relation to the energy needs of its membership, chiefly through facilitating dialogue and data-sharing within its membership.²⁰⁷

The IEF has been successful in that it has led to the formation of the Joint Organizations Data Initiative (JODI)²⁰⁸ that brings together several institutions, including the IEF, IEA, OPEC, Eurostat (ie the EU official statistics body), Asia-Pacific Economic Cooperation (APEC), Latin American Energy Organization (OLADE) and the United Nations Statistics Division (UNSD). JODI is a remarkable development when one considers the state of play 20 years ago. The IEF was formed in 1991 and JODI in 2001. Prior to that, cooperation seemed to segregate along consumer/producer lines in the IEA and OPEC 'fora'.

²⁰² There is informal cooperation between the IEA and China, India, Russia, Brazil and other non-member States. View a list of non-member countries and see how the IEA interacts with them by clicking on each State at <<http://www.iea.org/countries/non-membercountries/>> accessed 14 July 2013.

²⁰³ <<http://www.ief.org/about-ief/what-is-the-ief/member-countries.aspx>> accessed 14 July 2013.

²⁰⁴ <<http://www.ief.org/about-ief/what-is-the-ief/mission/charter.aspx>> accessed 14 July 2013.

²⁰⁵ The locution 'transition economies' refers to those countries moving from command economies (eg former Soviet Union republics and those in Eastern Europe) to market economies.

²⁰⁶ To see the impact of emerging economies *vis-à-vis* the EU in the trade field, see R Leal-Arcas, 'The European Union and New Leading Powers: Towards Partnership in Strategic Trade Policy Areas' (2009) 32(2) *Fordham International Law Journal* 345–416.

²⁰⁷ See ss I (2–4) and II of the IEF Charter, available at <http://www.ief.org/_resources/files/content/about-ief/ief-charter.pdf> accessed 14 July 2013.

²⁰⁸ In 2000, during the course of their seventh Ministerial meeting in Riyadh, IEF energy ministers called for improved energy data collection processes that resulted in the formation of JODI Oil in 2001. Six international organizations [Asia-Pacific Economic Cooperation (APEC), Eurostat, IEA, Latin American Energy Organization (OLADE), OPEC and the United Nations Statistics Division (UNSD)] launched in 2001 the Joint Oil Data Exercise, whose primary goal was 'to raise the awareness of all oil market players to the need for more transparency in oil market data'. See <<http://www.jodidata.org/about-jodi/history.aspx>> accessed 14 July 2013. See also information available at <<http://www.jodidata.org/about-jodi.aspx>> accessed 14 July 2013.

World Petroleum Council

A further institution that might also be relevant to energy security is the World Petroleum Council (WPC),²⁰⁹ which entered its 75th year of operation in 2008. The WPC includes more than 60 Members and purports to represent every continent and every interest/aspect of the petroleum and gas sectors.²¹⁰ It does not, however, provide any governance of these sectors and its efforts focus on facilitating dialogue. In that respect, perhaps the advent of the IEF has rendered this initiative less relevant to the overall global governance system. However, where it does differ is that it purports not only to include States, but to also include international oil companies (IOCs) and national oil companies (NOCs) among its Members.

The Group of Eight (G8)

The leaders of the world's most industrialized States—namely Canada, France, Germany, Italy, Japan, Russia, the UK and the USA—converge annually for discussions on a range of macro-economic matters.²¹¹ While this ad hoc forum has a broad remit rather than one limited to energy matters, it is interesting to note that energy played a part in its establishment, which was triggered by France calling for meetings to discuss concerted responses to the 1973 oil crisis. Energy, however, has come to be discussed within the context of the G8 with the leaders of the States involved during the Camp David Summit, calling for market-based solutions to energy security and to climate change.²¹² It is worth nothing that at the 2006 St Petersburg Summit hosted by Russia, Russia called for a rethinking of energy security to emphasize the mutual dependencies between consumer and producer States.²¹³

The G8's recent steps to occasionally include the next five economies—Brazil, China, India, Mexico and South Africa—make this a forum that includes two significant producer/net exporter States (Brazil and Mexico) and two significant net consumers (China and India) who, as pointed out earlier, are projected to account for as much as

²⁰⁹ See <<http://www.world-petroleum.org/index.php?/Introduction/introduction.html>> accessed 14 July 2013, for the WPC's introductory statement, which has been quoted in part here: 'The WPC is the world's premier global oil and gas forum and is the only international organisation representing all aspects of the petroleum sector . . . [t]he WPC was established in 1933 with the intent to promote the management of the world's petroleum resources for the benefit of mankind. The WPC's prime function is to catalyse and facilitate dialogue among stakeholders, both internal and external to the petroleum industry on key technical, social, environmental and management issues in order to contribute towards seeking solutions to those issues.'

²¹⁰ <<http://www.world-petroleum.org/index.php?/Members/list-of-members.html>> accessed 14 July 2013.

²¹¹ See background information at <<http://www.international.gc.ca/g8/index.aspx?view1/4d4>> accessed 14 July 2013.

²¹² See May 2012 Factsheet on G8 Action on Energy and Climate Change, at <<http://www.international.gc.ca/g8/summit-sommet/EC-2012-05-19.aspx?view1/4d4>> accessed 14 July 2013. See also W Kohl, 'Consumer Country Energy Cooperation: The International Energy Agency and the Global Energy Order' in Goldthau and Witte (eds) (n 29) 202–3.

²¹³ See the official G8 Russia 2006 summit web page, where a Russian Presidential aide called for the G8's approach to energy security to be: 'based on the assumption that we need to find new ways of ensuring energy security, differing from those used by OPEC countries. The notion of energy security should be based on more finely balanced principles. We need mutual dependence.' Available at <<http://en.g8russia.ru/news/20060427/1148579.html>> accessed 14 July 2013.

45 per cent of the increase of global energy consumption by 2035.²¹⁴ In that sense, the G8+5 arrangement lends itself perfectly to inter-State cooperation on energy security.

The Group of Twenty (G20)

Similarly, the G20²¹⁵ has been included here due to its general clout. It is a forum that includes the 20 most influential and economically significant States concerned with macroeconomic matters.²¹⁶ The G20 'brings together important industrial and emerging-market countries from all regions of the world. Together, member countries represent around 90 per cent of global gross national product, 80 per cent of world trade [including intra-EU trade] as well as two-thirds of the world's population. The G-20's economic weight and broad membership gives it a high degree of legitimacy and influence over the management of the global economy and financial system'.²¹⁷

The G20 is not a body charged with energy security *per se*. It has, however, been listed here as it includes most energy-consuming (including the EU, China, India and the USA) and energy-producing (including Brazil, Mexico, Russia and Saudi Arabia) behemoths. Given that energy is so crucial to almost every field of human endeavour, this ad hoc body and its edicts could be considered an element of the putative global governance system over energy security. One can see, for instance, the specific commitments that G20 Members made at the Los Cabos 2012 summit in Mexico over a range of matters, including in some cases energy.²¹⁸ Given that 84 per cent of global fossil-fuel emissions²¹⁹ are generated by G20 Members, the G20 could be an important forum for cohesive action over energy security and climate change.

²¹⁴ See for instance the Gleneagles 2005 Summit hosted by the UK Government, where the leaders of the plus five States had also made pledges in relation to antiterrorist action. Available at <<http://www.international.gc.ca/g8/summit-sommet/2005/index.aspx?view1/4d4>> accessed 14 July 2013.

²¹⁵ The Group of Twenty (G20) finance ministers and Central Bank governors was established in 1999. The inaugural meeting of the G20 took place in Berlin, hosted by German and Canadian finance ministers. 'By contributing to the strengthening of the international financial architecture and providing opportunities for dialogue on national policies, international cooperation, and international financial institutions, the G20 helps to support growth and development across the globe.' See <http://www.g20.org/about_what_is_g20.aspx> accessed 14 July 2013.

²¹⁶ The members of the G20 are the finance ministers and central bank governors of 19 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the UK and the USA. The European Union is also a member, represented by the rotating Council presidency (since the entry into force of the Lisbon Treaty, it is the European Council president) and the European Central Bank. To ensure that global economic 'fora' and institutions work together, the Managing Director of the International Monetary Fund (IMF) and the President of the World Bank, plus the chairs of the International Monetary and Financial Committee and Development Committee of the IMF and World Bank, also participate in G20 meetings on an ex-officio basis. See Leal-Arcas (n 60) fn 15, at 18. The G20 'promotes open and constructive discussion between industrial and emerging-market countries on key issues related to global economic stability'. See <http://www.g20.org/about_what_is_g20.aspx> accessed 14 July 2013.

²¹⁷ See <http://www.g20.org/about_what_is_g20.aspx> accessed 14 July 2013.

²¹⁸ See <<http://www.g20.org/documents/>> accessed 14 July 2013, for a list of commitments where, amongst others, Argentina pledges to reduce household energy subsidies (presumably to make more oil available on global markets) and Brazil pledges to devote USD 45 billion in energy investments between 2011 and 2014.

²¹⁹ Source: <<http://www.g20.org/index.php/en/numeralia>> accessed 14 July 2013.

Major Economies Forum on Energy and Climate

The Major Economies Forum on Energy and Climate (MEF) was initiated in 2007 by the Bush administration under the name 'Major Emitters Forum'²²⁰ and launched by the Obama administration on 28 March 2009. The MEF 'is intended to facilitate a candid dialogue among major developed and developing economies',²²¹ help generate the political leadership necessary to achieve a successful outcome at future UN climate change conferences and 'advance the exploration of concrete initiatives and joint ventures that increase the supply of clean energy while cutting GHG emissions'.²²² The MEF would provide for significant GHG limitations with credible assurances for compliance.²²³ The MEF partners include: Australia, Brazil, Canada, China, the EU, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the UK and the USA.²²⁴ Bringing together these major emitters, which were responsible for around 75 per cent of GHG emissions in the world as of 2009 (these numbers include land-use change),²²⁵ will increase the likelihood of reaching a climate change agreement, as the MEF is a more efficient negotiating forum than the UNFCCC.²²⁶ Furthermore, an agreement among them would be almost as valuable as an agreement among all UNFCCC parties in terms of absolute GHG emissions reductions, since most GHGs come from the MEF partners.²²⁷

The MEF brings together 17 major economies, including energy net consumer economies such as the EU, India, China and the USA, alongside energy net producers such as Brazil, Russia and Mexico. It was set up at the instance of the USA to act as a negotiations' anteroom for the most emissions-significant economies to decide on action within the context of the wider UN negotiations on climate change. Purportedly, the MEF is also concerned with: '... advanc[ing] the exploration of concrete initiatives and joint ventures that increase the supply of clean energy while cutting greenhouse gas emissions.'²²⁸ While this is an important forum—and a commendable one, given that it is essentially about the interplay between energy and climate change—its capacity to address global energy security concerns is restricted. This is because most major net energy producers

²²⁰ The name was changed because, according to the members, the initial name sounded like an oligopoly of polluters. The MEF has gone through a number of name changes. Other proposed names were the Major Economies Process on Energy Security and Climate Change (<<http://2001-2009.state.gov/g/oes/climate/mem/index.htm>> accessed 14 July 2013) and Major Economies Meeting on Energy Security and Climate Change (<<http://georgewbush-whitehouse.archives.gov/news/releases/2007/09/20070927.html>> accessed 14 July 2013).

²²¹ <<http://www.majoreconomiesforum.org/about.html>> accessed 14 July 2013.

²²² *ibid.*

²²³ R Stewart and others, 'Strategic Analytics for Building a Global Climate Regime Bottom-Up' 4–5, paper presented at the conference 'Reaching International Cooperation on Climate Change Mitigation', 21–23 December 2011 (unpublished paper; on file with author).

²²⁴ See Major Economies Forum on Energy and Climate, available at <<http://www.majoreconomiesforum.org/about/description-purpose.html>> accessed 14 July 2013.

²²⁵ J Broder, 'Clinton Says U.S. is Ready to Lead on Climate' *The New York Times* (27 April 2009), <<http://nyti.ms/huEbYb>> accessed 14 July 2013.

²²⁶ K Oye, 'Explaining Cooperation under Anarchy' (1985) 38(1) *World Politics* 21.

²²⁷ Leal-Arcas (n 136) 44–45.

²²⁸ See <<http://www.majoreconomiesforum.org/about.html>> accessed 14 July 2013.

(including all OPEC members), except for Indonesia, do not participate; a fact that substantially undercuts its capacity to address global security concerns.

From the instances of inter-State cooperation engaging energy security concerns, the G8, G8+5 and G20 could be distinguished from the other examples on the basis that discussions are high-level and on a broad range of topics. Although they are not topic-specific—unlike, say, the IEF and the MEF, which focus on energy and energy and climate change, respectively—these are more akin, albeit much less inclusive, than the UN's deliberative chamber, namely the General Assembly (UNGA), an institution that allows its members to discuss and to pass resolutions that may, potentially, be put to the UN Security Council or to specific UN members to take action,²²⁹ or put through the UN legislative process with a view to the adoption of a legally binding inter-State agreement.²³⁰ Examining the international order, there is no shortage of legislative means to make cohesive concerted action a reality. Rather, it is the political challenges that top-down approaches seem to face that explain the proliferation of exclusive forums such as the G8, G20, MEF and so on. In that sense, one could analyse the resolutions of such high-level 'fora' to deduce how international policy might develop over the following years. It is encouraging to note that energy and climate change have made it to the agenda of such 'fora' relatively recently.²³¹ Let us hope that this will translate into more cohesive action on the implications of energy consumption for the environment and for global energy security.

Other phenomena with implications for the global energy economy

As discussed above, the global energy economy is a reality. The global energy order involves various fields of inter-State cooperation on aspects of energy. In that sense, there are various fields of governance to varying degrees of normativity. There are, however, phenomena outside the context of inter-State cooperation, as described above, that have significant implications for the global energy economy. So although this article is mainly focused on institutions and processes, we recognize that the global energy economy is not simply the sum of structures relevant to it and that there is more to it. For instance, NOCs and global markets—although facilitated by numerous institutions and processes within scope—are actually formidable forces that transcend these structures.

Let us analyse how the rise of NOCs has impacted global markets.

NOCs

One such phenomenon outside the inter-State cooperation context is the advent of NOCs to the cost of IOCs. The advent of NOCs for its most part has happened following the decolonization process. NOCs currently control about 80 per cent of global oil and gas reserves.²³² The top 13 out of 20 oil companies are now

²²⁹ See Art 10 UN Charter.

²³⁰ See Art 13 UN Charter.

²³¹ Particularly the G8, from the 2005 Gleneagles summit onwards.

²³² See Goldthau and Witte (eds) (n 45) 15.

NOCs.²³³ In that respect, their implications for global energy security could be considerable. Moreover, one should bear in mind the extra-territorial obligation of States to hold their companies responsible for their actions abroad.

The advent of NOCs has led to the transformation of energy exploration and the decoupling of the upstream and downstream aspects of the sector. Previously, a few private—mainly UK and USA²³⁴—IOCs had come to dominate oil exploration through the—at times, aggressive—patronage of their home States, and by committing host States into long-term contracts.²³⁵ The wave of disputes, and their sticky resolution, that arose during the decolonization process through the assertion of sovereignty over natural resources by newly founded States has been the main impetus behind the adjustment of the international legal system to promote investment-protection norms.²³⁶ One might have imagined that this rise in ‘resource nationalism’ would have harmed markets. However, this is far from clear. In fact, it may have had an opposite effect on global markets. Previously IOCs dominated the production, along with the refinement and distribution aspects, of oil. Consequently, the rise of NOCs took production largely out of IOC hands, thus making more oil available on the global markets outside traditional vertically integrated operations run by IOCs. Moreover, the decoupling of the upstream (ie the operations concerned with exploration and extraction of energy commodities) and downstream (ie the operations concerned with getting energy commodities to consumers) aspects of the oil supply has increased the number of actors and potentially has contributed to more healthy competition in this sector.²³⁷

That said, the rise of NOCs could potentially harm investments in that some NOCs divert a sizeable share of oil revenue into social projects aimed at raising the living standards of their populations.²³⁸ However, it should also be noted that IOCs have similar obligations in that they use revenues for shareholder payouts. Moreover, within the parameters of global markets, IOCs develop production capacity to the extent that it is profitable to do so. Any matter that might potentially undermine energy supply investments is a cause of concern, given that the IEA projects that monumental sums need to be committed in order to meet the increase in global energy consumption by 2035.

²³³ A Jaffe and R Soligo, ‘State-Backed Financing in Oil and Gas Projects’ in Goldthau and Witte (eds) (n 29) 107.

²³⁴ See the US Federal Office of the Historian’s note on the ‘Seven Sisters’ at <<http://history.state.gov/milestones/1921-1936/RedLine>> accessed 14 July 2013.

²³⁵ These matters have been well documented by, among others, A Anglie, *Imperialism, Sovereignty and the Making of International Law* (CUP 2004); Stevens in ‘Oil Wars: Resource Nationalism and the Middle East’ in P Andrews-Speed (ed), *International Competition for Resources: The Role of Law, the State, and of Markets* (Dundee University Press 2008) Ch 2; and Schrijver (n 9).

²³⁶ This has been done through, among other things, contracts between States and private investors, in which the former waive sovereign immunity-to-suit in foreign adjudicative ‘fora’ so that the latter are able to enforce arbitration outcomes, and through the adoption of State-to-State legal agreements that obligate States to offer degrees of protection for property interests, including over investment interests (eg through the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR), the ECT regime, and other aspects of investment protection discussed in this article). See also RD Bishop, ‘International Arbitration of Petroleum Disputes: The Development of a “Lex Petrolea”’ (1998) *Youth Challenge Academy*.

²³⁷ See Goldthau and Witte (eds) (n 45) 4.

²³⁸ Venezuela’s NOC—PDVSA—is a case in point. It diverts around USD 60 billion annually towards social projects. Between 1998 and 2009, there has been a 50 per cent loss of productive capacity, namely from 3.8 million barrels per day to 2 million barrels per day, respectively. See Jaffe and Soligo (n 233) 110.

There are also concerns around NOCs lending themselves to corrupt regimes that are incapable of exploiting State resources for the collective good, and who run these NOCs as personal fiefdoms.²³⁹

Global markets

Global markets, including financial markets, are formidable forces in the globalized world. Trade among people has been happening for more than 5,000 years, and was a key factor in the development of human civilization.²⁴⁰ In that sense, markets precede international institutions and rules. Institutions and rules were subsequently developed to streamline inter-State economic transactions and to entrench, in modern times, market-based systems with the higher aim of capitalist expansion.²⁴¹ In that sense, global markets, including financial markets, should not simply be viewed as stemming from the operation of international institutions and rules; rather, they should be understood as realities whose implications are broader than those of the institutions and rules in place.

The fundamental dynamic that drives markets is the search on the part of capital-possessing entities to find fields of speculation where there are reasonable prospects for profit. When capital-possessing entities exhaust domestic fields of speculation, or where they consider higher rates of profit to exist outside the domestic realm, they push their governments to pursue market-friendly foreign policy. This is reflected in developments in the multilateral trade system (which has become increasingly more liberalized with the successive reduction in the level of trade tariffs), in the successive integration of economies (eg EU, NAFTA and FTAs in Latin America and in Asia), in the liberalization of financial markets with money being a tradable commodity in its own right and the removal of many capital exchange controls, and in the deregulation of credit over the last 30 years. In the field of energy production and pricing, the operation of non-traditional actors—eg financiers and speculators, rather than oil companies alone—has implications for energy pricing²⁴² and, consequently, for energy security.

²³⁹ See the example whereby the World Bank had sought to place conditions on how shares of Chad's oil revenues were to be ring-fenced for developmental purposes and thus outside the immediate budgetary scope of the Chad government by binding the latter into agreements it later reneged on. This arrangement was aimed at securing intergenerational rights to the benefits that Chad's oil revenues could fund. See A Leibold, 'Aligning Incentives for Development: The World Bank and the Chad-Cameroon Oil Pipeline' (2011) 36 *Yale Journal of International Law* 167–204.

²⁴⁰ See R Overy (ed), *Complete History of the World* (Times Books/Harper Collins Publishing 2008) 55, where it is stated: 'Trade and exchange were important in the expansion of the first civilizations. The possession of prestige goods and the desire to acquire more resources were instrumental in the emergence of the first empires in Mesopotamia.'

²⁴¹ The setting up of institutions and rules reflects the concerted efforts of the Western group of WWII victors to set up a world order that preserved their interests. Philippe Sands considers the advent of international institutions and rules, and the strengthening of international law, as a reflection of Anglo-American efforts towards the creation of a global rules-based system to entrench their own economic and social interests. This system arose against the backdrop of the Cold War to contain the threat of communist expansion. See P Sands, *Lawless World: The Whistle-Blowing Account of How Bush and Blair are Taking the Law into their Own Hands* (Penguin 2006) (at 13). See also R Kagan, *Paradise and Power: America and Europe in the New World Order* (Atlantic Books 2003) (at 71).

²⁴² See R Lenzner, 'Speculation in Crude Oil Adds \$23.39 to the Price per Barrel' *Forbes* (27 February 2012) (on how speculation in futures markets might add USD 23 per barrel to oil prices). Available at <<http://www.forbes.com/sites/robertlenzner/2012/02/27/speculation-in-crude-oil-adds-23-39-to-the-price-per-barrel/>> accessed 14 July 2013.

6. Conclusion and recommendations

There is not a single international organization that deals with global energy governance, nor is there a single agreement that deals with energy in a comprehensive manner. Instead, there is a multitude of instances of inter-State cooperation that touches upon energy and thus the global energy economy. The realities of inter-State cooperation—namely the non-linear and ad hoc occurrence of cooperation—have led to matters relating to energy being dealt with in a manner that lacks absolute cohesion. There is a wide range of institutions that pertain to the global energy economy; yet there is a misalignment between their respective purposes and mandates. As can be seen in Table 3, although there is a degree of overlap between the remits of a number of relevant institutions, there is insufficient cohesiveness between these.²⁴³ In that respect, the fragmentation of international law is simply a reflection of the realities of inter-State cooperation. Though jurisprudential tools exist to cohesively integrate the international obligations of States in a manner that such obligations be discharged sympathetically *inter se*,²⁴⁴ the issue is essentially political and can be more effectively addressed through those means. In reality, obligations are discharged outside the remit of judicial processes, and when disputes arise, not all of these end up before an adjudicative agency. So it is one thing to ask how these obligations ought to be discharged, and quite another what ends up happening on the ground.

In relation to instances of inter-State cooperation relating to energy security, the furthest the broader community of States goes is to set up talking-shops and to share data through the IEF and JODI. More robust regimes extending to energy security do exist, although these are restricted in their scope eg the EU, IEA and ECT. In that sense, it would not be inaccurate to claim that the seeds have been sown for a global energy security governance system to potentially take root in future (namely the IEF and its wide participation). However, the existing global energy security governance system is ineffective.

We might want to take the normative patchwork that emerges to amount to a global energy governance system of sorts. However, in our view, it is more accurate to describe it as an aggregation of stand-alone instances of inter-State cooperation that relate to energy, but that insufficiently link up on other levels, including scope and governance. In that sense, there is currently insufficient cohesive governance among the various fields of energy-related inter-State cooperation to justify the presumption of an emerging global governance system. Nor is it helpful that much of the literature refers to ‘global energy governance’ without sufficiently highlighting the arbitrary nature of this abstraction. Though we might see much merit in such a system, it is more accurate to talk about

²⁴³ For instance, in terms of monetary policy, we see that the WTO systemically defers such policy questions to be resolved first within the context of the IMF. There are occasional accusations between some WTO Members of currency manipulation. The IMF provides degrees of governance over monetary policies to ensure that these are in line with its Articles of Agreement. Invariably, disputes about appropriate levels of currency valuation involve trade interests. This explains why WTO Members might see this as the appropriate regime within which to resolve such disputes. Art XV:9 GATT, however, indicates that exchange measures in line with IMF obligations should not be opposed under the GATT. See Staiger and Sykes (n 197), where the relationship between IMF and WTO is discussed.

²⁴⁴ See C McLachlan, ‘The Principle of Systemic Integration and Article 31(3)(C) of the Vienna Convention’ (2005) 54 *International & Comparative Law Quarterly* 279–320, for an exposition of the means and how these have been deployed by the International Court of Justice, the WTO Panel and Appellate Body, and the European Court of Justice.

governance in the specific themes that engage, or otherwise relate to, global energy governance, which incidentally is never truly ‘global’, though there are examples of near universal reach—eg the WTO in relation to trade and the UNFCCC in relation to environmental protection.

The current state of play in terms of global energy governance has implications for global energy security in that, arguably, the absence of an overarching, truly universal regime has meant that States continue to engage in inter-State cooperation along bilateral, regional, multilateral—yet never universal—lines to secure access to energy resources. Let us refer to these as ‘bottom-up approaches’. The EU is keen to entangle Russia and Ukraine, among others, in PTAs, while China and Russia engage in energy diplomacy, which could have implications for energy supply and therefore global energy security.

IEA members are legally obligated to hold 90 days’ worth of oil reserves in order to address potential energy supply disruptions. This allows them to assist one another in such eventuality. The EU, in its sophistication, creates more rational market conditions within its internal market. It also engages in external relations to advance its members’ energy security needs. Other inter-State instances of cooperation take similar steps. The question is: do these somehow contribute to greater energy security for the international community, or do they, given that the bulk of energy supply continues to derive from finite resources, perpetuate zero-sum dynamics in energy-security related inter-State relations? Research would be welcome to assess whether these ‘bottom-up’ instances of inter-State cooperation in relation to energy security have an effect similar to how PTAs seem to enhance the overall multilateral system (discussed above regarding PTAs and the WTO) and to assess what the specific and accumulative implications of each institution and matter in scope might be upon global energy security. For instance, do they enhance or undermine prospects for global energy security? Given that the aim of energy security should be global, would a bottom-up regime of regions working together be the most effective way forward? Just as the IEA acts in the context of the OECD countries, similar arrangements could be created in other regions/groupings of the world. This could be achieved thanks to the inclusion of strong energy chapters in RTAs (such as the Trans-Pacific Partnership Agreement, the Southern African Development Community, and the East African Community, to name a few examples).

Top-down approaches, for their part, are undoubtedly more effective when supported by efficient dispute resolution and enforcement mechanisms. However, they are also less likely to be adopted in such a sensitive field of cooperation as is energy security. Top-down instances such as the IEF, whilst laudable and to be encouraged and further strengthened, are less powerful, given that they are limited to facilitating dialogue and data-sharing.

The key question is: What is to be done to push the most influential States towards adopting policies that meaningfully address energy security in a manner that promotes environmental protection and economic development? Any such solution must surely include policies that promote the full exploration of renewables and the dramatic reduction of fossil-fuel emissions. This is likely to be opposed not only by energy net exporter States but also by other economies—including net importers—whose NOCs (eg in the case of China) and IOCs [eg British Petroleum (BP), ExxonMobil, Shell and others] are

likely to be harmed by such policies. In today's globalized world, the implications could be far-reaching. Within the parameters of the market-based global order, how could the private sector and the existing actors in energy exploration be sufficiently enticed to progressively replace the currently fossil-fuel dominated energy mix with one exclusively based on renewables? To that end, should States pool funds to subsidize the existing actors such as IOCs and NOCs?; should they set up large-scale infrastructure under common ownership?; or should they leave it to markets to make the transition to renewables at their own pace?²⁴⁵ These are ultimately political questions that engage economic relations that are, ultimately, resolved in relation to the political values that the dominant State actors promote in relation to the global economy.

* * *

Table 3 below is meant to offer at a glance a snapshot of what area of policy each regime extends to, without going into too much detail into the specifics of each regime/institution. The table explains for most, if not all, institutions what their relationship to each field of international cooperation included in the article is likely to be. For instance, the UN is chiefly about security. In that respect, it is not charged with energy security or trade or investment matters. It is neither charged with environmental protection; however, the UNFCCC has been adopted within its auspices.

²⁴⁵ Fossil fuels, although finite, remain abundant and reserves exist to fuel many years of consumption ahead. In that respect, it remains more profitable for market actors to exploit these until their exhaustion. However, such an approach does not acknowledge the environmental cost, which could be partially quantified in relation to the cost to adopt climate change mitigation and adaptation measures, nor does it factor in the broader implications—eg on inter-generational rights to the amenity that the environment offers. When the exploration of fossil fuels is considered in terms of its broader implications for the environment and for human security (where, eg conflict results because of competition to control finite resources, such as was the case of both Iraq wars, Sudan internecine conflict, and so on), the social and environmental costs outweigh the fiscal gain that accrues to a few actors, namely to NOCs and to IOC shareholders. This starkly illustrates how the wellbeing of the environment and the life it sustains, including seven billion human beings, is subjugated to the economic interests of actors in global energy markets.

Table 3. At a glance: institutions *vis-à-vis* fields of inter-State cooperation relating to energy

	Trade	Investment	Development	Environment	Energy transit	Energy security
UN	Partially. See the UN Conference on Trade and Development, chiefly concerned with the interests of developing States.	Partially, through the promotion of ICSID in relation to investment disputes.	Partially. See the UN Conference on Trade and Development expressly focused on the interests of developing States.	Yes—eg UNFCCC and its Kyoto Protocol.	Partially to the extent that the right of innocent passage and the freedom of transit in maritime areas have been protected in international agreements adopted within the context of the UN by a substantial number of coastal states.	No express mandate. The effect of the UN Charter (and of its normative framework) on energy security is unclear. The UN Charter preserves State sovereignty (including over natural resources) and expressly prohibits unlawful external intervention.
EU	Yes. There is a single market among the 28 EU Member States and other neighbouring States through the EEA.	Yes—the EU is based on the four fundamental freedoms of movement of goods, services, capital and labour. The free movement of capital relies on investment protection.	Yes—see Cotonu Agreement and the EU's Generalized System of Preferences.	Yes. See for instance the EU's emissions trading scheme.	Yes. Intra-EU energy transit protected and promoted. Also EU bound by transit provisions of WTO and ECT.	Yes. EU energy policy includes external and internal aspects. External in that it pursues external action that advances EU energy security, and internal in that it legislates to further integrate the internal energy market.
NAFTA	Yes, by integrating the markets among its three Members.	Yes.	No express mandate.	No express mandate. However, various NAFTA provisions (eg Articles 103, 104, 715, 906, 907, and 1114) relate to the rights of parties in relation to their environmental objectives.	Unclear. Intra-NAFTA restrictions apply to transit and transport.	Unclear—potentially positive implications by making energy markets more fluid among its three Members.

(continued)

Table 3. Continued

	Trade	Investment	Development	Environment	Energy transit	Energy security
MEF ASEAN	Partially by ad hoc commitments arising from discussions between its members Yes.	Yes.	Yes.	Yes.	Yes. Trans-ASEAN gas and electricity projects underway.	Yes.
ECC	Yes.	Yes—example <i>par excellence</i> regarding protection.	Purportedly so. Unclear how this takes place.	Purportedly so. Unclear how this takes place.	Yes. Freedom of transit consolidated in Article 7 ECT. Express reference to fixed infrastructure.	Yes, in relation to its membership.
G8	Partially by ad hoc commitments from time to time by its Members					
G20	Partially by ad hoc commitments from time to time by its Members					
GECF	Yes—gas producer interest group.	No.	No express mandate.	GECF argues that the promotion of gas over other hydrocarbons is better for the environment. It is unclear, however, what other measures are taken within GECF to address environmental degradation.	GECF members exchange information and know-how in relation to, among other things, transportation technologies. It is unclear to what extent this enhances energy transit.*	No express mandate. GECF is more concerned with energy (gas) demand security in the interests of its members.
IEA	No express mandate.	No express mandate.	No express mandate.	Purportedly so by listing ‘environmental awareness’ as one of its four principal focuses.	Not expressly.	Yes, its membership’s energy security through the obligation for stockpiles.

(continued)

Table 3. Continued

	Trade	Investment	Development	Environment	Energy transit	Energy security
IEF	No.	No.	No.	No.	Not expressly.	Potentially positive implications, by facilitating much needed data-sharing between energy consumers and producers.
OPEC	Yes—oil producer interest group.	No.	No.	No.	No.	No, though it is concerned with OPEC members' security of energy 'demand'.
WPC	Potential positive implications for all these fields of inter-State cooperation by facilitating dialogue					
WTO	Yes—multilateral trade regime <i>par excellence</i> .	Partially—see the TRIMs Agreement and GATS.	Partially—see WTO's Special and Differential Treatment.	No express mandate. However, various relevant provisions and the SPS Agreement relate to environmental concerns (see relevant WTO entry in the article).	Yes. Freedom of transit consolidated in Article V GATT. Unclear what the implications are for energy transit through fixed infrastructure.	No express mandate. However, WTO provisions support energy flows through freedom of transit and by prohibiting quantitative restrictions on tradable commodities.

*See <<http://www.gecf.org/aboutus/gecf-objectives>> accessed 14 July 2013.