XI.105 Energy security

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Abstract
This chapter explores the role of international law in guaranteeing energy security. It looks at challenges to long-term and short-term energy security and how these are addressed by international law. It discusses how international law facilitates long-term energy security by enabling foreign investment, trade and free transit of energy. It then looks at how international law responds to political, environmental and non-conventional short-term threats to energy security.

Keywords
Energy security, energy transition, trade and investment, pipeline and hydropower treaties, energy terrorism

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XI.105.1 Introduction

As the Prometheus myth teaches us, the use of energy beyond our own physical capacities has always been fundamental to our existence as social human beings. Indeed, changes in our use of energy resources – from water, animals, other humans, hydrocarbons, and beyond – have been a major driver of change to our economic, social and political structures. Today, our main long-term challenge is finding and harnessing sources of energy that allow us to maintain our standards of living without damaging the environment. In the short term, however, there is also a need for a secure supply of energy, free from interruptions due to geopolitical, military, terrorist, environmental or other causes. Both long-term and short-term needs for secure supplies of energy are comprehended

in the concept of 'energy security', defined as the 'uninterrupted availability of energy resources at an affordable price'.[1]

In achieving energy security, both long-term and short-term, international law has an important role to play. This is essentially because energy – in the form of natural resources such as coal, oil, gas or uranium, or in the more processed form of electricity – is unevenly distributed among states around the world. For this reason, energy is typically exported from relatively resource-rich countries to relatively resource-poor countries, often across other countries by mobile means or fixed pipelines. International law facilitates long-term energy security by protecting the foreign investments needed to produce and distribute energy, by guaranteeing trade in energy and energy services, and by guaranteeing the free transit of energy. International law also has a role to play in short-term energy security, by establishing rules prohibiting states from intentionally interrupting energy supply, and by establishing more elaborate mechanisms to respond to emergencies resulting from unintentional interruptions in energy supply.

XI.105.2 Long-term energy security

XI.105.2.1 Protection of investment in the energy sector

Foreign investment in the energy sector is often prone to risk, including natural and political risks. An oil deposit may turn out to be dry; the environmental, health and other effects of constructing and operating nuclear power plants and hydropower plants, which are expensive and long-term projects, may cause them to lose political support over time; and national security concerns may result in increased regulation or even nationalisation. Some of these risks can be addressed in contracts, in the form of concessions, production-sharing agreements, service agreements, or power purchase agreements, which set out rules for the allocation of risks and profits between a state and an investor. But foreign investments are also typically protected by international investment law, primarily in the form of treaties which establish a set of substantive protections for foreign investors and their investments.

These investment treaties expressly prohibit expropriation without proper compensation, as well as unfair or discriminatory treatment on the basis of nationality. These treaties also include dispute settlement clauses (usually providing for international arbitration), which have the effect of delocalising any dispute arising in connection with the investment and giving more security to the investor.[2] In this way, investment treaties promote long-term investments in the energy sector and enable energy security. Investment treaties also play a role in securing energy security in the very long term, which, as reflected in the Paris Agreement and other relevant treaties (including human

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[1] International Energy Agency (IEA), 'Energy Security'.

[2] While these treaties are designed to protect foreign investors, over the last few years host states have also relied on them to bring counterclaims against foreign investors for the environmental damage caused by their activities (including mining and energy activities); see e.g. *Burlington Resources Inc. v Republic of Ecuador*, ICSID Case No. ARB/08/5, Decision on Counterclaims, 7 February 2017. These counterclaims, if successful, might discourage future foreign investments in the extraction and production of energy resources and, in turn, indirectly affect energy security.

rights treaties),[3] requires a transition to low-carbon and eventually carbon-free energy resources. Developing these alternative sources of energy at scale also requires significant, and often long-term, investments, and investment treaties also provide the security for investments in these sources of energy.

That said, in the short-term, international rules on investment can make it more difficult for states to transition to carbon-free energy sources. Changing the regulatory environment in which fossil fuels or nuclear power investments were originally made, for example by adopting policies phasing out the use of these resources, can give rise to claims for compensation by foreign investors.[4] Incentives to attract renewable energy investments must be carefully designed, because they can trigger claims for breach of investors' legitimate expectations if they are later reversed because they turn out to be overgenerous.[5] In addition, requiring foreign investors in renewable energy generation equipment to use local content can violate WTO rules on trade-related investment measures.[6] In these senses, international rules on foreign investment impose constraints, typically requiring compensation and non-discriminatory treatment, on states wishing to adopt climate-friendly policies and thereby imperil long-term energy security.

XI.105.2.2 Protection of trade in the energy sector

Energy security also depends on trade in energy resources. Resource-poor countries are heavily dependent on imports of resources, such as coal, oil, natural gas and uranium, from which they can produce energy and satisfy their domestic energy demand. For resource-rich countries, on the other hand, exports of energy resources represent a significant (and sometimes primary) source of revenue.

International trade law contributes substantially to liberalising and facilitating trade in the energy sector. Rules on market access, non-discrimination and transit enable the international movement of energy goods and, also importantly, trade in energy services.[7] These rules are contained in multilateral treaties, such as the Energy Charter Treaty (ECT) and the WTO agreements, as well as bilateral or plurilateral FTAs. This is not to say that free trade in energy goods and services is guaranteed. States may, through negotiations, retain the right to impose customs duties on energy goods, as well as discriminatory restrictions on energy-related services. They also typically retain a right to restrict trade in energy goods and services on public policy grounds, including a right to protect exhaustible natural resources, provided that they do not do so in an arbitrarily discriminatory manner. Trade agreements also typically contain national security

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[3] In *Urgenda Foundation v The State of the Netherlands* (2019), the Dutch Supreme Court asked the Netherlands to reduce its greenhouse gas emissions beyond the set targets in light of its obligations under the European Convention on Human Rights as transposed into Dutch domestic law.

[4] See e.g. *Vattenfall AB and others v Federal Republic of Germany*, ICSID Case No. ARB/12/12.

[5] See e.g. *Charanne and Construction Investments, and others v Spain*, SCC Case No. V 062/2012, the first of 36 cases initiated against Spain on those grounds.

[6] WTO Panel Report, *Canada – Renewable Energy*, 24 May 2013, WT/DS412/R; see *infra* Chapter XI.83. WTO Panel Report, *India – Solar Cells*, 14 October 2016, WT/DS456/R; see *infra* Chapter XI.76.

[7] WTO Panel Report, *EU – Energy Package*, circulated on 10 August 2018, WT/DS476/R; see *infra* Chapter XI.77.

exceptions, which permit states to protect, to the extent they consider it necessary, their essential security interests in certain specified situations, including 'emergencies in international relations'. Therefore, while they are important, trade rules guaranteeing long-term energy security are dependent on negotiations, and are subject to certain important exceptions. In addition, they do not do much to discourage states violating their obligations, as enforcement of these obligations typically takes years, and the only available remedy is to cease the breach, not to compensate for any damage caused in the past.

XI.105.2.3 Protection of transportation and transmission of energy resources

Energy resources need to be transported and distributed internationally to be able to reach end-consumers in other states. Protecting transportation and transmission networks is therefore fundamental to guaranteeing a secure energy supply.

Energy goods, such as oil and gas, are distributed across states via land (e.g. on trains, trucks or through pipelines) or sea (through pipelines or Liquefied Natural Gas (LNG) tanker ships); electricity is also transmitted via land (e.g. through electrical grids) or sea (through subsea electricity cables). These forms of transportation and transmission of energy resources are also, at least to some extent, protected by international law, even without specific international cooperation. Thus, states are entitled to navigate and pass through different maritime areas (including those within another state's national jurisdiction), and even to lay pipelines on another state's continental shelf without its consent.[8] But more specific international treaties can go much further in facilitating these activities. For example, regional frameworks can support the transmission of electricity,[9] and pipeline treaties allow pipeline systems to be owned and operated by a single entity, as opposed to multiple owners and operators based in different states. Pipeline treaties can also contribute to energy security when they provide for their own dispute settlement mechanism, thus avoiding political resolutions frequently influenced by extra-legal factors (e.g. geopolitical instability).[10]

XI.105.3 Short-term energy security

International law can also contribute to overcoming short-term energy security threats, both intentional and unintentional.

XI.105.3.1 Political threats to energy security

Countries in control of energy resources can be tempted to use them as a means of exerting political pressure on countries that depend on access to these resources. This happened for the first time in a significant way in 1973, when certain Arab OPEC members imposed an oil embargo on several energy importing countries. The result

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[8] Under UNCLOS Art 79(3) and customary international law, a coastal state's consent will only be required in relation to the direction of the pipeline.

[9] In the EU electricity is distributed via the European Network of Transmission System Operators for Electricity (ENTSO-E). ENTSO-E was established by Regulation EC 714/2009 and brings together 43 transmission system operators (TSOs) from 36 countries.

[10] See e.g. West Gas Pipeline Agreement (31 January 2003), Arts IV(1) and IV(2) (on centralised ownership and operation of the pipeline) and Arts IV(15)(1) and VI(5)(1) (on the dispute settlement mechanism).

was a quadrupling of the price of oil in three months, which had a lasting, negative impact on global energy demand. In response, the international community created the International Energy Agency (IEA), an institution representing the interests of oil-importing countries and entrusted with designing emergency measures to promptly and effectively address oil shortages. These measures include the holding of emergency oil reserves which can be released in case of oil supply shocks. These measures have proven effective over the years and the IEA is designing similar mechanisms in relation to shortages of other resources, such as gas and electricity.

XI.105.3.2 Environmental threats to energy security

Energy security can also be impaired as a result of natural causes, sometimes exacerbated by state action. Power shortages can occur as a result of natural disasters, such as hurricanes, earthquakes, floods or a pandemic, which, while often unpredictable, are now becoming so common that states are increasingly adopting national emergency plans to protect local infrastructure and the provision of essential services, including electricity. Power shortages can also occur as a result of shortages in the alternative sources of renewable energy. The production of renewable energy, such as solar and wind energy, depends on the availability of sufficient sun and wind respectively, and is thus vulnerable to factors that can change abruptly and are beyond states' control. Similarly, the production of hydropower depends on the availability of sufficient water-flow and this, besides being a variable controlled by nature, can also be controlled by a neighbouring state, if the watercourse used to produce power is shared.

Hydropower treaties can help to address these concerns by creating a legal framework imposing obligations on both parties (including the obligation not to stop the flow of the water) and preventing one party from taking control of a shared water resource.[11] Furthermore, the international community established the International Renewable Energy Agency (IRENA) to provide states with a platform where they can cooperate and develop strategies to cope with issues such as renewable energy intermittency. IRENA's goal is to help states to transition towards renewable sources and achieve energy security and energy independence, by relying on their indigenous resources.[12]

XI.105.3.3 Non-conventional threats to energy security

Recent years have also seen the emergence of other, non-conventional security threats for the energy sector, such as energy terrorism and unauthorised cyber intrusions. These activities can target any stage of the energy cycle, from production to distribution, transmission or storage, and are also therefore considered indirect energy security threats.

Energy terrorism is targeted violence against an energy activity with the aim of affecting public opinion. This can include direct harm to infrastructure as a means of disrupting energy supply, or taking employees hostage for ransom. Islamic State in particular has utilised both methods as part of its campaign to overthrow established

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[11] See e.g., Indus Water Treaty, Arts II and III.

[12] IRENA, 'A New World: The Geopolitics of the Energy Transformation' at 6.

governments in the Middle East and North Africa.[13] Cyber intrusions can also target energy infrastructure, as seen in 2015 and 2016, when Ukraine's power grid was targeted in a denial-of-service campaign, resulting in power shortages. The anonymity of cyberspace makes it difficult for a state to identify who is responsible for a cyber intrusion, and even when it is possible to identify the perpetrator, it may be difficult to tackle promptly and effectively the source of such threat, especially when the perpetrator is a subversive non-state actor operating in or outside the country, or another state using a cyber-attack as a form of retaliation.

Such non-conventional threats are handled in a similar, ambiguous way by international law, which does not define the relevant acts themselves but accepts that terrorism and cyber intrusion can be addressed under the UN Charter and the prohibition of the use of force. States have generally remained silent about how the Charter and customary international law apply in practice to energy terrorism or cyber intrusion, creating some legal uncertainty in the international community, particularly regarding non-state actors engaged in these practices, as well as state behaviour in cyberspace more generally. As a result, there remains something of a gap in the international legal response to these non-conventional threats to energy security.

XI.105.4 Conclusion

International law contributes significantly to long-term and short-term energy security through instruments and mechanisms protecting investment, trade and transportation of energy. It is still developing responses to threats from political disruption, natural disasters and non-conventional security threats, as well as the need to transition from carbon-based towards low-carbon and carbon-free energy resources, but history shows that when threats to common human interests are perceived, international law to mitigate these threats is often found not far behind.

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[13] For example, in October 2014, Ansaral-Bait Maqdis (ABM), self-declared supporters of Islamic State, claimed responsibility for blowing up the Arab Gas Pipeline which carried gas from Egypt to Jordan. In 2015 Islamic State fighters in Libya attacked oil fields and took hostages, with the reported aim of destabilising the Libyan government.