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1. Overview

1.1 Introduction

1.1.1 In England and Wales, the restructuring and privatisation programme, which began in 1990, saw full market opening phased in by 1999. In Scotland the vertically integrated energy boards were privatised in 1991. Only nuclear interests were initially retained and then privatised in 1996. The electricity industry in Northern Ireland (NI) was privatised between 1992 and 1993. Following privatisation, the landscape of the United Kingdom (UK) electricity market has changed in line with changes arising out of European Union (EU) legislation and in particular the principles of free competition, transparency, free access to the network and security of supply (see the EU chapter for further details on EU legislation).

1.1.2 The main implementing legislation for the Third Energy Package is the Gas and Electricity (Internal Markets) Regulations 2011 in Great Britain (GB) and the Gas and Electricity (Internal Markets) Regulations (Northern Ireland) 2011 and 2013 in NI. The Department of Energy and Climate Change (DECC) published an informal consultation in September 2014 proposing amendments to the transposition of the Third Energy Package into domestic law via draft regulations, which came into force in GB as the Electricity and Gas (Ownership Unbundling) Regulations 2014, and in NI as the Electricity and Gas (Ownership Unbundling) Regulations (Northern Ireland) 2015, on 15 January 2015 and 5 June 2015 respectively.

1.1.3 As a result of these measures, the UK has a fully liberalised and privatised electricity market.

1.2 Structure of electricity market

1.2.1 The Electricity Act 1989, as amended, (Electricity Act) is the primary GB legislation on electricity.

1.2.2 DECC is responsible for setting policy for the electricity sector in GB, while the market is regulated by the Gas and Electricity Markets Authority (GEMA). GEMA, acting through the Office of Gas and Electricity Markets (Ofgem), a non-ministerial government department, implements government strategy, effects policy priorities and takes decisions on a range of matters, including price controls.
1.2.3 In NI the Department of Enterprise, Trade and Investment (DETI) is responsible for formulating and delivering economic development policy in a number of sectors, including energy. The Northern Ireland Authority for Utility Regulation (UR) is the independent non-ministerial government department responsible for regulating NI’s electricity, gas, water and sewerage industries.

1.2.4 Since 2003, the Commission for Energy Regulation (the energy regulator in the Republic of Ireland) and UR have been running the All-Island Project. On 1 November 2007, a Single Electricity Market (SEM) was implemented, allowing the trading of wholesale electricity on an all-island basis. Because of this, Northern Irish policy on electricity is closely linked with that of the Republic of Ireland and should be considered on an all-island basis. A detailed analysis of the all-island electricity market is beyond the scope of this chapter, which addresses those key elements which are relevant to NI in the UK context.

1.3 Key players

**Generation**

1.3.1 In GB, the main companies involved in generation are EDF Energy, E.ON, RWE, Iberdrola/ScottishPower, Centrica and SSE. Known as the “big six”, they are also the predominant leaders in the supply industry.

**Transmission**

1.3.2 Different companies own the transmission network in each area of the UK: National Grid Electricity Transmission plc (NGET) (England and Wales), Scottish Hydro Electric Transmission Plc (SHE Transmission) (Northern Scotland), Scottish Power Transmission Limited (SPT) (Southern Scotland) and Northern Ireland Electricity Limited (NIE) (NI). The Transmission System Operator (TSO) for the whole of GB is NGET, whereas the TSO for NI is the System Operator for Northern Ireland (SONI), which in conjunction with EirGrid, holds the SEM market operator licence for the all-island market. In addition to these onshore transmission players, there is an emerging offshore transmission owner (OFTO) market currently for connecting to offshore wind farms, for which ten licences have already been granted in GB and which is seeing a number of new entrants to the market. The NI OFTO market is still in the development phase.

1.3.3 As further detailed in paragraph 2.2 below, interconnection between the GB transmission system and the transmission systems of surrounding countries is also a
fast growing area, with new links planned in addition to the four existing ones, currently linking GB with NI, Ireland, the Netherlands and France.

Distribution and supply

1.3.4 There are currently 14 licensed distribution network operators (DNOs) in GB, each responsible for a distribution services area, and one DNO in NI (NIE). Six independent distribution network operators (IDNOs) in GB own and operate smaller networks within areas covered by DNOs and mainly serve new housing and commercial developments.

1.3.5 The Utilities Act 2000 (Utilities Act) introduced the separate licensing of electricity supply and distribution in GB and has therefore been central in opening the market to electricity suppliers, which now includes over 100 licensees in GB. As referred to in paragraph 1.3.1, the “big six” are the predominant players in the supply sector, and remain so in spite of the provisions of the Utilities Act.

1.4 Current issues and drivers

1.4.1 The UK energy market, and the electricity sector in particular, is facing major challenges commonly referred to as the “trilemma”:

1. i. security of supply;
2. ii. achieving climate change targets; and
3. iii. affordability.

Security of supply

1.4.2 In 2012, government estimated that about 20% of the UK’s current generating capacity was due to close over the next ten years as a result of the scheduled decommissioning of old nuclear generating stations and the shutting-down of coal-fired generating stations in accordance with environmental commitments and EU requirements. Under EU legislation, polluting generating stations were able to opt out of adapting to meet emissions reduction targets, but would be forced to close by the earlier of (a) the end of 2015, or (b) when they exhaust their allowance of 20,000 generating hours from 1 January 2008. In fact closure rates have been higher than expected, as the allowed hours have been used due to higher than expected profitability of coal-fired generating stations resulting from higher gas prices.
1.4.3 Upgrades will also be needed to the grid to accommodate a changing generation portfolio no longer dominated by predictable and controllable fossil-fuel generating stations, and with an increasing level of intermittent outputs, such as wind generation. The transmission network is also working with the emerging offshore wind and tidal generation market, which presents challenges at a technical, planning and regulatory level.

Climate change

1.4.4 The UK has committed to:

- supplying 15% of the nation’s energy from renewable sources by 2020 (a target imposed by the European Union); and
- reducing greenhouse emissions by 34% (compared to 1990 levels) by 2020 and by at least 80% by 2050 (more than the minimum 20% reduction by 2020 target set by the EU).

1.4.5 The UK Renewable Energy Roadmap, published in July 2011 and updated in December 2012 and November 2013, sets out a comprehensive action plan to assist the UK in achieving the 2020 target. It also aims to drive innovation, building on existing programmes such as financial support mechanisms for renewables, the Green Investment Bank and energy efficiency, nuclear, and carbon capture and storage programmes.

Cost-effectiveness

1.4.6 In April 2014, the government estimated that leading up to 2020 the electricity sector will require an additional GBP 100b of infrastructure investment, with nearly GBP 14b of investment having already been made in 2013 and GBP 45b having been invested since 2010. These costs will ultimately be borne by customers and businesses, and economic viability is therefore a key influencing factor on the government’s choices.

1.4.7 The 2010–2015 coalition government came under public pressure in 2014 in relation to rising domestic energy bills with many press outlets challenging its approach to managing costs to consumers. In recent years, Ofgem has imposed fines more frequently on generators and suppliers for failing to meet various obligations and standards. On 26 June 2014 a market reference was made to the UK Competition Markets Authority (CMA), which amongst others things, aims to ensure cost effectiveness in the context of competition in the GB wholesale energy market. Please
Reforms

1.4.8 The Energy Act 2013 (EA 13) aims to make the necessary changes to the energy market required to meet the goals set out above. The EA 13 makes wide ranging fundamental reform to the electricity market (Electricity Market Reform (EMR)) in order to promote security of supply, manage end user costs and promote reduced carbon generation. More detail on the reforms, including those introduced pursuant to the EA 13, is set out at paragraph 3.4.3 onwards below.

2. Sector Analysis

2.1 Generation

Structure of generation sector

2.1.1 With the development of a competitive market in generation and through regulatory action, the number of generating companies in GB has grown to over 30, although as mentioned in paragraph 1.3.1 above, there are six major players, known as the “big six”: EDF, E.ON, RWE, Iberdrola/ScottishPower, Centrica and SSE.

2.1.2 According to the UK Electricity Statistics released at the end of June 2015, electricity generated in the first quarter of 2015 rose by 1.3%, from 93.71TWh a year earlier to 94.93TWh, displaying a recovery from the third quarter of 2014 when generation reached the lowest levels since 1998, at 76.34TWh. The UK remains a net importer with 5.2% of electricity supplied from net imports in the first quarter of 2015. Net imports of electricity remained virtually unchanged from 4.894TWh in the first quarter of 2014 to 4.890TWh in the first quarter of 2015, with imports mainly from France and the Netherlands. Final consumption of electricity during the first quarter of 2015 was provisionally 0.7% higher than in the same period in 2014.8

Energy mix

2.1.3 In the first quarter of 2015, the amount of electricity generated from coal decreased from 37% to 31.2% compared to a year earlier. Gas fired generation increased from 23.2% in the first quarter of 2014 to 25% in the first quarter of 2015.9
2.1.4 Generation from nuclear power plants rose from 17.6% in the first quarter of 2014 to 19.1% in the first quarter of 2015\textsuperscript{10} (see Figure 5).

2.1.5 UK government policy is to support the development of renewable generation, with the target of 15% by 2020 expected to be met largely by onshore and offshore wind projects (see further on this in paragraph 3.4 below on support schemes). Statistics produced by DECC show that low carbon electricity’s share of generation increased from 37.3% in the first quarter of 2014 to 41.4% in the first quarter of 2015, due to higher shares for renewables and nuclear generation\textsuperscript{11}.

Distributed generation

2.1.6 Since 2007, the UK has been working on promoting distributed generation (also known as embedded or dispersed generation). This is generation that is connected to a distribution network rather than the transmission network and is most commonly solar, wind and combined heat and power, installed at or close to where electricity is to be used (e.g. domestic households, schools, businesses, local communities etc.)\textsuperscript{12}. An Ofgem/DECC joint consultation process which concluded in 2009\textsuperscript{13}, resulted in modification of the standard conditions of electricity supply licences, to make it easier for the operators of such generating stations to operate as licensed suppliers\textsuperscript{14}. These changes resulted in a dramatic growth in the number of distributed generators seeking to connect to the distribution network. Ofgem published an open letter consultation in July 2014 seeking views on how DNOs have engaged with distributed generation customers in 2013–14; stakeholders and DNOs responses were recently published in Ofgem’s website with an overall positive assessment of the measures taken by DNOs for the engagement with stakeholders vis-à-vis the initiatives set in line with the Distributed Generation Workplan proposed by each DNO\textsuperscript{15}.

2.1.7 In July 2015, Ofgem issued a consultation on the Incentive on Connections Engagement: Looking Forward reports 2015/16\textsuperscript{16}. The Incentive on Connections Engagement (ICE), introduced on 1 April 2015, requires that DNOs make ICE Looking Forward submissions, which are intended to give large connection stakeholders information about certain DNO plans and performance outputs. The consultation seeks views from stakeholders on these submissions to inform Ofgem’s assessment.

Future outlook and new technologies\textsuperscript{17}

2.1.8 The UK is keen to promote a diverse mix of technology and fuel sources, so as to increase resilience and reduce exposure to the risk of supply interruption and spikes in fuel prices.
2.1.9 DECC anticipates the development of up to 16GW of offshore wind by 2020 and the deployment of over 39GW of offshore wind by 2030.

2.1.10 New nuclear generating stations are another important component in the government's plan and the first new nuclear power stations are expected to be generating electricity from 2019 (nuclear, along with other low carbon technologies, is the subject of measures proposed as part of the EMR, see paragraph 2.5.6 below). Around 16GW of new nuclear power is already in the pipeline across eight potentially suitable sites, including two new reactors (3.2GW) at Hinkley Point and two new reactors (3.2GW) at Sizewell (EDF Energy), two or three new nuclear reactors at Wylfa and Oldbury (Hitachi Ltd) and up to 3.6GW of new nuclear capacity at Moorside (NuGeneration).

2.2 Transmission

Structure of transmission sector – GB

2.2.1 The electricity transmission system in GB, called the National Electricity Transmission System (NETS), comprises all networks above 132kV in England and Wales, all networks of 132kV and above in Scotland and all offshore networks of 132kV and above. Since 2005, NGET has been the system operator for the NETS and is responsible for balancing supply with demand in real time (see paragraph 2.5 below). NGET is also the designated system operator for electricity interconnectors, where it performs System Operator to System Operator functions.

2.2.2 Price controls are set using the RIIO model. RIIO stands for “Revenue = Incentives + Innovation + Outputs”. RIIO-T1, the current transmission price control, sets out the revenue that the transmission network companies are allowed to recover, what they are expected to deliver and details of the regulatory framework that supports both effective and efficient delivery for energy customers over the eight years from 2013 to 2021.

2.2.3 Onshore electricity transmission assets are owned and maintained by regional transmission owners:

- NGET for England and Wales, whose electricity assets comprise approximately 7,200km of overhead line, 690km of underground cable and 337 substations at 241 sites;
- Scottish Power Transmission Limited for southern Scotland; and
Scottish Hydro-Electric Transmission plc for northern Scotland.

2.2.4 Offshore electricity transmission assets are individually owned and maintained on a project by project basis by Offshore Transmission Owners (OFTOs) selected through a competitive tender process run by Ofgem. See paragraph 2.2.6 onwards below for further detail on the offshore transmission regime.

2.2.5 All parties connected to or using the NETS are required to be a party to the Connection and Use of System Code (CUSC), which requires compliance with the Grid Code, payment of connection and use-of-system charges and imposes a duty on NGET to allow bulk transfers of power between particular points on the NETS.

**GB Offshore transmission**

2.2.6 To achieve substantial deployment of green energy and encourage connection of offshore renewable generating stations to the NETS, Ofgem and DECC established a new regulatory regime to grant OFTO licences on the basis of a competitive tender process, managed by Ofgem. This open, competitive approach is intended to encourage innovation and introduce new sources of technical expertise and finance to the sector.

2.2.7 Granting licences to the most efficient and competitive players in the market should result in lower costs of service for generators and customers. In contrast to the onshore price controls, OFTOs are granted a 20 year availability based revenue stream through their licences. This revenue stream is subject to an availability incentive that results in credits or penalties based on performance against set targets.

2.2.8 Ofgem ran two transitional tender rounds to implement the new regime, and in late 2014, the first tender round of the enduring regime (called Tender Round 3 or TR3). The Electricity (Competitive Tenders for Offshore Transmission Licences) Regulations 2013, in force since 22 February 2013, set out the process for competitive tenders under the enduring regime (as well as the arrangements required to phase out the transitional regime). Offshore developers have the flexibility to choose whether to design and build the offshore transmission assets themselves (generator build) or to have an OFTO do so (OFTO build). Regardless of the party building the offshore transmission assets, an OFTO will be responsible for the ongoing ownership and maintenance of the transmission assets. Under generator build, developers transfer ownership of the completed transmission assets through a transfer agreement, which they have prepared for their project. In comparison, under OFTO build, developers will only obtain the connection offer and undertake high level design and preliminary
works, with the OFTO undertaking construction of the transmission assets.

Current and planned transmission capacity upgrades

2.2.9 In the 2012 Electricity Networks Strategy Group (ENSG) Report, GB’s transmission owners identified the major electricity transmission projects required to upgrade the network and increase capacity to take account of the significant changes anticipated in the generation energy mix up to 2020. This identified a large number of areas needing system reinforcements in part due to the change in the energy generation mix on the GB network and also needed to ensure that the generating capacity necessary to maintain security of supply is maintained.

Cross-border

2.2.10 The NETS is currently connected with the transmission networks of the following countries:

- France, through the IFA interconnector, a 2GW HVDC connection commissioned in 1986 and jointly owned by National Grid Interconnectors Limited and the French TSO, Réseau de Transport d’Électricité (RTE);
- NI, through the Moyle interconnector, a 500MW DC connection commissioned in 2002 and operated by SONI on behalf of Northern Ireland Energy Holdings. As the interconnector is operational within the UK, it does not fall within the definition of “interconnector” under EU law; and
- the Netherlands, through the BritNed interconnector, a 1GW HVDC connection commissioned in 2011, owned by BritNed Development Limited (a joint venture of the Dutch TSO, TenneT, and National Grid Holdings One Plc); and
- Ireland, through the East-West interconnector, a 500MW HVDC connection commissioned in 2013 and owned by EirGrid, the Republic of Ireland system operator.

2.2.11 There are another seven interconnectors in the planning stages with Ofgem, which could provide up to 7.5GW of additional electricity capacity in GB by 2019. Ofgem is currently developing a new cap and floor approach to regulating interconnectors, which will be first used with Project Nemo, the link between GB and Belgium. Most recently, five of those projects were deemed eligible for cap and floor as near-term electricity interconnectors. These five projects are: FABLink and IFA2 (linking GB with
France), Greenlink linking GB with Ireland, NSN linking GB with Norway, and Viking Link linking GB with Denmark. In addition, ElecLink has been awarded an interconnector licence for its link through the Channel Tunnel with France on a merchant basis.

*Structure of transmission sector – Northern Ireland*

2.2.12 In NI a transmission licence is held by NIE, who owns the main transmission system comprising lines of 110kV and above.

*Integrated Transmission Planning and Regulation (ITPR)*

2.2.13 The ITPR project reviewed the existing electricity transmission arrangements in GB and how the system is currently planned and delivered. This review plans to advise on whether to maintain separate regimes for onshore and offshore transmission and for interconnection, or to introduce an integrated system. At the end of September 2014, Ofgem consulted on proposals to change the system planning and delivery arrangements for GB electricity transmission infrastructure so that they work better in the interests of existing and future consumers. The key conclusion of the review, published in March 2015, was that it is in consumers’ interests to extend the use of competitive tendering to onshore transmission assets that are new, separable and high value.

2.3 Distribution

*Structure of distribution sector – Great Britain*

2.3.1 In GB, as the supply market gradually opened to competition, the legal separation of retail supply and distribution activities was introduced as part of further restructuring of the market. Under the Electricity Act and to aid compliance with the Third Energy Package the same person may not be the holder of both a distribution licence and a generation licence or a supply licence.

2.3.2 There are 14 licensed DNOs in GB and each is responsible for a regional distribution services area, as shown in Figure 3 below. Through consolidation in the distribution sector, these 14 DNOs are owned by six different groups: Electricity North West Limited, Northern Powergrid, SSE, ScottishPower Energy Networks, UK Power Networks, and Western Power Distribution.
2.3.3 Within the areas covered by the DNOs, local distribution networks are developed, operated and maintained by Independent Distribution Network Operators (IDNO). IDNO networks are mainly extensions to the DNO networks serving new housing and commercial developments. There are currently seven licensed IDNOs, with networks that connect directly to DNO networks or indirectly to DNO networks via another IDNO network.\(^{37}\)

2.3.4 Partly due to its small size, NI does not yet have an open distribution network market and to date there are no plans to introduce an IDNO licensing system.

2.4 Supply

*Structure of supply sector – Great Britain*

2.4.1 In GB, the introduction of competition in the supply sector led to many new entrants in the market (currently there are over 120 domestic and non-domestic supply licences). However, much of the supply market is still concentrated in the hands of the larger participants with corresponding generation portfolios.

2.4.2 Suppliers purchase energy from the wholesale market or directly from generators and pay DNOs for use of their networks to deliver it to the end consumer. Suppliers charge retail prices that consumers pay for the electricity that they use. Ofgem regularly reviews both the wholesale and the retail markets to enforce the rules with which suppliers must comply as needed.
Due to concerns that poor liquidity in the wholesale electricity market was posing a barrier to effective competition in the supply sector, Ofgem introduced a “secure and promote” condition into certain generation licences, which came into effect on 31 March 2014.

The new generation licence condition imposed three requirements on the largest market players to promote liquidity in the supply market. Two of these requirements are imposed on the eight largest electricity generating companies: Centrica, Drax, EDF Energy, E.On, GDF Suez, RWE npower, SSE, and ScottishPower. These are:

- to adhere to Supplier Market Access rules, which ensure small suppliers can access the wholesale market products they need; and
- to report on near-term markets to allow Ofgem to monitor progress in case an intervention becomes necessary in future.

The third requirement imposes market making obligations only on the “big six”. This is an obligation to post bid and offer prices in the market, supporting price discovery and ensuring regular opportunities to trade.

In summer 2013, Ofgem published a package of reforms following its Retail Market Review (RMR). The reforms introduced legally binding standards of conduct for suppliers, enhanced consumer protections and simpler tariff choices for customers. Following a state of the market review in 2014, Ofgem concluded that the RMR reforms had not done enough to stimulate competition in the supply market. On 26 June 2014, Ofgem made a market investigation reference to the CMA. The purpose of this investigation is to explore whether there are barriers to effective competition in the energy market. On 12 December 2014, Ofgem made a submission to the CMA setting out its views on what a well-functioning market should achieve to assist the CMA with its investigation. The CMA is expected to complete its investigation and publish a report on its findings by the end of 2015.

Smart metering

The roll-out of smart meters to every UK home (and also for use in the public and business sectors), which commenced its foundation stage roll-out in April 2011, is timetabled to conclude by the end of 2020.

The key steps to implement the programme include the grant of the Data and Communications Company (DCC) licence to Smart DCC Ltd, a subsidiary of Capita plc,
in September 2013\(^1\), and the development of the Smart Energy Code (SEC), an industry code which will govern the relationship between the DCC and its users. The DCC is responsible for linking smart meters in houses and small business with the systems of energy supplies, network operators and energy service companies. The SEC sets out the terms for the provision of the DCC’s services and, as with the other industry codes, any modifications must be approved by Ofgem.

2.5 Energy exchange/trading

Structure of trading market – Great Britain

2.5.1 In March 2001 the New Electricity Trading Arrangements (NETA) were introduced to move the England and Wales power market away from a pool-based purchasing arrangement to a system incorporating bilateral trading (directly or through a broker – over the counter (OTC)) and trading through power exchanges.

2.5.2 Since 1 April 2005, NETA became the British Electricity Trading and Transmission Arrangement (BETTA) and were extended to govern a GB wide electricity wholesale market\(^2\). BETTA is based on bilateral trading between generators, suppliers, traders and customers, with generators managing dispatch from their generating stations, as opposed to being centrally dispatched by the system operator.

2.5.3 As illustrated by Figure 4 there are essentially four stages to the wholesale market, including an after-the-event imbalance settlement:

1. i. the forwards and futures contract market, which operates from a year or more ahead of real time and usually up to 24 hours ahead of real time, thus providing the opportunity for generators and suppliers to enter into contracts to deliver/take delivery, on a specified date, of a given quantity of electricity at an agreed price;
2. ii. the short-term bilateral market, which is in the form of screen-based exchanges where participants trade a series of standardised blocks of electricity which enables generators and suppliers to fine-tune their rolling half hour trade contract positions as their own demand and supply forecasts become more accurate;
3. iii. the balancing mechanism, which operates from one hour before delivery (Gate Closure) through to real time, with the system operator acting as the sole counterparty to all transactions. Participation involves submitting ‘offers’ (proposed trades to increase generation or decrease demand) and/or ‘bids’ (proposed trades to decrease generation or
increase demand); and

4. iv. the imbalance settlement, which deals with any differences between the balancing participants’ contracted positions (as notified at Gate Closure) and the actual physical flow of electricity generated and consumed at each location, by settling the imbalance at either the system buy price or the system sell price.

Figure 2: The GB wholesale market

2.5.4 The system operator provides real-time balancing services to balance demand and supply and to ensure the security and quality of electricity supply across the transmission system (see item (iii) of paragraph 2.5.3 above).

2.5.5 The governance of balancing and settlement arrangements is set out in the Balancing and Settlement Code (BSC), to which all generation or supply licensees must be a party. National Grid conducts the day-to-day settlement of the BSC through an independent company, Elexon. Generators and suppliers registered within the BSC are also bound by the relevant requirements of the Grid Code (see Table 2 below). The BSC includes the arrangements for the system operator to accept balancing mechanism bids and offers, call off balancing services and deal with certain contingency situations, including unexpected and unusual events.

2.5.6 The increasing prominence of low carbon generation is creating a number of challenges for balancing the system. To address this, the UK government has
introduced a number of changes through the EA 13 and the wider EMR proposal, including powers for the Secretary of State to modify electricity generation and supply licence conditions (and related codes) to promote liquidity in the wholesale electricity market, and to create a new capacity market (see paragraph 3.4.5 below).

3. Regulation

3.1 Authorities

Secretary of State and DECC

3.1.1 The Secretary of State for Energy and Climate Change (Secretary of State) retains powers provided by legislation to make decisions and orders affecting the sector. The Secretary of State is also required to report to parliament on matters such as security of supply and sustainability.

3.1.2 DECC is the primary source of government policy in the UK energy sector. It works to ensure the UK has secure, clean, affordable energy supplies and promotes international action to mitigate climate change. It is a ministerial department, supported by eight agencies and public bodies, including Ofgem.

GEMA and Ofgem

3.1.3 Primary responsibility for regulation of the energy sector falls on GEMA, a body consisting of a panel of individuals appointed by the Secretary of State for specified terms of not less than five years. Other than the Secretary of State’s powers to remove members on the grounds of misbehaviour, determine the remuneration of members and give guidance, GEMA is independent of government and has no stakeholder participation.

3.1.4 Both GEMA and the Secretary of State have a duty under the Electricity Act to apply principles of best regulatory practice, such as transparency, accountability, proportionality and consistency and are required to publish reasons for their decisions. GEMA has powers in relation to granting and administering licences, as well as concurrent authority with the national competition authority on the application and enforcement of certain competition rules.

3.1.5 GEMA’s principle objective is to protect the interests of existing and future
consumers in relation to electricity and, wherever appropriate, achieve this by promoting effective competition. GEMA delegates the day-to-day administration of its functions to Ofgem.

**UR**

3.1.6 UR, an independent, non-ministerial government department is the regulator for the NI electricity sector. UR promotes effective competition in the market, controls the supply, generation, distribution and transmission licences and regulates pricing for a number of companies.

**Competition and Markets Authority (CMA)**

3.1.7 The Enterprise and Regulatory Reform Act 2013 (ERRA) (see Table 1 below) abolished the Office of Fair Trading and the Competition Commission and established the CMA as a single body in charge of competition regulation and enforcement. GEMA, as energy regulator, has concurrent powers with the CMA with regard to the energy sector. To improve the effectiveness of this joint remit, the new legislation requires the CMA to publish an annual report, in consultation with the sector regulators, on how arrangements for co-operation under concurrent competition powers have worked.

3.1.8 Under the ERRA, sectoral regulators, including GEMA, have the explicit duty to consider applying competition law before using their sector-specific powers. Also, the government has new powers to transfer a particular case from the relevant sector regulator to the CMA and to remove a sector regulator’s competition law powers in general terms. At this stage, it is hard to foresee whether any of these new provisions will result in any significant difference to the regulators’ approach. The government released guidance in March 2014 about which regulated sectors are affected by the concurrency provisions and the scope of the concurrent powers. The guidance also describes the operation of the concurrency regime including the procedures for making complaints and the way in which they are dealt with.

**Consumer advice and protection**

3.1.9 Consumer Futures represents consumers across regulated markets, it is the statutory consumer advocate for energy (amongst other areas) in GB. On 1 April 2014, Consumer Futures became part of the Citizens Advice Service in England and Wales, with the Extra Help Unit, which provides a service to energy consumers across GB, transferring to Citizens Advice Scotland.
3.1.10 The Consumer Council for NI is an independent consumer organisation focusing on the energy, transport and water sectors. It works with energy companies, the UR and other partners to protect consumers’ interests and help influence policy decisions and new legislation.

3.2 Key legislation

3.2.1 Table 1 below is an overview of the key primary legislation regulating or affecting the electricity sector, while Table 2 provides a description of relevant industry documents. There is also a variety of secondary legislation which, in the interest of brevity, has not been included here.

*Table 1: Key primary legislation (GB and NI)*

<table>
<thead>
<tr>
<th>Primary legislation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Electricity Act 1989</td>
<td>This establishes the key features of the regulatory framework in the electricity sector in Great Britain. It established a licensing regime and sets out the statutory duties of GEMA and the Secretary of State.</td>
</tr>
<tr>
<td>The Utilities Act 2000</td>
<td>Established GEMA and the Gas and Electricity Consumer Council (whose functions are now carried out by the Citizens Advice Service – see paragraph 3.1.9 above) and provided for their functions. Implemented separation between supply and distribution activities.</td>
</tr>
<tr>
<td>The Energy Act 2004</td>
<td>Implemented the Second Energy Package and gave the Secretary of State powers to establish new regulatory arrangements for offshore electricity transmission (to be administered by Ofgem).</td>
</tr>
<tr>
<td>The Climate Change and Energy Act 2006</td>
<td>Aims to boost the number of heat and electricity microgeneration installations.</td>
</tr>
<tr>
<td>The Energy Act 2008</td>
<td>Made improved provisions for renewable energy and allowances for small scale Feed-in Tariffs.</td>
</tr>
</tbody>
</table>
## Primary legislation

<table>
<thead>
<tr>
<th>Act</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Energy Act 2010</td>
<td>Primarily deals with arrangements for carbon capture and storage development.</td>
</tr>
<tr>
<td>The Energy Act 2011</td>
<td>Implemented the Green Deal Framework (see paragraph 3.4.1 below).</td>
</tr>
<tr>
<td>The Energy Act 2013</td>
<td>Implemented the provisions of EMR.</td>
</tr>
<tr>
<td>The Enterprise and Regulatory Reform Act 2013</td>
<td>Established the CMA as the single body in charge of competition regulation and enforcement.</td>
</tr>
</tbody>
</table>

### Table 2: Industry Codes

<table>
<thead>
<tr>
<th>GB</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection and Use of System Code (CUSC)</td>
<td>Constitutes the contractual framework for connection to, and use of, the NETS.</td>
</tr>
<tr>
<td>BSC (see section 2.5.5 above)</td>
<td>Contains the governance arrangements for electricity balancing and settlement in GB.</td>
</tr>
<tr>
<td>Fuel Security Code</td>
<td>Used to help minimise the impact of electricity and gas supply emergencies.</td>
</tr>
<tr>
<td>Grid Code</td>
<td>Prepared and implemented by National Grid, and covers all material technical aspects relating to connections to, and the operation and use of, the NETS. Any changes to the Grid Code are subject to approval by Ofgem.</td>
</tr>
<tr>
<td>System Operator – Transmission Owner Code (STC)</td>
<td>Defines the high-level relationship between the GB system operator and the three transmission owners.</td>
</tr>
<tr>
<td>Master Registration Agreement (MRA)</td>
<td>Provides a governance mechanism to manage the processes established between electricity suppliers and distribution companies to enable electricity suppliers to transfer customers.</td>
</tr>
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<tr>
<td>Distribution Connection and Use of System Agreement (DCUSA)</td>
<td>Provides a single centralised document, which relates to the connection to and use of the distribution networks.</td>
</tr>
<tr>
<td>Distribution Code</td>
<td>Specifies the day-to-day procedures that govern the relationship between the distribution licensee and users of its distribution system for planning and operational purposes, in normal and emergency circumstances. The Distribution Code is also designed to ensure that the distribution licensee can meet its Grid Code compliance obligations.</td>
</tr>
</tbody>
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### 3.3 Regulatory Framework

#### Licensing

3.3.1 Under the Electricity Act, generation, transmission (defined to cover both the operation and ownership activities), distribution, supply, participation in the operation of an electricity interconnector, and providing a smart meter communication service are specified activities and can only be carried out if authorised by a licence or exemption. There are criminal sanctions for breaching these requirements.

3.3.2 Licences are granted subject to conditions, which can be standard licence conditions (broadly applicable to all licensees of a particular type), amended standard licence conditions and/or special licence conditions (specific to the licensee concerned). Conditions can be modified by GEMA through a statutory consultation process and does not require the licensee’s consent. If the licensee objects, it can appeal to the CMA. Licences also require holders to establish, enter into and comply with specified codes, agreements and other arrangements.

3.3.3 Looking at the key licence conditions for the different types of licences:
Generators’ standard licence conditions primarily require compliance with industry codes (see Table 2 above), the provision of information to the regulator and include prohibitions on cross-subsidisation and discrimination when selling electricity;

- transmission (including offshore transmission) and distribution licences include stricter regulatory controls, including set revenues, due to the natural monopoly conditions;
- supply licences include conditions applying to domestic supply, non-domestic supply or both, and contain terms aimed at addressing consumer protection issues;
- interconnector licences regulate allowed revenues, the capacity requirements and third party access to interconnectors;
- the transmission system operator licence allows NGET to recover its allowed revenues (including the costs associated with balancing the system) through use-of-system charges.

Consensts and permits

3.3.4 A range of consents, including environmental and planning permits, are required for the construction and operation of new electricity infrastructure. Since 2010, the UK has operated a two-tier consenting system: a fast-track procedure for energy projects of national significance (consisting of a separate statutory procedure and sector specific government guidance (National Policy Statements), covering issues such as need, timing and location) and the standard statutory procedure, applying to all projects falling below the national significance threshold.

Competition

3.3.5 Alongside the sector-specific regulation set out in the paragraphs above, competition rules also apply to companies active in the electricity market. The UK regime is modelled on the EU framework and therefore includes prohibitions on anti-competitive agreements and abuse of a dominant position, as well as merger control. While at a European level much competition enforcement has focused on the industry, the UK competition authorities have been (comparatively) less active on electricity market issues until the most recent market review. The Competition Act 1998 remains the UK’s primary competition legislation and, despite the ERRA having introduced significant changes at institutional and procedural level, the substance of the applicable rules has not been amended.
3.4 Support Schemes

3.4.1 As detailed at paragraph 1.4.4 above, the UK is bound by a number of climate change commitments. As part of its strategy to meet these commitments the UK government has implemented various schemes to provide economic support, including:

- administered by Ofgem: the Feed-in-Tariff scheme (**FITS**), introduced in April 2010; the Energy Company Obligation (**RO**), introduced in 2013, which replaced two previous schemes, the Carbon Emissions Reduction Target and the Community Energy Saving Programme; the Renewables Obligation (**RO**), introduced in 2002 which will close to applicants in 2017 (or 2016 in the case of solar PV and onshore wind), but continue to operate until 2037;
- administered by the Environment Agency: the Carbon Reduction Commitment Energy Efficiency Scheme (**CREEP**), which imposes mandatory obligations on organisations that are high energy users; and
- administered on behalf of DECC or the Secretary of State: the Green Deal (by the Green Deal Oversight and Registration Body), which helps customers make energy-saving improvements to their homes.

3.4.2 DECC is also promoting a new cost competitive Carbon Capture and Storage (**CCS**) market to become operative in the 2020s and to this the government has allocated:

- GBP 1b for a commercialisation competition to support practical experience in the design, construction and operation of commercial scale CCS (which saw two projects being announced as preferred bidders in March 2013); and
- GBP 125m for a four year co-ordinated research, development and innovation programme.

3.4.3 EA 13 introduced a new Contracts for Differences (**CfD**) mechanism to support and incentivise investment in low-carbon technologies, including renewables, nuclear and CCS. CfDs are intended to offer revenue certainty to investors and generators. If the market price is lower than a pre-set strike price, generators receive a top-up payment; if the market price is higher, generators have to pay back the difference. Following the first allocation round in the last quarter of 2014, the first CfD contracts...
were awarded in February 2015. Prior to this, eight renewable electricity projects were awarded investment contracts (early form CfDs) in June 2014.

3.4.4 Another mechanism introduced by EA 13 to ensure security of electricity supply is the capacity market. The first auctions for the 2018/19 capacity took place in December 2014\(^57\), and capacity agreements were awarded in January 2015, with 49.26GW of capacity secured for the 2018-2019 period mainly from a mix of gas and coal/biomass. On 11 June 2015 the Secretary of State for DECC confirmed that the auctions for capacity to be delivered during 2019/2020 period will take place in the auction window that opens on 1 September 2015\(^58\). Capacity providers (primarily coal, gas and diesel generators, but also energy storage providers and those who agree to reduce their electricity consumption on request at a particular time – so called “demand-side response”) can also participate in a capacity auction and, if successful, will commit to make a certain amount of capacity available upon request. In return, all capacity providers with so called ‘capacity agreements’ will receive a payment for providing reliable capacity when needed, but will be penalised if they fail to do so on the terms stated in the Capacity Market Rules.

UK perspective on EU energy policy

3.4.5 The House of Lords’ European Union Committee published a report in May 2013, urging the EU to work on an energy policy framework to 2030 to be agreed by 2015. The report urged the framework to include the revision of the EU Emissions Trading Scheme (EU ETS) and introduction of a floor price, a tighter cap on the number of allowances, a 2030 renewable energy target, as well as an energy efficiency and/or consumption target\(^59\). The European Council on 23 and 24 October 2014 issued its conclusions on the 2030 Climate and Energy Policy Framework\(^60\).

3.4.6 In 2013 the EU ETS entered Phase III, running from 2013 to 2020, with major changes from Phases I and II, including the application of a single EU cap, inclusion of new sectors and gases, a reduction on the number of emission allowances freely allocated and an increase on the number of allowances auctioned. The number of allowances auctioned is increased every year, with free allocation varying per sector and sectors with larger risk of carbon leakage prioritised. Allocation is decided by the European Commission; National Allocation Plans for Phases I and II have been replaced by National Implementation Measures. Changes were made to the rules for using international carbon credits and new rules were introduced for monitoring, reporting and verifying greenhouse gas emissions. Please refer to our EU chapter for further details.

3.4.7 DECC, in October 2013, launched its balance of competences energy review to
examine the scope and effect of EU policy on energy activities in the UK. This review focused on the internal energy market, security of supply and infrastructure development, energy efficiency and renewable energy and the effect of the EU’s role in international organisations on UK energy policy. DECC’s report, published in July 2014, collated the views of stakeholders on these issues, and identified key challenges for the future, including the impact of growing global energy demand on EU and UK security of supply, the need for affordable energy and ensuring the EU’s energy and climate change policy focuses on delivering cost-effective de-carbonisation of energy.

Changes to solar and onshore wind support schemes

3.4.8 In an effort to control spending on large-scale solar PV within the RO and to promote the deployment of mid-scale building-mounted solar PV in the FITs, the RO was closed to new solar PV projects above 5MW in GB from 1 April 2015 (subject to a twelve month grid delay grace period for solar PV projects over 5MW). Similarly, in June 2015, DECC announced the early closure of the RO for onshore wind (subject to certain grace periods) and as from 22 July 2015 is considering closure of RO support to small-scale solar PV (lower or equal to 5MW) from 1 April 2016 (subject to grace periods for projects that obtained preliminary accreditation or made significant financial commitments prior to 22 July 2015, or experienced grid connection delays outside the control of the generator). Additionally, DECC proposes to remove grandfathering for new solar PV projects up to 5MW or additional capacity up to a total of 5MW that are not accredited as of 22 July 2015.

Relief for energy intensive industries

3.4.9 Since October 2012, the Department for Business, Innovation and Skills and DECC have been developing a scheme to compensate energy-intensive industries for the indirect costs of the EU ETS and the Carbon Price Floor with the government compensating businesses most at risk of carbon leakage to help offset the cost of energy and climate change policies. In particular, the government has agreed to compensate key electricity-intensive businesses to help offset the indirect cost of the carbon price floor and the EU ETS, subject to state aid guidelines and increase the level of relief from the climate change levy on electricity for Climate Change Agreement participants from 65 to 90%.

4. Country Statistics

Figure 3: Shares of electricity generation – Q1 2015 compared to Q1
Electricity generated

**Figure 4: UK trade in electricity**

**Figure 5: Electricity final consumption – 2014 compared to previous years**
5. Relevant Links

- All-Island project – www.allislandproject.org/
- DECC – www.decc.gov.uk/
- Electricity Market Reform page – UK Government –
  www.gov.uk/government/policies/maintaining-uk-energy-security-
  2/supporting-pages/electricity-market-reform
- Elexon – www.elexon.co.uk/
- National Grid – www.nationalgrid.com/uk/
- Northern Ireland Electricity – www.nie.co.uk/
- OFGEM – www.ofgem.gov.uk/Pages/OfgemHome.aspx
- OFT – www.ofg.gov.uk/
- Scottish and Southern Energy –
  www.sse.com/BeaulyDenny/Transmission/
- Scottish Power – www.scottishpower.co.uk/
- SEMO – www.sem-o.com/Pages/default.aspx
- SONI – www.soni.ltd.uk/
- UR – www.uregni.gov.uk/electricity/
Footnotes


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5. Climate Change Act 2008, ch 27, s 1(1).


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Please refer to the UK chapter of the CMS publication Renewables Support Mechanisms Across Europe – A Comparative Study, April 2013, for further information.

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GD ORB, Welcome to the Green Deal Oversight & Registration Body, (accessed on 2 December 2014).

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