

Legal, regulatory and industry frameworks

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1. Introduction

This chapter provides an overview of the legal, regulatory and industry frameworks governing the wind sector, and more generally the electricity industry of which it forms a part. It goes without saying that each country has its own legal and regulatory framework, with different quirks and nuances. However, over the last few decades many countries have seen the liberalisation of their electricity industries follow a similar pattern, with the introduction of independent regulators and the opening up of the wholesale and retail markets to new participants. Wind remains a relatively new sub-sector of the industry and countries have looked to each other for guidance on how best to grapple with the specific opportunities and challenges that the technology presents, not least because of its interaction with climate change policies and the involvement of regional or global developers and technology providers in the sector.

The chapter provides an overview of the main considerations for wind projects when considering the overarching legal, regulatory and industry frameworks, with specific details drawn from the regime in the United Kingdom¹ and selected other jurisdictions to illustrate the approaches taken.

2. Key bodies

2.1 Introduction

The energy ministry, regulator, system operator and wholesale market operator are the key functions that usually need to be understood and interacted with in promoting a wind project in most jurisdictions. This section outlines the role of the most fundamental entities. However, beyond that, there can be a number of other relevant jurisdiction-specific entities, such as regional municipalities, public-private partnership bodies, environmental agencies, planning consenting bodies, health and safety regulators, network system owners, power purchasers, power exchanges and

1 The United Kingdom principally comprises England and Wales, Scotland and Northern Ireland. Great Britain principally comprises England and Wales and Scotland. The legal systems are slightly different in England & Wales, Scotland and Northern Ireland. In addition, devolution has led to some separation of government bodies and executive administrations in England, Wales, Scotland and Northern Ireland. In this chapter, with apologies to Irish colleagues, the term 'United Kingdom' is sometimes used to refer to the market and arrangements that apply in Great Britain. While this is not strictly accurate, and very different arrangements may apply in Northern Ireland, this reflects common international usage of the term when discussing the British power market.

various stakeholders affected by wind developments, such as the armed forces and air traffic control (affected by radar), bird and heritage protection bodies, marine conservation bodies, fisheries organisations, ports authorities and similar.

2.2 Government

In the 1980s and 1990s, power markets took an orthodox view of the primacy of competitive markets which were thought to drive optimal least-cost decisions by developers as to the amount and type of new generation capacity that they should build. Despite ardent efforts by economists to create a perfectly level playing field in the electricity markets, the industry remained closely regulated and the industry rules required regular tweaking (or stronger interventions, such as restructuring utilities or forcing divestments of assets) by the regulator or government to ensure that it functioned in the interests of consumers while also promoting appropriate investments.

In particular, the design of many markets loaded the dice against wind developments. Gas-fired power stations were often the price-setting technology in the wholesale market for electricity. Power prices were likely to track increases and decreases in gas prices, and markets therefore provided them with a natural hedge against volatility of gas prices. Markets also tended to favour technologies that were flexible to help the system match fluctuating demand for electricity.

Wind power's high upfront capital costs and intermittent output made wind projects less likely to be chosen for development without government intervention. When this came, support for wind projects went hand in hand with social, environmental and policy objectives: not only the climate change and decarbonisation agendas, but also, for example in the United Kingdom, a perceived over-reliance on gas raised concerns over the long-term security of electricity supplies. As North Sea oil production passed its peak, and with each geopolitical shift in access to gas, oil reserves and pipelines and a period of gas price volatility, security of supply issues rose further up the political agenda. Renewables, and wind projects in particular, were an obvious countermeasure.

Governments have maintained this central role in setting the policy in relation to wind development. In England and Wales, government policy for the electricity sector is the responsibility of the Department of Energy and Climate Change (DECC). Certain responsibilities for the sector are devolved to Scottish, Welsh and Northern Irish bodies, although there remains a broad coherence of approach across the United Kingdom. Most of the legislative, trading and support arrangements in England and Wales, for example, are adopted by the devolved administrations with the appropriate adjustments to meet their slightly different policy objectives.

Many other countries worldwide have a different constitutional set-up from the United Kingdom, with federal and regional governments which share responsibility for different areas of legislation and policy. Australia has a federal system of government. In the 1980s most infrastructure was owned by the different Australian states. However, over the last few decades the states have withdrawn from involvement and nowadays the commonwealth government has more legislative control over the electricity sector; agreements have been put in place between the

states and the commonwealth government to transfer regulatory powers to institutions governed by commonwealth legislation. The wind industry in Australia is therefore governed by a mixture of both commonwealth and state laws.

Many wind sector investors might consider the key role of government as being to define the level of financial support for wind projects and other technologies. This can be indirect, such as taxation on carbon emissions, or direct, providing grants or additional revenues for wind projects. However, the shift from *laissez-faire* government to active management of the electricity sector has led to a more intensive role for government in the sector. For example, in the United Kingdom, DECC grants generation consent for large power stations. For these purposes, it has published a National Policy Statement for Renewable Energy Infrastructure (EN-3) which is relevant for any entity looking to secure consent for a major wind project. DECC also intervenes in the electricity sector to deal with a variety of matters, such as reforming the wholesale market arrangements and regulatory framework, redefining the role of (within limits) or guiding the regulator, ensuring that adequate spare capacity is maintained to avoid blackouts, promoting particular competing high-cost or innovative technologies such as carbon capture and nuclear power, and in effect prohibiting some technologies such as unabated coal-fired power. The current trends suggest that the electricity sector will continue to be an important delivery vehicle for a variety of social and policy objectives, and that political decisions on affordability, technology choice and environmental impacts will significantly determine future investments in wind projects. Governments will continue to be a driving force behind investments in new wind generation capacity.

2.3 Offshore wind land rights – The Crown Estate in the United Kingdom

In the United Kingdom, any developer of a wind farm also needs to ensure that it has rights to the land/seabed it is building on. For offshore wind farms, this has given rise to the need to obtain rights (in the form of a lease or licence) from The Crown Estate, a non-governmental entity that is accountable to Parliament and the UK Treasury. The Crown Estate is a unique organisation that manages a property portfolio the income from which has been surrendered by the ‘crown’ (ie, successive monarchs) to Parliament. Hence, while The Crown Estate acts on behalf of the monarch, it operates for the benefit of Parliament and is now a corporation established and governed by statute. Among other things, The Crown Estate owns the seabed in territorial waters (ie, up to 12 nautical miles from the mean low water mark), and has also been granted rights relating to electricity generation from wind, tides and waves on the continental shelf.

Offshore energy strategic environmental assessments published in 2009 and 2011 concluded that at a strategic level there were no overriding environmental considerations to prevent installed generation capacity of up to 33 gigawatts of offshore wind.

The Crown Estate’s Marine Estate has become the *de facto* gateway to, and ‘procurer’ of, offshore wind developments in the United Kingdom. Being the landlord of an estate in land, The Crown Estate operates using traditional real estate instruments – that is, agreements for lease and leases. Offshore wind-farm

developments require the grant of a lease over a particular site, which is a property lease to the extent that the site is in territorial waters, but technically a licence beyond that boundary (although a 'lease' in form). To bring competitive tension to bear, and among other things realise commercial value from the estate, The Crown Estate has conducted bidding rounds for sites identified as suitable as confirmed by DECC's strategic environmental assessments. These rounds have been demonstration rounds for testing technologies, Rounds 1, 2 and 3 for commercial developments of increasingly larger size, and a Scottish territorial waters round for closer-to-shore Scottish developments.

A typical agreement for lease for an offshore wind project defines a geographical option area, a time period for the securing of consents for an anticipated development in that area and, once key consents are secured, an option to take a lease within a fixed period at a predefined rent to develop the project. It also provides for a lease to be granted over a cable corridor (the 'designated area') to landfall. In the Round 3 tender process, The Crown Estate chose to adopt a partnering approach with bidders and issued larger zones identified in zone development agreements within which agreements for lease could be granted for individual projects following initial feasibility studies. The partnering approach means that The Crown Estate takes an active role in a number of industry-level initiatives, including achieving cost reduction, establishment of the supply chain and enhancing health and safety standards; and, on behalf of the offshore wind industry, it has participated in undertaking an 'appropriate assessment' of the likely significant effects of the Round 3 tender programme on European habitat sites.

2.4 Electricity regulator

International best practice, which is also enshrined in the law of the European Union, recognises the need for an independent regulatory body (ie, independent of both government and industry) to oversee orderly functioning of electricity markets. Initially, regulators were seen as a necessary evil, included only because newly established electricity markets stacked the odds in favour of incumbent utilities and against new entrants. It was thought that they would gradually diminish in importance as markets matured, until eventually a small regulatory office might remain to regulate particular aspects of monopoly network businesses. In fact, the opposite has occurred.

In Great Britain, the regulator is the Gas and Electricity Markets Authority, exercising day-to-day functions through the Office of Gas and Electricity Markets (Ofgem). Rather than diminishing in relevance since liberalisation of the market in 1990, Ofgem has mushroomed in size, with its functions now radiating into a huge variety of areas. In a typical month, Ofgem might publish around 100 documents, many of them consultations, guidance documents or new rules, and it can be a challenge for the industry simply to process and manage this level of regulatory activity.

The broad scope of Ofgem is partly a reflection of the increasing amount of government intervention in the sector, with Ofgem being the delivery vehicle for many policy interventions, such as managing the subsidy arrangements for

renewable projects. It is partly a reflection of the maturity of the sector requiring significant and experienced teams to oversee highly intricate and complex industry and regulatory arrangements such as the technical network codes, market trading rules and network incentive arrangements. Also, contrary to some expectations, the electricity market has not settled down, but continues to evolve, constantly giving rise to new industry and regulatory issues that need to be resolved – among other things, the market has had to deal with the implications arising from, and from, the increasing amount of wind power on the system.

Traditionally, the main tool in the regulator's armoury has been the electricity licence. Major electricity companies generally need a licence to own or operate a network, operate a power station or supply electricity to customers, and this requires applying to the regulator which would be responsible for issuing and subsequently modifying, enforcing and revoking licences. While modern generation licences can run to more than 100 pages, from a wind generator's perspective much of the document is standard and in practice the regulator is principally concerned with ensuring that the wind generator complies with the wider industry framework, and that network utilities provide the wind generator with appropriate access to their system. Such access usually takes the form of a connection offer, being the commercial and technical terms on which the generator can connect to and use the wider electricity network.

The regulator also has the power to take enforcement action and impose significant fines. In the case of Ofgem, as a public body with a primary duty to protect the interests of consumers, depending on the circumstances, it can be held to account by parliamentary scrutiny, appeals to the Competition Commission, judicial review by the courts, regulatory impact assessments and consumer bodies.

2.5 Network utilities

The structure of the electricity market and management of the network has particular relevance when it comes to having wind generation on the system. In small countries, such as the Netherlands or the United Kingdom, fluctuating wind resources can cause periods when there is little to no wind generation being exported to the grid. Networks are grappling with the issue, including the increased need for standby power sources (called 'capacity') and reconfiguring the networks to make them smarter and more able to withstand periods of low or high wind. The network operator must manage this issue by actively assessing and forecasting meteorological data in its forward planning.

A physical network is an essential element of every electricity industry. The division between what constitutes transmission and what constitutes distribution is generally determined by reference to voltage. Transmission grid voltages, such as those in Great Britain, are generally high, while distribution network voltage levels are normally low; but this is not a hard-and-fast rule. One or more bodies are licensed to own and/or operate the transmission or distribution sectors, overseeing issues such as system management and connections. The management of networks is particularly important to the wind industry, due to the intermittent nature of wind power. To operate efficiently, wind generators need to be connected to transmission

or distribution systems that can balance and settle electricity effectively, so that any increase or decrease in the wind farm's generation does not have an adverse effect on the grid.

In Great Britain, the national electricity transmission system operator is National Grid, which also owns the transmission system in England and Wales. Scottish Power Transmission (SPT) and Scottish Hydro Electric Transmission Limited (SHETL) each own part of the transmission system in Scotland. In the United Kingdom, there are 14 licensed distribution network operators (DNOs), each responsible for the ownership and operation of the distribution system in a specified distribution service area. The 14 DNOs are owned by six different groups.² In contrast, in many countries the transmission and distribution systems are still owned and operated by a single entity, often state owned.

There are a multitude of reasons why network utilities are important for a wind project. First and foremost, interaction with the network utilities is required to access the market (except in the case of generation solely for use on the same site). The terms on which connection to and use of the system is provided are crucial for a commercially viable wind project. Second, network utilities vertically integrated with retail businesses may, in some countries, be designated as the required or likely offtaker for the power output from the project – if this is the case, the terms of the power purchase agreement offered will be key for the project's financial viability. Further, the network utilities will assess compliance with system technical requirements during and after the commissioning of the project and manage the flows onto their system from the wind project in its operational phase. These requirements are commonly set out in a transmission grid code. The system operator which operates that network may also have rights to require the project to cease to export in specified circumstances. It may be able to require, or contract for, services from the wind project required for the network to operate safely or to electrically balance the overall system. If the wind project is connected at distribution voltages, there may be a need to contract with both the distribution network operator/owner and the transmission network operator/owner, not only to access both networks but also to ensure that the requirements of each network are respected. The specific nature of connection and use-of-system arrangements is set out in section 6 of this chapter.

The broadly monopolistic nature of electricity networks has led a number of jurisdictions to legislate for a formal separation of electricity transmission businesses from generation and/or supply businesses. This can take the form of business separation through to a prohibition on ownership of both. The latter situation requires careful consideration where the owner of a generation business is looking to invest in transmission assets (eg, the offshore transmission assets described further below) or vice versa.

Separately, the network utility may be the market operator or, as is more usual in liberalised sectors, there may be a separate entity that is designated as a market operator. The market typically does not interfere with the day-to-day running of the

2 www.decc.gov.uk/en/content/cms/meeting_energy/network/network.aspx.