



LEXOLOGY

Getting The Deal Through

ELECTRICITY REGULATION 2024

Contributing editor
John Dewar



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Global overview

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Overview

Rapid developments in energy technology and lower upfront investment costs mean that energy is becoming more measurable, decentralised, interconnected and intelligent than ever before. What was recently considered the future is now considered the past. Consequently, energy regulators must keep pace with the rapid rate of change. This was reflected very aptly by the theme of the most recent summit of the World Forum on Energy Regulation (WFER), hosted in Mexico in March 2018, 'Regulating in a Time of Innovation'. The next WFER summit will be held in Peru in August 2023 and is entitled 'The Challenge of the Energy Transformation: Competitiveness and Sustainability of Energy Markets, Opportunities and Achievements', emphasising the centrality of renewable energy as a space necessitating considerable attention. This will encompass topics such as the competitiveness of new energy sources and sustainable management based on energy demand.

Renewable energy

The move toward renewable energy has gathered considerable momentum in recent years. In 2015, at COP 21 in Paris, 197 countries agreed to limit global warming to well below 2°C (preferably to 1.5°C) compared to pre-industrial levels in a bid to avoid the worst impacts of climate change. The Intergovernmental Panel on Climate Change (the United Nations body for assessing the science related to climate change) says that to achieve this ambitious goal, net zero (not adding to the amount of greenhouse gases in the atmosphere) must be achieved by 2050. Since then, several countries, including the United Kingdom, France and Sweden, have adopted legally binding net zero targets, and the EU is considering similar proposals. Renewable electricity will be important to achieve these targets and governments, cities and municipalities around the globe are increasingly adopting policies favourable to renewables. By way of illustration, since 2019 – when the United Kingdom enshrined into law its legally binding target to reduce emissions to net zero by 2050 – the government has published several plans, including a British Energy Security Strategy in April 2022, all recognising the importance of a quick rollout of new renewables. Furthermore, the government published its Powering Up Britain package in March 2023, which includes the Energy Security Plan in which the government affirmed that securing low-cost and clean electricity would be central to the energy transition. The government expects electricity demand to grow by up to 60 per cent by the middle of the next decade due to the electrification of transport and heating, and has committed to achieving fully decarbonised electricity generation by 2035 while ensuring that the United Kingdom has among the cheapest wholesale electricity prices in Europe.

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Offshore wind regulation

With deadlines fast approaching for countries to meet their net-zero targets, governments are under pressure to improve their sources of carbon-free energy. Geographical constraints can prevent countries from relying on hydroelectric and solar power; as such, for countries with an appropriate coastline and wind profile, offshore wind has moved to the forefront of their clean energy programmes. At COP 27 in 2022, nine new countries including Belgium, Colombia, Germany, Ireland, Japan, the Netherlands, Norway, the United Kingdom and the United States joined the Global Offshore Wind Alliance, committing to rapidly ramp up offshore wind in light of the climate and energy security crises.

In the United Kingdom, offshore electricity transmission assets must be owned by offshore transmission owners (OFTOs). These are independent companies selected by the UK regulator, the Office of Gas and Electricity Markets (Ofgem), through a competitive tender process. Ofgem grants each OFTO a licence entitling it to receive a tender revenue stream in return for the operation, maintenance and decommissioning of the offshore transmission assets. In 2022, there were 24 operational OFTOs in place following the completion of various tender rounds. This regime has faced scrutiny from many within the industry who believe that the sector would operate more efficiently if there was a single offshore transmission network for all offshore wind farms. Despite calls for reform, government policy has instead focused on improving the bidding process and, in April 2021, ahead of the seventh tender round, Ofgem published several minor changes to the tender process aimed at ensuring that competitions remain efficient and fit for purpose. These changes were required to maintain a level playing field because UK wind projects have grown and become increasingly complex to meet the government's demand for high-capacity clean energy projects. While calls for reform remain, it is noteworthy that many major offshore projects have been awarded under the current system, such as the 3.6GW Dogger Bank wind farm, which will be the world's largest offshore wind farm.

Over the coming years, the Global Wind Energy Council (GWEC) expects the Asian share of the global offshore wind market to grow from 24 per cent (2019) to 42 per cent (2025). Until 2025, the GWEC anticipates China will account for over 70 per cent of the Asian market; however, as utility-scale offshore wind projects go online in emerging markets (eg, Vietnam) post-2025, this is expected to fall. Earlier this year, Vietnam approved a new power plan (PDP8) aimed at boosting wind and gas energy, and offshore wind power capacity is expected to reach 6GW by 2030 and at least 70GW by 2050. As in the United Kingdom, these countries operate using a tender process, but due to a lack of local experience in offshore wind, many emerging Asian markets have encouraged European contractors to join their auctions. For example, in June 2020, Vietnam granted approval for Mainstream Renewable Power (a UK company) to construct a 400MW offshore wind project. In addition, in November 2022, the Philippines' Department of Energy amended their Renewable Energy Act of 2008, removing Filipino ownership requirements in relation to solar, wind, hydro and ocean or tidal energy resources. Commentators predict that, as the Asian market develops, corporate power purchase agreements are likely to become the norm, encouraging further development and overseas investment. Caution also remains over the geographical hurdles facing offshore wind farms in Asia, in the form of frequent typhoons and increased seismic activity, when compared to Europe or the United States.

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In May 2021, the Biden administration in the United States approved the construction of the Vineyard Wind 1 project, which will be the United States' first commercial-scale offshore wind project and a significant part of its plan to install 30GW of offshore wind capacity by 2030. Installation of the first monopile foundation began in June 2023. While the United States has a well-developed onshore wind industry, there is significant scope for expanding offshore capacity and this has highlighted a familiar debate over the ownership of offshore transmission assets. US offshore transmission assets are built by offshore wind developers who then link each farm to the onshore high-voltage network. The limited onshore connection points along the US coastline have increased calls for a more integrated approach to offshore transmission. In June 2022, the White House announced the Federal-State Offshore Wind Implementation Partnership, which will encompass a joint effort between the White House National Climate Advisor, the Secretaries of the Interior, Energy, Commerce and Transportation and the Governors of several East Coast states who are early leaders in offshore wind development for the purpose of collaboratively growing a strong US offshore wind supply chain. It is also intended to provide a forum for new initiatives and to further coordinate in respect of existing efforts to address, among other things, transmission needs.

Renewable energy certificates

Renewable energy certificates are awarded to generators for each megawatt hour of renewable energy produced. Market operators participate by receiving or buying several certificates to meet the quotas set each year. The implementation of a framework of tradeable certificates has become an internationally prevalent system for meeting such quotas.

The European Union's Emissions Trading System (EU ETS) – which was established in 2005 and covers approximately 45 per cent of EU greenhouse gas emissions – was revised in 2018 to enable it to achieve the European Union's 2030 emission reduction targets in line with the 2030 climate and energy policy framework, and as part of its contribution to the 2015 Paris Agreement. The revision focuses on:

consolidating the EU ETS as an investment driver by accelerating annual reductions in allowances to 2.2 per cent as of 2021 and reinforcing the Market Stability Reserve (the mechanism established by the European Union in 2015 to reduce the surplus of emission allowances in the carbon market and improve the EU ETS's resilience to future shocks);

continuing the free allocation of allowances as a safeguard for the international competitiveness of industrial sectors at risk of carbon leakage, while ensuring that the rules for determining free allocation are focused and reflect technological progress; and

assisting the energy sector to meet the innovation and investment challenges of the low-carbon transition via several low-carbon funding mechanisms.

In June 2022, the European Commission adopted a legislative proposal for a further revision (as part of its 'Fit for 55' package) to align the EU ETS with the target of a 55 per cent reduction of EU net greenhouse gas emissions by 2030, against 1990 levels. The proposal consists of:

- a reduced cap and more ambitious linear reduction factor for greenhouse gas emissions;
- revised rules for free allocation of allowances and the market stability reserve;

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- extension of the ETS to maritime transport;
- a separate new ETS for buildings and road transport; and
- increase of the Innovation and Modernisation Funds and new rules on the use of ETS revenues.

Carbon pricing initiatives are spreading and have been implemented (or are planned to be implemented) in more than 60 countries, cities, states and provinces across the globe. The World Bank's State and Trends of Carbon Pricing report published in May 2023 found that revenues from Carbon taxes and ETS have reached about US\$95 billion, a record high. In July 2021, after a decade of planning and trials, China officially launched its national emissions trading scheme, which will be the largest in the world and cover 20 per cent of global emissions once fully implemented.

Competitively priced auctions

An increasing number of countries are also relying on auctions to develop their energy capacity (often awarded on an annual basis), which are appealing owing to their flexibility in design and transparency in the market. In 2020, the number of countries that held auctions for renewables reached 109 (REN21, 2004–2020). The United Kingdom's most recent auction round, in July 2022, saw a record amount of renewable energy secured through the largest ever round of the scheme. Almost 11GW of clean energy capacity was delivered, nearly double the capacity achieved in the previous round. The next auction round in 2023 has been announced to be worth around £205 million. However, the limitations of auctions include the risk of underbidding to win the contracts and the risk of driving smaller entry-level players out of the market. Therefore, auctions are commonly implemented alongside other initiatives, such as renewable energy certificates, or simply backed by government guarantees (as is the case in Argentina and Zambia).

Feed-in tariffs and feed-in premiums

Administratively set feed-in pricing policies (FIPs) have been crucial in encouraging renewable projects worldwide, providing stable income to generators, in turn increasing the bankability of energy projects, such that by the end of 2019, according to REN21, 113 countries had adopted feed-in tariffs (FITs) and FIPs (up from 34 in 2005). FIPs have proved to be successful across the world, no more so than in Japan, which, marking a change in its energy policy following the disastrous Fukushima earthquake, introduced its FIT scheme in 2012. Since then, Japan's solar photovoltaic capacity has increased markedly, and Japan is forecast to have 111GW of installed solar by 2025, according to solar consultancy firm RTS Corporation. On 1 April 2022, Japan amended its Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities, introducing a Feed-in Premium scheme for renewable energy power generation facilities with an output of 50kW or more and phasing out the FIT scheme for certain types and scales. This will assist Japan in expanding its use of renewable energy sources; achieving its target of carbon neutrality by 2050; and increasing its share of renewables in total electricity generation to 36–38 per cent by 2030.

In 2019, the FIT scheme in the United Kingdom closed to new applicants. However, the UK government has recognised the need to pay small-scale renewable energy generators for electricity exported to the grid, and the Department for Business, Energy and Industrial

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Strategy introduced the Smart Export Guarantee in January 2020. The initiative requires some electricity suppliers to pay small-scale generators for low-carbon electricity that they export back to the national grid (if certain criteria are met). Provided the installations are in Great Britain, up to a capacity of 5MW, or up to 50kW for micro combined heat and power (micro-CHP), the following technology types could be eligible: solar photovoltaic, wind, micro-CHP, hydro and anaerobic digestion.

Energy storage

To ensure all electricity grids maintain a stable and safe electricity supply, consumption must be balanced with the generation of electricity. The development of energy storage can help address fluctuations in demand and generation by allowing excess electricity to be saved for periods of higher electricity demand. In turn, energy storage technologies can contribute to better use of renewable energy in the electricity system, as renewable energy produced can be stored when conditions are optimal but demand may be low. Similarly, the right of consumers to produce and consume their own electricity may lead to an increase in demand for storage services and small-scale storage solutions.

In May 2020, the European Commission published the paper *Study on Energy Storage – Contribution to the Security of the Electricity Supply in Europe*. The study made various findings, including the following:

- the main energy storage reservoir in the European Union is currently pumped hydro-storage. As their prices plummet, new batteries projects are rising;
- lithium-ion batteries represent most electrochemical storage projects. The recycling of such systems should be strongly taken into consideration, as well as their effective lifetime;
- in the European Union, the segment of operational electrochemical facilities is led by the United Kingdom and Germany; and
- behind-the-meter storage is still growing. As a new market, it is still driven by political aspects and subsidies.

Further to this, the European Commission adopted its 'Recommendation on Energy Storage – Underpinning a decarbonized and secure EU system' on 14 March 2023, setting out non-binding recommendations to EU member states and encouraging the fast and broad deployment of energy storage. These include:

- taking into account the double role of energy storage in their regulatory frameworks and procedures, in particular when implementing EU legislation relating to the electricity market. This could include the prevention of double taxation and the facilitation of permit-granting procedures;
- identifying potential financing gaps for energy storage and considering the need for financing instruments that provide visibility and predictability of revenues;
- considering competitive bidding processes to reach adequate deployment of flexible sources to achieve transparent security of supply and environmental objectives, in line with State Aid rules; and
- publishing detailed data on network congestion, renewable energy curtailment, market prices, renewable energy and greenhouse gas emission content and installed energy storage facilities.

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Although energy storage is a growing industry, problems still arise concerning the classification of storage, as in the United Kingdom. In October 2020, Ofgem implemented clarifications to current regulation, in particular amending the existing electricity generation licence as follows:

- including new definitions of electricity storage in the generation licence: 'Electricity storage in the electricity system is the conversion of electrical energy into a form of energy that can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy'; and 'Electricity storage facility in the electricity system means a facility where electricity storage occurs';
- introducing new licence conditions for electricity storage providers, such that licensees should ensure that they do not have self-consumption as the primary function when operating their storage facilities;
- clarifying expectations and standards of compliance for storage and expecting storage providers to sign up to relevant industry codes; and
- noting that storage providers will not be subject to payment of final consumption levies.

Changes to the Connection and Use of System Code have also been approved, which end the double charging of storage that previously adversely impacted UK energy storage facilities. Despite the lack of clarity surrounding the designation of energy storage, energy storage is considered an integral part of the UK government's plan to achieve net zero emissions, whether as standalone projects or co-location with new or retrofitted generation projects. In the 12 months to April 2022, the total UK project pipeline for energy storage projects that are operational, under construction, consented or being planned increased from 16.1GW to 32.1GW. These storage projects consist mainly of lithium-ion battery, lead-acid battery, open-loop pumped hydro storage, closed-loop pumped hydro storage and modular compressed storage.

Large renewable-based battery storage projects such as these may become the norm in the United Kingdom owing to the government passing the Infrastructure Planning (Electricity Storage Facilities) Order 2020, which relaxed planning rules so that battery storage projects (except pumped hydro) above 50MW in England and 350MW in Wales can go ahead without needing approval through the national planning regime. This was achieved by carving them out from the Nationally Significant Infrastructure Projects regime in England and Wales. The United Kingdom's battery storage market is expected to see exponential growth, with capacity reaching 24 GW by 2030. In 2023, Chapel Farm, the United Kingdom's largest battery energy storage facility, completed its construction and came online.

Developers across the globe are currently working to find new methods of energy storage. In July 2022, researchers in Finland installed the world's first fully operational sand battery which can store power from renewable energy sources for months at a time. It is hoped this will solve the issue of year-round supply. The sand battery is charged with heat from solar or wind which it stores at around 500°C. It is anticipated this will be used to warm homes in winter, and the battery can discharge around 200 kW of power through heat-exchange pipes when energy demand rises, which is enough to provide hot water and heating for around 100 homes and a public swimming pool. This is especially pertinent for renewable power in countries across the Nordic region, which receive very little sunlight during the winter months, impacting the amount of energy that can be generated from solar.

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Energy crisis

At present, global energy markets are in turmoil. At the height of the covid-19 pandemic, lockdowns across the world precipitated a unique and sustained drop in energy demand (including electricity). The International Energy Agency estimated that weekly electricity demand decreased 10–35 per cent across affected regions. However, this has changed markedly since restrictions were lifted, and global demand has skyrocketed. This increase, coupled with the war in Ukraine, has contributed to the surge in global energy prices as concerns mount about supply. Although as of June 2023, European gas prices have returned to 2021 levels, the crisis has caused governments around the globe to focus their attention firmly on security of supply, and renewables are considered integral to achieving this. It is, therefore, anticipated that future government policy globally will centre on facilitating renewable energy. A report from the International Energy Agency in May 2023 found that clean energy investment is on track to reach US\$1.7 trillion this year while investment in oil, gas and coal will be just over US\$1 trillion.

Since 2021, inflation has risen globally. Inflation in the United States in June 2022 was 9.1 per cent, its highest level since 1981. Although this has since fallen to 4 per cent in May 2023, this remains well above pre-2021 levels. Similarly, in the United Kingdom inflation reached a 41-year high of 11.1 per cent in October 2022, and although this has since eased to 8.7 per cent in May 2023, this figure remains high. As a result, the United Kingdom is currently experiencing what has been termed the 'cost-of-living crisis', referring to the fall in real disposable incomes (adjusted for inflation and after taxes and benefits). To ease this crisis, the government has implemented the Energy Profits Levy, an additional 25 per cent tax on North Sea oil and gas operators alongside the current 40 per cent special corporation tax rate, due to the exceptionally high profits being gained by fossil fuel traders amid soaring oil and gas prices. The purpose of this tax is so that the windfall can be used to help ease household bills, with the three-year levy partially funding a £15 billion support package for energy users, and as at June 2023 the levy had raised around £2.8 billion. However, since 1 January 2023, the United Kingdom has implemented the Electricity Generator Levy, a 45 per cent tax on exceptional electricity generation receipts to garner more money from the energy sector and help alleviate the cost-of-living crisis. Such a tax might discourage investment in renewable energy, particularly from corporate groups that control renewable energy special purpose vehicles.

Conclusion

To avoid the worst impacts of climate change, governments worldwide have turned to renewable energy. However, it is worth monitoring the influence of fluctuations in the price of electricity and the energy crisis on electricity regulation in the coming years. The contracts provided at the United Kingdom's 2019 auction round were awarded at record-low prices; however, the increase in global energy prices means if the same contracts were awarded today, they would likely be priced considerably higher. This will be the same for other offtake agreements concluded in recent years, and it remains to be seen whether the economics will continue to stack up.

* *The author would like to thank Rachel Tay for her assistance in the writing of this chapter.*

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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

These responses relate to the National Electricity Market in Australia.

Although Western Australia has two separate electricity networks and the Northern Territory has an independent network, the National Electricity Market is the predominant electricity market in Australia, operating as an interconnected electricity network across the Australian Capital Territory, New South Wales, Queensland, South Australia, Victoria and Tasmania.

The National Electricity Market is one of the longest alternating current systems in the world, covering approximately 4,500 kilometres.

The policy underlying the National Electricity Market is contained in the National Electricity Objective as set out in section 7 of the National Electricity Law.

The National Electricity Objective is as follows:

- the objective of this law is to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity concerning:
 - price, quality, safety, reliability and security of supply of electricity; and
 - the reliability, safety and security of the national electricity system.

The legislative framework for the National Electricity Market is contained in the following legislative schemes:

- the National Electricity (South Australia) Act 1996;

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- the National Electricity Law;
- the National Electricity Rules (the Rules); and
- the legislation of the other participating jurisdictions that adopt each of the above, subject to certain derogations.

The Rules

The Rules have the force of law in each participating jurisdiction in the National Electricity Market.

The prescribed requirements and tests for the making of the Rules are set out in Part 7 of the National Electricity Law.

A person is entitled to submit a rule change request to the Australian Energy Market Commission (AEMC).

Under the National Electricity Law, the AEMC may only make or change a rule if it is satisfied that the rule or change will, or is likely to, contribute to the achievement of the National Electricity Objective.

Retail energy regulation in the National Electricity Market

The National Energy Customer Framework (NECF) regulates the retail supply and distribution of electricity to customers.

The NECF has been adopted for the retail supply of electricity in the Australian Capital Territory, New South Wales, Queensland, South Australia and Tasmania. It does not apply in Western Australia or the Northern Territory. From 1 July 2019, the Northern Territory adopted a modified form of Chapter 5A of the Rules. In Victoria, the NECF applies to Chapter 5A of the Rules. Otherwise, the Essential Services Commission has harmonised Victoria's energy regulations to be substantially consistent with the NECF.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Organisational structure

The Australian Energy Regulator (AER) was established under the Competition and Consumer Act 2010 (Cth). AER's functions and powers are regulatory in nature, including:

- monitoring compliance with the National Electricity Law and the Rules and instituting and conducting proceedings;
- making and monitoring compliance with network revenue or pricing determinations; and
- regulating retail electricity markets under the NECF.

The functions and powers of the AEMC include, primarily, the rulemaking functions and powers as prescribed under the National Electricity Law.

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The AEMC must establish the 'Reliability Panel', which has responsibility for matters including the monitoring, reviewing and reporting on the safety, security and reliability of the national electricity system.

The statutory functions of the Australian Energy Market Operator (AEMO) involve, primarily:

- the operation and administration of the wholesale exchange in the National Electricity Market; and
- maintaining and improving power system security, planning for the development of the transmission grid and providing shared transmission services using each participating jurisdiction's transmission system.

Operation of the National Electricity Market

The National Electricity Market is an energy only wholesale electricity market. Generators recover operating and capital investment costs over time through the sale of electricity through spot and contract markets. Generators receive no payments for capacity or availability.

AEMO runs a central dispatch process every five minutes, which determines the electricity each generator must dispatch to meet demand. The highest-priced offer required to meet demand represents the dispatch price. A separate spot price is set for each region of the National Electricity Market.

The volume and price of electricity in each five-minute dispatch period vary. Generators participate in the central dispatch process by submitting dispatch offers in up to 10 price bands.

Generators and customers in each region sell and buy electricity at the wholesale (spot) price for that region, determined as an average dispatch price over 30 minutes. All dispatched generators receive the same price for electricity in that 30-minute period.

The principal customers are energy retailers that bundle electricity with network services for sale to residential, commercial and industrial energy users.

Networks

The transmission and distribution networks in the National Electricity Market are structured as a series of natural monopolies (both government and privately owned) that are subject to the economic regulation of price and revenue, and at the transmission functional level, regulated rights of access.

Chapter 6 of the Rules (for distribution) and Chapter 6A of the Rules (for transmission) set out the regulatory framework for the AER to apply in the economic regulation of transmission and distribution network service providers.

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Western Australia

Western Australia has two separate electricity networks, known as the North West Interconnected System and the South West Interconnected System (SWIS). The SWIS is a capacity market. Generators and demand-side management service providers are paid for the capacity they can provide to the market when required. AEMO determines the capacity required each year and issues capacity credits (being notional units of generational capacity) to market participants registered as generators under the SWIS Market Rules. Retailers and large-load customers are required to purchase a number of capacity credits under their capacity allocation.

A capacity credit can be traded between market participants and is valid for a particular reserve capacity year (as defined in the Market Rules).

Northern Territory

The Northern Territory has an independent electricity network and supply industry that is primarily administered by the Utilities Commission of the Northern Territory. However, as part of a recent reform process, the AER has been given responsibility for network price regulation and oversight of network access.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

The authorisations required to construct and operate generation facilities include a combination of the following:

- environmental, planning and works approvals under state (and potentially federal) environment protection and state planning legislation;
- the grant of environment protection licences and approvals for the operation of the generation facility under state (and potentially federal) environment protection legislation;
- the grant of a generation licence by the relevant state regulator under state electricity legislation; and
- for the purposes of the National Electricity Market, as required under section 11 of the National Electricity Law, registration under the National Electricity Rules (unless a prescribed exemption is applicable).

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Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

Policy and framework

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Under clause 2.5.1 of the Rules, a person must not engage in the activities of owning, controlling or operating a transmission network unless that person is registered by the Australian Energy Market Operator (AEMO) as a transmission network service provider (TNSP).

Also, a number of the state jurisdictions require TNSPs to be licensed (or hold an authorisation) under the state's legislative regime for electricity regulation.

The relevant state authorisations typically include:

- an environmental approval;
- planning and construction approval; and
- appropriate land rights, by way of an easement, lease or licence granted by landowners over which the transmission network will pass.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Federal and state government policy and legislation encourages power generation based on renewable energies, for example:

- the federal government signed the Paris agreement. This agreement was made within the framework of the United Nations Framework Convention on Climate Change. In September 2022, the Federal Government passed the Climate Change Act 2022 (Cth) formally enshrining in Australian law the national commitment under the Paris Agreement: to target net zero greenhouse gas emissions by 2050 and to reduce greenhouse gas emissions to 43 per cent below 2005 levels by 2030;
- the Renewable Energy (Electricity) Act 2000 (Cth) introduced a national Renewable Energy Target scheme requiring electricity retailers to source a proportion of their electricity from renewable energy facilities. Compliance is achieved by the retailer obtaining renewable energy certificates. In September 2019, the Clean Energy Regulator announced that it had met its target of generating 33,000 gigawatt-hours per annum (or 23.5 per cent of Australia's electricity) by renewable energy. The annual target will remain at 33,000 gigawatt hours until the scheme ends in 2030;
- the federal government also implemented the Carbon Farming Initiative Amendment Act 2014 (Cth) to provide the framework for its Direct Action Policy (DAP). The central feature of the DAP was the establishment of the A\$2.55 billion Emissions Reduction Fund to be applied for investment in carbon abatement;

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- the Clean Energy Regulator will issue Australian carbon credit units (ACCUs) for carbon emission reduction projects that are created and audited under approved methods. The Clean Energy Regulator may enter into contracts for the purchase of ACCUs following a carbon abatement purchasing process to be conducted under the Carbon Credits (Carbon Farming Initiative) Rule 2015;
- the federal government has also committed A\$1.2 billion over 10 years from 2021–2022 to create a technology co-investment facility that supports the development of (among other things) regional hydrogen hubs, carbon capture, and use and storage technologies. This funding follows the 2019 publication of a National Hydrogen Strategy by the Council of Australian Governments Energy Council, which sets out a vision for establishing Australia as a major producer and supplier of hydrogen internationally by 2030; and
- As part of its Integrated Systems Plan, AEMO is in the process of designating certain Australian areas as Renewable Energy Zones (REZs), including offshore wind zones. These are identified as areas with the greatest potential for clusters of large-scale renewable energy projects in order to coordinate and co-locate the construction of generation and network infrastructure to achieve economies of scale.

State legislation and renewable energy action plans have been also introduced. For example, Victoria introduced the Victorian Energy Efficiency Target Act 2007, which provides incentives to households and businesses to install energy saving equipment.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

In September 2022, the Federal Government passed the Climate Change Act 2022 (Cth) formally enshrining in Australian law the national commitment under the Paris Agreement: to target net zero greenhouse gas emissions by 2050 and to reduce greenhouse gas emissions to 43 per cent below 2005 levels by 2030.

The Federal Government has also committed to the following strategies.

- Rewiring the Nation Plan: to expand the share of renewable generation in the National Electricity Market (NEM) to 82 per cent by 2030. Key initiatives include Federal Government commitments to:
 - make available A\$20 billion to deliver low-cost finance to upgrade, expand and modernise Australia's transmission networks;
 - Invest A\$224 million in 400 community batteries across the nation to maximise benefits of roof top solar; and
 - Invest A\$102 million to deliver 85 solar banks around Australia for households unable to access rooftop solar.
- National Reconstruction Fund: to invest A\$3 to A\$15 billion in clean energy development, including: wind turbine manufacturing, battery and solar panel supply chain and manufacturing, hydrogen electrolysers, and bioenergy and bio mass.

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National Greenhouse and Energy Reporting scheme

The National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Cth) (the Safeguard Mechanism) was introduced by amendments to the National Greenhouse and Energy Reporting Act 2007 (the NGER Act) made by Schedule 2 of the Carbon Farming Initiative Amendment Act 2014 and commenced on 1 July 2016.

The Safeguard Mechanism applies to 'designated facilities' – facilities that emit more than 100,000 tonnes of carbon dioxide equivalent (tCO₂e) per annum of direct (or 'scope 1') emissions, as defined in the NGER Act. The Safeguard Mechanism requires designated facilities to establish an emissions 'baseline' (calculated under prescribed criteria in the NGER Act, based on the highest level of emissions by the facility over the historical period between the years 2009 to 2010 and 2013 to 2014).

Once a designated facility's baseline has been established, the Safeguard Mechanism requires the person with operational control of the facility (as determined under the NGER Act) to ensure emissions from the facility remain under that baseline.

However, the electricity sector has been given special treatment under the Safeguard Mechanism, so that a sectoral baseline has been set for electricity generation facilities that are connected to any of Australia's major electricity networks. The sectoral baseline for the electricity sector is 198 million tCO₂e.

As part of the annual National Greenhouse and Energy Reporting data, the Clean Energy Regulator will publish the total scope 1 emissions for all grid-connected generators. The most recent data published by the Clean Energy Regulator is the total scope 1 emissions for grid-connected generators for 2021–2020, which totalled approximately 155 million tCO₂e.

Under the Safeguard Mechanism, the sectoral baseline approach will apply unless the total of eligible direct emissions exceeds the baseline in any financial year. If the sectoral baseline is exceeded, baselines for individual facilities will apply in place of the sectoral baseline.

If a facility's emissions exceed (or are expected to exceed) its baseline in any financial year, the person with operational control of the facility (the responsible emitter) has several options available to manage the excess emissions, including:

- applying for a calculated baseline or an emissions intensity baseline variation;
- surrendering Australian carbon credit units (ACCUs) to offset emissions and bring net emissions below the baseline;
- applying for a multi-year monitoring period to allow additional time to reduce emissions; or
- applying for an exemption where emissions are due to exceptional circumstances, such as a natural disaster or criminal activity.

Under the NGER Act, the Safeguard Mechanism provides a range of enforcement options for the Clean Energy Regulator where a responsible emitter fails to take one of the above actions. These include entering into an enforceable undertaking, issuing an infringement notice, or court proceedings to seek an injunction or civil penalties.

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In 2022, the Federal Government commissioned an independent review of ACCUs to address concerns about the scheme. The final report from the review was delivered to the government on 20 December 2022. It concluded that the ACCU scheme arrangements were sound and made 16 recommendations for improvement, including to clarify governance, improve transparency, facilitate positive project outcomes and co-benefits, and enhance confidence in the integrity and effectiveness of the scheme. The government has accepted in principle all the report's recommendations.

Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

The National Electricity Rules (NER) have recently been updated in order to better integrate, and allow greater participation of, electricity storage and hybrid systems (eg, battery and a solar farm behind a single connection point), in the NEM. On 2 December 2021 and 4 March 2023, the Australian Energy Market Commission (AEMC) made final rule determinations to make a number of changes to the NER to facilitate a larger role for battery and hybrid systems.

The changes include:

- a new registration category, the Integrated Resource Provider, which would allow storage and hybrids to register and participate in a single registration category rather than under two different categories; and
- changes to dispatch arrangements, non-energy cost recovery requirements, performance standards, and participation options for aggregated portfolios of small resources.

In order to implement these changes, AEMO will need to update Retail Energy Market Procedures and are in the process of consulting market participants. It is expected that the majority of these changes will take effect on 3 June 2024.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

Approval cannot be provided for the construction or operation of nuclear plants in Australia under either the Environment Protection and Biodiversity Conservation Act 1999 or the Australian Radiation Protection and Nuclear Safety Act 1998.

In 2017, the Finkel Report observed that the establishment of nuclear power would require 'broad community consultation and the development of a social and legal licence'. Owing to the 'strong awareness of the potential hazards associated with nuclear power plant operation, including the potential for the release of radioactive materials', the Finkel Report concluded that any development of nuclear power technologies would require significant time to overcome the social, legal, economic and technical barriers in Australia.

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In December 2019, a federal parliamentary inquiry published a report that recommended that the Australian government:

- consider the prospect of nuclear technology as part of its future energy mix;
- undertake a body of work to progress the understanding of nuclear technology in the Australian context, subject to the results of a technology assessment and a commitment to obtain community consent before approving nuclear facilities; and
- consider partially lifting the current moratorium on nuclear energy for new and emerging nuclear technologies.

The Australian government has not yet formally responded to this report.

REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

Under clause 2.5.1 of the National Electricity Rules (the Rules), a person must not engage in the activities of owning, controlling or operating a transmission network unless that person is registered by the Australian Energy Market Operator (AEMO) as a transmission network service provider (TNSP).

Also, a number of the state jurisdictions require TNSPs to be licensed (or hold an authorisation) under the state's legislative regime for electricity regulation.

The relevant state authorisations typically include:

- an environmental approval;
- planning and construction approval; and
- appropriate land rights, by way of an easement, lease or licence granted by landowners over which the transmission network will pass.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

Clause 5.3 of the Rules specifies the process by which a registered participant or proposed registered participant may request to establish or modify a connection to a transmission network.

An offer to connect must be fair and reasonable and must be consistent with the safe and reliable operation of the power system under the Rules.

The TNSP and the connection applicant must negotiate in good faith to reach a connection agreement. In the event of a dispute, Part K of Chapter 6A of the Rules provides for

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commercial arbitration of that dispute. Technical performance standards apply to generators seeking to connect to the National Electricity Market. TNSPs are required to make decisions according to these standards.

Access

There is no ability for a generator in the National Electricity Market to secure firm access rights to the transmission network. Accordingly, generators that are connected to the transmission network face congestion risk. The Australian Energy Market Commission (AEMC) previously developed a proposed optional firm access (OFA) model, under which generators would be entitled to pay TNSPs for the right to secure firm access and be charged by TNSPs under the costs of providing that access to firm capacity.

The AEMC's final report to the Standing Council of Energy and Resources concluded that the implementation of OFA would not contribute to the achievement of the National Electricity Objective, although circumstances may arise in the future where there is a need for significant additional investment where the location and type of investment is uncertain, in which benefits may be derived from an OFA.

On 26 March 2020, the AEMC published an update paper outlining proposed long-term reforms to transmission access arrangements.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

Under the Rules, the Australian Energy Regulator (AER) will only approve forecast capital expenditure where the AER is satisfied that the forecast reasonably reflects, among other things, the efficient costs of meeting demand and maintaining the quality and reliability of services.

In its October 2022/23 budget, the Federal Government announced that it would make available A\$20 billion to deliver low-cost finance to upgrade, expand and modernise Australia's transmission network. In October 2022, it was announced that this program would support two new transmission projects: VNI West (KerangLink) between Victoria and NSW and Marinus Link between Tasmania and Victoria.

Other incentives for TNSPs in the National Electricity Market include an efficiency benefit-sharing scheme (EBSS) for operational expenditure, under which the AER determines how benefits of efficiency gains are shared between network businesses and network users. Under the Rules, the AER has the power to apply an EBSS to capital expenditure for both transmission and distribution network businesses.

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Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

The AER must make transmission determinations for TNSPs under Chapter 6A of the Rules for prescribed transmission services and negotiated transmission services.

A TNSP is required to prepare a negotiating framework that sets out the procedure to be followed for the purposes of negotiations to agree upon the terms and conditions of access.

Also, the TNSP must submit to the AER a revenue proposal and a proposed pricing methodology relating to the transmission services provided through the transmission system owned, controlled or operated by that TNSP. This process involves forecasting the revenue requirements needed to cover efficient costs and provide a commercial return on capital investment.

The AER makes a final decision in respect of the transmission determination. Upon the AER making that final decision, the transmission determination will apply for a prescribed regulatory control period, being a period of not less than five years.

Section 7A of the National Electricity Law specifies the Revenue and Pricing Principles, which provide that a regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in providing direct control network services and complying with a regulatory obligation or requirement or making a regulatory payment.

The costs that a TNSP can recover are determined using the building block approach. This approach is used to ensure that the expenditure of each transmission network service provider is amortised appropriately over time.

The maximum allowable revenue calculated using the building block methodology is converted into network prices using demand forecasts. In the case of TNSPs, the network pricing is set according to a revenue cap methodology and the AER sets the maximum allowed revenue for each year of the regulatory control period.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

AEMO is primarily responsible for assuring the reliability of the transmission grid in the National Electricity Market. The statutory functions of AEMO involve, primarily:

- the operation and administration of the wholesale exchange in the National Electricity Market; and
- maintaining and improving power system security, planning for the development of the transmission grid and providing shared transmission services through each participating jurisdiction's transmission system.

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The reliability of the transmission network is determined under the standards specified in the National Electricity Law and the Rules. In particular, clause 4.3 of the Rules specifies the scope of AEMO's responsibilities for ensuring power system security, including concerning the transmission network.

In July 2018, AEMO produced an integrated system plan (ISP), which is a cost-based engineering optimisation plan that forecasts the overall transmission system requirements for the National Electricity Market over the next 20 years.

The ISP was produced in response to a recommendation from the Finkel Report and is intended to assist in planning for the National Electricity Market in light of the fundamental changes in the sources and dynamics of the Australian electricity sector.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

Subject to certain exemptions (including for embedded networks), a person wishing to engage in the activity of owning, controlling or operating a distribution system must be registered by the Australian Energy Market Operator as a distribution network service provider (DNSP) under clause 2.5.1 of the National Electricity Rules (the Rules).

In addition to the requirements for registration under the Rules:

- for a person to own and operate a distribution network, several of the state or territory jurisdictions require DNSPs to be licensed (or hold an authorisation) under the legislative regime of that state or territory for electricity regulation; and
- the construction of a distribution network may require environmental or planning approvals under the applicable state or territory jurisdictional requirements, similar to those required for transmission network services.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Under Chapter 5 of the Rules, a person seeking connection to a distribution network is required to make an application to the applicable DNSP under the process specified in clause 5.3 of the Rules.

Under the Rules, a person may apply to a DNSP for the provision of direct control services or negotiated distribution services.

Access to distribution services is negotiated by the DNSP and the connection applicant under the Rules. Technical performance standards apply to generators seeking to connect

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to the National Electricity Market. DNSPs are required to make decisions according to these standards.

Under clause 5.5 of the Rules, a DNSP must negotiate in good faith with the relevant connection applicant to reach an agreement in respect of the distribution network access arrangement sought by the applicant, subject to those arrangements being consistent with good electricity industry practice.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

There are no specific government (eg, tax) incentives available for the expansion or augmentation of distribution networks.

Under the Rules, the Australian Energy Regulator (AER) will only approve forecast capital expenditure where the AER is satisfied that the forecast reasonably reflects, among other things, the efficient costs of meeting demand and maintaining the quality and reliability of services.

An efficiency benefit-sharing scheme for operational expenditure also applies to DNSPs.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

In the National Electricity Market, DNSPs are subject to both revenue and price regulation. Under Chapter 6 of the Rules, the AER makes a distribution determination that applies to a DNSP for a regulatory control period of not less than five years.

A distribution determination imposes controls over the prices of direct control services, the revenue to be derived from direct control services, or both.

Under Chapter 6 of the Rules, the same pricing principles as described in respect of transmission network services are applied by the AER in making distribution determinations. However, the methodology used varies between the participating states and territories. In particular:

- a revenue cap applies to DNSPs in Queensland and Tasmania;
- a weighted average price cap applies to DNSPs in New South Wales, South Australia and Victoria; and
- a maximum average revenue cap applies to the DNSPs in the Australian Capital Territory.

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REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

Retailers must obtain an authorisation (or licence in jurisdictions that have not adopted the National Energy Customer Framework (NECF)) unless an exemption applies. An authorisation will apply in all NECF participating jurisdictions as the Australian Energy Regulator (AER) does not have the power to limit the jurisdiction where the retailer can operate.

The AER is responsible for granting and monitoring compliance with authorisations and the NECF. In participating jurisdictions that have not implemented the NECF, the relevant state regulator is responsible. A prospective retailer must apply to the AER or the applicable state regulator for an authorisation or licence (as the case may be).

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

There are two classes of mass-market customer contracts: standing retail contracts and market retail contracts.

Standing retail contracts

Standing retail contracts are basic contracts for residential and certain small business customers who do not negotiate a market retail contract.

Designated retailers are obliged to offer standing retail contracts at regulated prices in some states, such as Tasmania. Substantial reforms have been recently introduced in New South Wales, South Australia, South East Queensland and Victoria. A default market offer price is the maximum price for standing offers that applies in New South Wales, South Australia and South East Queensland. The Victoria default offer is an offer that must be made available to customers by retailers in Victoria.

Standing retail contract provisions are more regulated than those of market retail contracts, and the rights of retailers to vary the terms or rates are also limited by legislation.

Market retail contracts

Market retail contracts are negotiated between the customer and the retailer. The prices are set by the retailer, not the regulator. Market retail contracts must include the minimum terms and conditions prescribed by applicable law.

All jurisdictions participating in the National Electricity Market have full retail contestability.

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Prices for the retail supply of electricity have been deregulated in New South Wales South Australia and Victoria. Market monitoring, in place of retail price regulation, commenced in South East Queensland on 1 July 2016.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

The National Electricity Market is an energy-only wholesale electricity market. Generators recover operating and capital investment costs over time through the sale of electricity through spot and contract markets. Generators receive no payments for capacity or availability.

The Australian Energy Market Operator runs a central dispatch process every five minutes, which determines the electricity each generator must dispatch to meet demand. The highest-priced offer required to meet demand represents the dispatch price. A separate spot price is set for each region of the National Electricity Market.

The volume and price of electricity in each five-minute dispatch period varies. Generators participate in the central dispatch process by submitting dispatch offers in up to 10 price bands.

Generators and customers in each region sell and buy electricity at the wholesale (spot) price for that region, determined as an average dispatch price over 30 minutes. All dispatched generators receive the same price for electricity in that 30-minute period.

The principal customers are energy retailers that bundle electricity with network services for sale to residential, commercial and industrial energy users.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The designated retailer (ie, the local area retailer, where there is no connection or the financially responsible retailer, where there is an existing connection) must offer to supply electricity to small customers at the standing offer prices and under the retailer's standing retail contract. Under the NECF, there is also a 'retailer of last resort' scheme, which provides for the continuity of supply to customers of a failed retailer by the retailer of last resort appointed by the AER.

Under the NECF, retailers are required to develop and implement a customer hardship policy to assist customers who are experiencing payment difficulties caused by hardship to pay their energy bills. These policies must be approved by the AER.

Retailers are subject to the retailer reliability obligation.

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REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

Regulatory policy is determined by the Ministerial Council on Energy (taking into account reviews conducted by the Australian Energy Market Commission (AEMC)) together with the economic regulatory functions and powers conferred upon the Australian Energy Regulator (AER).

Scope of authority

23 | What is the scope of each regulator's authority?

The AER was established under the Competition and Consumer Act 2010 (Cth) (CCA).

AER's functions and powers are regulatory in nature, including:

- monitoring compliance with the National Electricity Law and the National Electricity Rules (the Rules) and instituting and conducting proceedings;
- making and monitoring compliance with network revenue or pricing determinations; and
- regulating retail electricity markets under the National Energy Customer Framework.

The functions and powers of the AEMC include, primarily, the rulemaking functions and powers as prescribed under the National Electricity Law.

The AEMC must establish the 'Reliability Panel', which has responsibility for matters including the monitoring, reviewing and reporting on the safety, security and reliability of the national electricity system.

The statutory functions of the Australian Energy Market Operator (AEMO) involve, primarily:

- the operation and administration of the wholesale exchange in the National Electricity Market; and
- maintaining and improving power system security, planning for the development of the transmission grid and providing 'shared transmission services' through each participating jurisdiction's transmission system.

Operation of the National Electricity Market

The National Electricity Market is an energy-only wholesale electricity market. Generators recover operating and capital investment costs over time through the sale of electricity through spot and contract markets. Generators do not receive any payments for capacity or availability.

AEMO runs a central dispatch process every five minutes, which determines the electricity each generator must dispatch to meet demand. The highest-priced offer required to meet

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demand represents the dispatch price. A separate spot price is set for each region of the National Electricity Market.

The volume and price of electricity in each five-minute dispatch period varies. Generators participate in the central dispatch process by submitting dispatch offers in up to 10 price bands.

Generators and customers in each region sell and buy electricity at the wholesale (spot) price for that region, determined as an average dispatch price over 30 minutes. All 'dispatched' generators receive the same price for electricity in that 30-minute period.

The principal customers are energy retailers, which bundle electricity with network services for sale to residential, commercial and industrial energy users.

Networks

The transmission and distribution networks in the National Electricity Market are structured as a series of natural monopolies (both government and privately owned) that are subject to the economic regulation of price and revenue, and at the transmission functional level, regulated rights of access.

Chapter 6 of the Rules (for distribution) and Chapter 6A of the Rules (for transmission) set out the regulatory framework for the AER to apply in the economic regulation of transmission and distribution network service providers.

Western Australia

Western Australia has two separate electricity networks, known as the North West Interconnected System and the South West Interconnected System (SWIS).

The SWIS is a capacity market. Generators and demand-side management service providers are paid for the capacity they can provide to the market when required. AEMO determines the capacity required each year and issues capacity credits (being notional units of generational capacity) to market participants registered as generators under the SWIS Market Rules. Retailers and large-load customers are required to purchase a number of capacity credits under their capacity allocation.

A capacity credit can be traded between market participants and is valid for a particular reserve capacity year (as defined in the Market Rules).

Northern Territory

The Northern Territory has an independent electricity network and supply industry that is primarily administered by the Utilities Commission of the Northern Territory. However, as part of a recent reform process, the AER has been given responsibility for network price regulation and oversight of network access.

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Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

Each regulator is established by statute, independent of each regulated business, and is a government body.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

Concerning a proposed merger, there is no right of appeal from a decision by the Australian Competition and Consumer Commission under its informal merger review process concerning section 50 of the CCA. The potential acquirer would either seek a declaration from the Federal Court or pursue an application for merger authorisation.

The Competition and Consumer Amendment (Abolition of Limited Merits Review) Act 2017 (Cth), which received royal assent on 30 October 2017, abolished the limited merits review regime, which had allowed decisions regarding regulated assets to be challenged in the Australian Competition Tribunal on limited grounds (factually erroneous, incorrect or unreasonable). Now the AER's decisions are no longer subject to merits reviews and may only be challenged on judicial review grounds in the Federal Court. In essence, judicial review is only available in limited circumstances where an error of law has been made.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

Section 50 of the Competition and Consumer Act 2010 (Cth) (CCA) and the other provisions of the CCA, insofar as they relate to section 50, represent the statutory regime for the assessment by the Australian Competition and Consumer Commission (ACCC) of a potential acquisition in an electricity market in Australia.

In addition to the ACCC, the Foreign Investment Review Board may also recommend that the Treasurer not permit the acquisition of shares or assets by a foreign person in certain circumstances under the Foreign Acquisitions and Takeovers Act 1975.

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Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

The informal merger review process is administrative (ie, non-statutory) in nature. However, it is supported by provisions of the CCA, including section 80(1A) (the power conferred upon the ACCC to apply for injunctive relief), section 87B (enforceable undertakings) and section 155 (information gathering powers).

The section 50 test

The test under subsection 50(1) of the CCA is whether a proposed acquisition would have the effect, or be likely to have the effect, of substantially reducing competition in any market.

This question is determined by the use of the 'future with-and-without' test. This test requires a consideration of the likely state of future competition in the relevant market with and without the proposed acquisition. The without scenario, or 'counterfactual', is the likely state of affairs in the market in the absence of the proposed acquisition.

Authorisation

Following amendments to the CCA in November 2017, an alternative statutory pathway for approval of a proposed acquisition of assets or shares is to obtain a merger authorisation by the ACCC (a decision that is subject to review by the Australian Competition Tribunal). If merger authorisation is granted, section 50 of the CCA will not prohibit the completion of the acquisition under the merger authorisation.

The test for merger authorisation under the CCA requires the ACCC (or on review, the Australian Competition Tribunal) to be satisfied in all the circumstances:

- that the acquisition would not have the effect, or be likely to have the effect of substantially lessening competition; or
- that the acquisition would result, or be likely to result, in a benefit to the public that would outweigh any detriment to the public that would, or would be likely to, result from the acquisition.

The most prominent public detriment will be a competitive detriment. The analysis requires the definition of a counterfactual and a comparison of the 'future with' and the 'future without' the proposed acquisition.

Over the past few years, there has been an increasing number of merger authorisation applications. For example, in June 2023, Brookfield LP and MidOcean Reef Bidco Pty Ltd applied for authorisation for the acquisition of Origin Energy Limited, one of the largest vertically integrated electricity generators and retailers, which also has significant upstream gas assets. Assessment of the competitive effects of the proposed acquisition requires consideration of a number of horizontal and vertical relationships across the energy industry, as Brookfield has a controlling interest in AusNet Services Ltd (an owner of electricity

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transmission and distribution assets) and has an indirect interest in Jemena (which owns and operates gas transmission and distribution assets and electricity distribution assets in eastern Australia). The application contends that the proposed acquisition will result in public benefits of a quicker and more efficient build out of renewable generation than in the absence of the acquisition.

Criteria

Subsection 50(3) of the CCA sets out an inclusive list of matters that must be taken into account in assessing a proposed acquisition.

Inherent within the test in section 50 of the CCA is the question of whether a proposed acquisition would confer upon the acquirer market power in any market. In this respect, barriers to entry, expansion and exit are of primary concern.

Market power

In the context of the wholesale electricity markets, a distinction is to be drawn between sustained market power and transient market power. According to the Australian Energy Market Commission, the concept of 'substantial market power' in the wholesale market should be defined as the ability of a generator or group of generators to increase annual average wholesale prices to a level that exceeds estimates of long-run marginal cost and to sustain prices at that level owing to the presence of significant barriers to entry.

Market definition

Market definition is an essential first step.

In the AGL/Macquarie authorisation decision in 2014, the Australian Competition Tribunal confirmed the following:

- the market for the generation and supply of electricity in the National Electricity Market is national and includes hedging and other derivative contracts; and
- the retail electricity market is state- or region-based, with a distinction between commercial and industrial customers and mass-market customers.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

For the purposes of the CCA, the ACCC. For the purposes of the National Electricity Rules (the Rules), the Australian Energy Regulator (AER).

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Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

Part IV of the CCA

A market participant is subject to the provisions of the CCA, including the following:

- a contract, arrangement or understanding that has the purpose, or has or is likely to have the effect, of substantially lessening competition in a market;
- a market participant with a substantial degree of power in an electricity market engaging in any conduct that has, or is likely to have, the effect of substantially lessening competition in a market; and
- cartel conduct (which can be both civil and criminal in nature), which is directed towards price fixing, restricting output, allocating customers, supplies or territories, and bid-rigging.

Part XICA of the CCA

From 10 June 2020, market participants have also been subject to the following prohibitions:

- electricity retailers failing to make reasonable adjustments to the price of market offers to 'small customers' to reflect sustained and substantial reductions in the underlying cost of procuring electricity;
- electricity generators failing to offer or limiting or restricting their offers for electricity financial contracts (including by offering such contracts on objectively unreasonable terms) (the Financial Contract Liquidity Prohibition); and
- electricity generators submitting or failing to submit, bids to supply electricity concerning an electricity spot market fraudulently, dishonestly, or in bad faith; or for the purpose of distorting or manipulating prices in that electricity spot market (the Spot Market Fraudulent Bid Prohibition). Where a bid by an electricity generator features both of these elements, it will be considered an 'aggravated case', for which the Treasurer may (if recommended by the ACCC) apply to the court for an order requiring divestitures of specific interests in securities or assets that are part of the contravening company's electricity business.

Given the prohibition under Part XICA of the CCA for electricity generators submitting, or failing to submit, bids in good faith, it is interesting that Rule 3.8.22A of the Rules was amended by the National Electricity Amendment (Bidding in Good Faith) Rule 2015 (10 December 2015) to replace an obligation that dispatch offers be made in good faith with a prohibition on making a dispatch offer that is false, misleading or likely to mislead.

The reason for the amendment arose from a decision of the Federal Court in *AER v Stanwell Corporation*, with the South Australian Government expressing concern that the Federal Court decision:

introduced uncertainty around the operation of the bidding in good faith provisions and highlighted issues in relation to the implementation of the original policy intent.

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The amendment was explained in the Final Determination as follows:

Compared to the requirement in the current rules that offers be made in good faith, the obligation in the final rule not to make false or misleading offers establishes a more objective basis through which the AER, and subsequently a court, would be able to infer a generator's intent either from an individual offer or from a pattern of behaviour over time. This will assist with the interpretation of and practical application of the rules.

Given the severity of the potential penalties under Part XICA, and the concerns expressed in the Final Determination of the above Rule change around the use of 'good faith' in the context of dispatch offers and bids, the reference to 'good faith' in Part XICA will be likely to create significant uncertainty.

The Rules

There is a prohibition on making a dispatch offer, dispatch bid or rebid that is false, misleading or likely to mislead. The making of the offer, bid or rebid is deemed to represent to other generators or market participants that it will not be changed unless the generator or a market participant becomes aware of a change in the material conditions and circumstances on which that offer, bid or rebid is based. A rebid must be made as soon as practicable after the generator or market participant becomes aware of a change in material conditions and circumstances.

There are also requirements for generators to specify the minimum rates at which they may increase or decrease output.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The CCA

The ACCC has significant powers conferred upon it under the CCA, including the following:

- the ACCC has the power to apply to the Federal Court for a declaration, and divestiture where an acquisition contravenes section 50 of the CCA;
- the ACCC can accept an enforceable undertaking under section 87B of the CCA; and
- the ACCC has the power to apply to the Federal Court for a pecuniary penalty for each act or omission in contravention of a provision of Part IV (other than the criminal cartel provisions) of the CCA.

The Commonwealth Director of Public Prosecutions has the power to apply to the Federal Court for a fine for cartel conduct that is an indictable offence (criminal cartel conduct) determined by criteria substantially identical to those applicable to a pecuniary penalty.

Also, in the case of an individual, a contravention of a cartel offence provision can be punishable by a term of imprisonment of not exceeding 10 years or a fine not exceeding A\$220,000.

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Additional remedies are also available for breaches of the Financial Contract Liquidity Prohibition and the Spot Market Fraudulent Bid, including:

- contracting orders: for contraventions of the Financial Contract Liquidity Prohibition and the Spot Market Fraudulent Bid Prohibition, the Treasurer may (if recommended by the ACCC) issue a written notice requiring electricity generators to enter into electricity financial contracts with particular kinds of third parties; and
- divestiture orders: for 'aggravated' contraventions of the Spot Market Fraudulent Bid Prohibition, the Treasurer may (if recommended by the ACCC) apply to the court for an order requiring divestitures of specific interests in securities or assets that are part of the contravening company's electricity business.

The National Electricity Law

The AER has various enforcement powers under the National Electricity Law, including that it may:

- accept an enforceable undertaking under section 59A of the National Electricity Law; and
- make an application to the Federal Court or the Supreme Court of a participating jurisdiction for a declaration or an injunction.

If such a declaration is ordered, that order may include an order that the person pays a civil penalty for a breach of a civil penalty provision determined under the National Electricity Law and the Rules.

The AER may serve an infringement notice on a person that it has reason to believe has breached a civil penalty provision (other than a rebidding civil penalty provision).

The National Electricity Law contains 'offence provisions' – a breach or contravention of which by a person exposes that person to a finding of guilt by a court.

In January 2021, the maximum penalties for contraventions of the National Electricity Law, and the maximum amounts for infringement notices issued by the AER increased.

INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

The Foreign Acquisitions and Takeovers Act 1975 (FATA) applies to the acquisition of interests in Australian businesses and assets by foreign persons. Notification under the FATA is subject to certain financial and other thresholds.

All notifiable transactions are subject to a review by the Foreign Investment Review Board (FIRB). FIRB makes a recommendation to the Federal Treasurer as to whether the acquisition is contrary to Australia's national interest. The Treasurer makes the decision. Generally,

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there is a 30-day period for a decision under FATA, although this can be extended in certain circumstances, including where the applicant requests the time frame be extended. A foreign investor acquiring an interest of 20 per cent or more in an Australian entity will require FIRB approval.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

The rules that govern the construction and operation of transmissions assets are also applicable to interconnectors.

The relevant state authorisations typically include:

- an environmental approval;
- planning and construction approval; and
- appropriate land rights, by way of an easement, lease or licence granted by landowners over which the transmission network will pass.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Not applicable.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

Clause 6A.21.1 of the National Electricity Rules (the Rules), requires transmission network service providers (TNSPs) to comply with ring-fencing guidelines (Transmission Ring-fencing Guidelines). The Transmission Ring-fencing Guidelines were first developed by the Australian Competition and Consumer Commission in 2002 and then updated by the Australian Energy Regulator (AER) in 2005.

The Transmission Ring-fencing Guidelines require all TNSPs to ensure legal and operational separation of their transmission business from other related businesses (for the purpose of the guidelines, a 'related business' includes electricity generation, distribution or retail supply). Clauses 7.3 to 7.5 of the guidelines require a TNSP to separate the accounting and functional aspects of regulated transmission services from the remainder of its business.

Clause 6.17 of the Rules requires distribution network service providers (DNSPs) to comply with the distribution ring-fencing guidelines made by the AER under clause 6.17.2 of the Rules (Distribution Ringfencing Guidelines).

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The Distribution Ring-fencing Guidelines were published by the AER in October 2017. Clause 3 of the Distribution Ring-fencing Guidelines requires DNSPs to separate the accounting and functional aspects of their regulated distribution services from the remainder of their business.

In August 2019, the AER commenced a process to review both the Transmission and the Distribution Ring-fencing Guidelines, to update them to clarify and strengthen some obligations, and to make compliance less administratively complex. In May 2021, the AER published draft updates to the Distribution Ring-fencing Guidelines, which are expected to take effect on 10 September 2021. The key changes are to allow DNSPs to provide the generation services for DNSP-led stand-alone power systems up to a specified revenue cap and to allow DNSPs to provide contestable services with batteries where a waiver is granted by the AER.

On 1 March 2023, the AER released an updated Transmission Ring-fencing Guideline. The key changes are to strengthen the requirements for legal separation between transmission and other services, amended the accounting separation and cost allocation requirements, and make the functional separation and non-discrimination obligations more comprehensive.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The AER monitors compliance with the Transmission and Distribution Ring-fencing Guidelines.

DNSPs are required to submit an annual report to the AER outlining their compliance with the Distribution Ring-fencing Guidelines. DNSPs are also required to report any material breach of their obligations under the guidelines within five business days of becoming aware of the breach.

The obligation on DNSPs to comply with the Distribution Ring-fencing Guidelines is a civil penalty provision under the Rules. This means that the AER can apply to the Federal Court or the Supreme Court for a declaration, injunction, or order to pay a civil penalty for a breach of this obligation or both. Additionally, the AER may serve an infringement notice on a DNSP if the AER has reason to believe the DNSP has breached this obligation.

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UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

Energy price caps and compensation regimes

In June 2022, the Australian Energy Market Operator (AEMO) suspended the National Energy Market (NEM) spot market and invoked an Administered Price Cap (APC), on the basis that it had determined it was impossible to continue operating the spot market while ensuring a secure and reliable supply of electricity for consumers in accordance with the National Electricity Rules (NER). This decision was caused by a combination of various factors, including high commodity prices, outages of scheduled generating plants and high winter demand conditions.

During the suspension, AEMO applied a pre-determined suspension schedule for each NEM region, and a compensation regime applied for eligible generators who bid into the market during suspension price periods. The Australian Energy Market Commission (AEMC) reached decisions on several compensation claims relating to these events.

In November 2022, an Australian Competition and Consumer Commission report made several recommendations in response to the June 2022 events. This was followed by an Australian Energy Regulator (AER) report published in December 2022, which concluded that generators behaviour was initially unhelpful, but they later worked closely together with AEMO during the period.

On 17 November 2022, the APC was increased in response to a rule change request made by a market participant because the existing APC was not sufficient to cover high fuel costs during the market events in June 2022. The Rule Determination has introduced a transitional arrangement to increase the APC from A\$300/MWh to A\$600/MWh from 1 December 2022 to 30 June 2025.

AER Compliance and Enforcement Priorities

In June 2023, the AER released its Compliance and Enforcement Priorities for 2023–2024. The AER identifies five priority areas:

- Enforcing customer protections and supporting payment plans that meet a customer's capacity to pay (in light of higher costs in the east coast energy market and rising costs of living generally).
- Compliance with the new Better Bills Guideline, which commences on 30 September 2023 and includes a number of measures such as a 'better offer' statement on the front page of bills.
- Generator compliance with AEMO dispatch instructions and other offer and bidding obligations. Any major market events including making false or misleading offers will be investigated.

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- Enforcing the performance standards and standards for critical infrastructure. Non-compliance that compromises to AEMO's ability to operate the network will be investigated by the AER.
- Compliance with new reporting obligations following the implementation of the Gas Market Transparency measures, which commenced in March 2023.

Consistent with these priorities, on 30 June 2023, the AER issued proceedings against AGL subsidiaries (AGL Macquarie Pty Ltd and AGL Loy Yang Marketing Pty Ltd) for alleged breaches of the NER arising from an alleged failure to comply with dispatch instructions given to them by AEMO in relation to their frequency control ancillary services (FCAS). The generators were on standby to provide FCAS to stabilise network frequency for power system disturbances.

Changes to short and medium term PASA information requirements

In relation to the transparency of information, the AEMC made a Rule Determination on 5 May 2022 (National Electricity Amendment (Updating Short Term Predicted Assessment of System Capacity (PASA)) Rule 2022). The principal element of the Rule is to introduce an objective and principles-based framework in the NER for Short Term PASA, linking Short Term PASA to the objective for PASA in the NER; namely, a programme for:

information collection, analysis and disclosure of medium term and short term system security and reliability of supply prospects so that Registered Participants are properly informed to enable them to make decisions about supply, demand and outages of transmission networks in respect of periods up to two years in advance (or up to three years, where specified).

This Rule will commence on 31 July 2025.

Pursuant to the Rule determination made by the AEMC on 19 May 2022 (National Electricity Amendment (AER Reporting On Market Outcomes) Rule 2022), the AER is to report on significant price outcomes in the spot market (including the ancillary services market) and any other market as specified in a new price reporting guideline.

The AEMC published a draft Rule Determination on 26 May 2022 (National Electricity Amendment (Enhancing Information on Generator Availability in MT PASA) Rule 2022). This Rule change seeks to 'improve understanding about why particular generators are unavailable and how long they would take to come back online', including 'understanding whether generators are offline for economic reasons'.

On 1 August 2022, the Department of Climate Change, Energy, the Environment and Water released a Consultation Paper, the 'initial policy position', which is to remove impediments to the wholesale market monitoring and reporting functions of the AER, including the extension of these functions to contract markets. Submissions close on 25 August 2022.

Gas market changes

Increased and expanded information disclosure obligations have been introduced into the National Gas Rules. Of particular relevance in the context of this Chapter are:

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- significant amendments to Part 18 of the National Gas Rules (National Gas Amendment (Market Transparency) Rule 2022 under section 294FA(1) of the National Gas (South Australia); and
- the introduction of the National Gas Amendment (East Coast Gas System) Rules 2023 under section 294(H)(1) of the National Gas (South Australia) Law, in particular, Part 27 of the National Gas Rules (East Coast Gas System Reliability and Supply Adequacy).

Both Part 18 and Part 27 impose information disclosure obligations on various prescribed persons and facilities, including a BB Large User Facility. A BB Large User Facility includes a facility that involves the consumption of natural gas from the operation of the facility where the facility has a nameplate rating equal to or more than 10TJ of natural gas per day. A BB Large User Facility includes a gas-fired power station that meets that applicable reporting threshold.

In addition, under section 91AF(1) of the National Gas (South Australia) Law (to be read together with Part 27 of the National Gas Rules), the Australian Energy Market Operator (AEMO) may give a written direction to a relevant entity:

- to maintain and improve the reliability of the supply of natural gas within the east coast gas system; or
- to maintain and improve the adequacy of the supply of natural gas within the east coast gas system (or both).

Section 91AF(2) provides that such a direction must not be given unless AEMO is of the opinion that the giving of the direction is necessary to prevent, reduce or mitigate an actual or potential threat identified by AEMO in the exercise of its east coast gas system reliability and supply adequacy functions under section 91AD(1).

Among other things, an east coast gas system direction may relate to the operation, maintenance or use of any equipment or installation. A person to whom an east coast gas system direction applies must comply with the direction to the extent to which compliance is consistent with a law of a participating jurisdiction applying to the person.

Division 5 of Part 27 of the national Gas Rules provides that AEMO must (to the extent AEMO considers appropriate given the circumstances) consult with the relevant entity on the matters prescribed in that Division before giving an east coast gas system direction to the relevant entity.

Significantly, a 'relevant entity' includes a 'gas powered generator', which means 'the owner, controller or operator of a generating system, within the meaning of the National Electricity Rules, that is powered by natural gas'.

Victorian State Electricity Commission

The Victorian Government announced that they are reintroducing the State Electricity Commission (SEC). The SEC will act as a government-owned investor in renewable energy and storage projects. An initial investment of A\$1 billion will be allocated towards delivering 4.5 gigawatts of power through renewable sources.

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Proposed notice period change for closure of generators

On 7 April 2022, the former Morrison Government wrote to the AEMC and requested a change to the National Electricity Rules to extend the notice period for generator closures from 3.5 years to 5 years. This request is intended to safeguard the delivery of affordable, reliable power in the short to medium term. The decision on the rule change is currently pending the AEMC's consideration.

Regulation of Transmission Network Service providers

In July 2023, the AER submitted a rule change request to the AEMC proposing an amendment to the transmission ring-fencing framework under the NER to include negotiated transmission services within the scope of the Transmission Ring-fencing Guideline.

The proposed amendment would address concerns raised by stakeholders that electricity transmission network service providers have the ability to discriminate in favour of themselves or an affiliate when providing non-regulated transmission services as a result of their monopoly provision of negotiated transmission services.

In December 2022, a Rule change was implemented clarifying that the AER has a broad discretion around the process and timing for making a transmission determination for an intending Transmission Network Service Provider. This followed a Rule change application by Marinus Link Pty Ltd, a proposed electricity and telecommunications interconnector between Tasmania and Victoria. Prior to this Rule change, the concern was that Chapter 6A of the NER (relating to the power of the AER to make a revenue determination and a transmission determination in relation to prescribed transmission services), may not extend to an intending Transmission Network Service Provider.



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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

Belgium is a federal state with several levels of government. The federal responsibilities regarding electricity supply include security of supply, the nuclear fuel cycle, production and federal supply licences, consumer protection and transmission (including local transmission) tariffs, as well as the North Sea. The three regions (Flanders, Wallonia and Brussels) are principally responsible for energy efficiency, (onshore) renewables, regional supply licences and distribution tariffs.

A large part of Belgian energy law, both at the federal and regional level, is based on the EU's internal market regulation (the Third Energy Package, which is supplemented by the Clean Energy Package and subsequent legislation, including legislation on the electricity market design, renewables and energy efficiency, some of which have yet to be transposed into Belgian law). These rules, often directly applicable or transposed into Belgian law, include rules on infrastructure investment and state aid, the regulation of network operators (eg, regulated tariffs, unbundling requirements and third-party access), network operation and safety, trading (eg, market coupling) and market monitoring and supervision by independent regulators. A further overhaul of EU rules is in the course of being finalised (the Fit for 55 and REPowerEU packages, as well as the proposed new power market design, part of the Green Deal Industrial Plan), which will lead to further changes to the Belgian implementation framework, once they become law.

Belgium has been heavily dependent on imported energy since the end of domestic coal production. Security of supply is therefore a key objective of Belgian energy policy. In 2019, the federal parliament first approved legislation for the introduction of a broader capacity remuneration mechanism (CRM) to guarantee the security of supply, secure the energy transition and offset Belgium's (partial) nuclear phase-out by 2025. This legislation was amended and further implemented via royal decrees on various occasions. The CRM was approved by the European Commission under state aid rules. On 30 March 2023, Elia was

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instructed by the federal Energy Minister to organise a capacity auction for the delivery period starting on 1 November 2027 and the prequalification process for this auction closed on 15 June 2023. Prequalified bidders will need to put in their offers by 30 September 2023. The process and timing for each auction may, however, be complicated by environmental concerns and permitting (for which the regional authorities have competency). To bridge any gaps in supply security until the start of the first delivery period under the CRM in November 2025, the law also provides the government (acting via royal decree) with a possibility to organise targeted auctions, whereby the procedure, parameters, criteria and capacity contract offered by the government are to be based as much as possible on those applying to the CRM.

Other objectives of the Belgian federal and regional energy policies include energy efficiency, transparent and competitive energy pricing and climate and environmental protection.

Driven by EU efforts to deal with energy and climate challenges, the Belgian authorities support the development of capacities of power generation based on renewable sources of energy. Also, in 2019, the federal parliament approved legislation to create a framework for the issuance of new offshore concessions for renewable power production on the North Sea (the Princess Elizabeth zone), through a competitive tender procedure (the rules for which remain to be finally established by the federal government). In this way, the federal government hopes to increase the offshore wind capacity from 2.3GW currently to 5.5–5.8GW by 2030, and potentially to 8GW in the long run. Future offshore generation facilities may be able to benefit from support in the form of two-sided contracts for difference, with subsidy levels to be fixed based on the bids submitted in the competitive tender process.

At the same time, Belgium continues to rely heavily on nuclear power production (representing around 6GW of installed capacity or just below 50 per cent of total production over the year 2022, according to Elia). In March 2022, the government decided on another extension by 10 years of the two youngest nuclear reactors. In July 2022, a (non-binding) agreement of principle was reached with ENGIE on the modalities for that extension. This resulted in a binding agreement being reached at the end of June 2023, whereby ENGIE agreed with the life extension, including a (partial) restart already in November 2025, in exchange for a maximum invoice for processing and storing nuclear waste of €15 billion to be paid by ENGIE.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

As a matter of principle and under EU law, the generation and import, trade and supply to consumers of power are liberalised and open to all market participants. Networks, on the other hand, are strictly regulated and subject to a national (transmission) or local (distribution) monopoly.

While most energy operators in Belgium, including the transmission system operator (TSO) and market operator or operators, are private companies, the municipalities either directly or indirectly control the transmission and distribution system operators (DSOs) throughout the country.

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Following consecutive generations of EU internal energy market regulation, transmission and distribution activities previously performed by vertically integrated power companies have been disentangled from their respective production or import, trading and supply activities. In 2001, incumbents Electrabel and SPE (and their cooperation subsidiary CPTE) incorporated and contributed their transmission assets and activities to the newly established company Elia. In 2002, Elia was appointed the sole transmission system operator for electricity in Belgium and this designation was recently renewed for an additional 20-year period. In 2012, Elia was certified as a fully ownership unbundled TSO under the EU's Third Energy Package ownership unbundling rules.

Although ownership unbundling is not required for DSOs, Electrabel has divested all its historic participation in the Belgian DSOs. The DSOs enjoy a legal monopoly within their geographically confined areas, usually covering the territory of several municipalities.

Power can be traded by market participants on the Belgian power exchange operated by Epex SPOT Belgium. The Belgian exchange (formerly Belpex) was created in 2005 and merged with Epex SPOT in 2015. Epex SPOT in turn is owned by the EEX Group (through Powernext) and HGRT, a conglomerate of network operators including Elia. The Belgian power market has subsequently been coupled with markets in other European countries. The currently applicable Multi-Regional Coupling covers 19 countries and 85 per cent of European power consumption.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

A federal production licence must be issued by the federal Energy Minister, subject to a prior opinion from the federal Commission for the Regulation of Electricity and Gas (CREG), for each construction of a new generation facility, as well as the reconstruction or modification of an existing facility not subject to an individual licence resulting in an increase of the net capacity by more than 25MW.

Nuclear generation units and installations for the production of electricity from renewables and hydro storage that are the subject of an offshore concession are excluded from this requirement. The former can no longer be the subject of any permit or licence in Belgium (ie, subject to a change in law, no new nuclear generation units can be constructed in Belgium; however, a major overhaul of the two youngest reactors will be possible following the agreement on their life extension). The latter installations are subject to specific procedures for obtaining the relevant offshore concessions and related permits and licences. A law change from 2019 (subsequently amended) has enabled the federal government to set up a competitive tender procedure for the issuance of new offshore concessions by the relevant ministers, for a maximum duration of 40 years (including construction, operation and decommissioning phase), for the production of electricity from renewable sources, on the lots that have been reserved for that purpose in the new marine spatial plan covering the period from 2020 to 2026 (the Princess Elizabeth Zone (PEZ)). Although the first auctions

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for these concessions were initially anticipated to take place already in 2020, with concessions awarded in 2021 (on time for the new wind parks to be completed by 2025), while some principle decisions were taken, most of the required implementing legislation has not been approved to date. Further preparatory work (including studies and permits) is also still underway. According to current timelines, the government is now aiming for bids to be submitted in the first PEZ tender phase by Q3 2025, with winners announced in Q4 2025 or Q1 2026. The first wind park in the PEZ (lot 1) should then be fully operational by the end of 2028. All new wind parks will need to connect to the Modular Offshore Grid, which is being expanded for that purpose (MOG II). Significant onshore network reinforcements are required as well to bring the additional power to land, which have met with a lot of public resistance. The transmission system operator (TSO) Elia has indicated that, as things stand, this work is likely to be finished at the earliest in 2026 and possibly later (depending, among other things, on permitting trajectories, which are highly contested). This could further jeopardise the timing for these new wind parks to become operational.

The construction and operation of generation facilities on land is subject to regional land planning and environmental law and regulations and may, therefore, require a building or a (combined) environmental permit, or both, depending on the nature of the installations. For offshore constructions (including cables for connection to the onshore transmission system), additional permits and authorisations may be required under federal law.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

Under EU law, grid users (including generators) have a right to non-discriminatory grid access, subject to their compliance with the applicable (technical) requirements, payment of the applicable, pre-approved tariffs, and entering into industry-standard regulated contracts with the relevant network operators. A new technical regulation for the operation of and access to the transmission system entered into force on 27 April 2019, which replaced the previous one from 2002 (as amended from time to time). Following a recent law change, in line with EU rules, the technical regulation's scope is now limited to technical and safety requirements for access holding installations, while the bulk of its content (including most rules on grid connection, access, balancing and system services) will over time be replaced by a new code of conduct adopted by the federal regulator CREG.

Besides the code of conduct, the tariffs and contractual framework, grid connection, access, balancing and system services are covered by several grid codes at EU level.

Priority grid access may apply in certain cases for certain types of (renewable) generation. Under EU legislation (the Clean Energy Package), the possibilities of priority grid access are reduced for new installations.

The network operators are required to keep commercially sensitive information obtained from grid users confidential.

A specific cable licence is required and compensation can be obtained for costs incurred for the connection of offshore (wind) generation units to the transmission grid. New offshore

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production installations must connect to MOG II, from where they will be connected to the onshore grid, at the connection point determined by the TSO and under the applicable technical requirements. The federal government will also establish the latest dates by which each required extension of the MOG must have entered into service and a compensation mechanism in the case of its delay or unavailability.

Specific rules also apply to private and direct lines, as well as closed industrial networks and closed distribution systems to which generators may connect, to ensure the viability of the public grid as well as the users' right to grid access.

Grid connection and access can be refused by the network operators under the applicable network codes if technically unfeasible or economically unviable, or to ensure the secure operation and integrity of the grid.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Except for power production and storage in the North Sea, renewable energy sources are a regional competence. Government policy and legislation encouraging the use of alternative energy sources are therefore decided on a federal (offshore) and a regional level and may differ between the three Belgian regions.

As a general rule, all three regions as well as the federal state (regarding offshore) have policies and a legal framework in place to support renewable energy generation. All of these include a system of guarantees of origin and green certificates (either federal or regional) that are issued for each kilowatt-hour of power produced, which can subsequently be sold either on the market (demand for certificates is driven by quota obligations for suppliers or grid users) or to the TSO or distribution system operator at a certain minimum price.

Offshore renewable generation is supported through the federal system of green certificates (in the form of one-sided contracts for difference; future wind parks will be able to receive support only in the form of two-sided contracts for difference, with an obligation to repay profits a certain reference price). Brussels promotes the use of renewable energy sources by assimilating the federal system of green certificates combined with a quota obligation, as well as through net-metering for small producers and investment aid for certain companies and projects. Flanders has its own system of green certificates and combined heat and power certificates combined with quota obligations in place, together with net-metering for small-scale generation and ecological premiums for environmentally friendly investments. Wallonia promotes renewable generation through various means, including the federal system of green certificates and quota obligations, investment aid and specific support schemes for certain technologies.

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Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

Belgium is committed to the Paris climate agreement. In 2015, during the Paris negotiations, the different regions and the federal state reached a Belgian internal climate agreement, allocating the efforts to be made by each region and the federal state toward reaching Belgium's overall climate targets. At the end of 2019, the Belgian federal and regional governments also agreed on a National Energy and Climate Plan for the period 2021–2030, which was submitted to the European Commission under Regulation (EU) No. 2018/1999.

Despite these commitments and in line with public opinion, energy policy has recently seen a shift towards reducing subsidies for renewable power generation (eg, cutting subsidies for biomass, photovoltaic generation and offshore wind). Moreover, security of supply and generation adequacy measures such as the already existing strategic reserve and the contemplated new capacity remuneration mechanism are likely to target mainly (new and existing) gas-fuelled power plants, both during a transitory period and after 2025, to compensate for the (partial) closure of nuclear power plants in Belgium. These policy options, as well as a changing geopolitical landscape (in particular, the war in Ukraine) may render the achievement of the Belgian climate targets more challenging.

Given the climate targets (in addition to the security of supply concerns), nuclear power will continue to play an important role in the Belgian energy mix until 2025 and beyond that, with the recently agreed extension of the lifespan of the two youngest nuclear reactors by 10 years.

At the same time, climate targets are likely to push the different Belgian governments toward policies promoting energy efficiency measures, flexibility services, distributed generation, power2gas (hydrogen, in particular following the publication of the federal government's updated Hydrogen Strategy on 14 October 2022) and small-scale renewable production that require fewer subsidies (such as heat boilers, which have seen prices drop drastically over recent years and are heavily promoted by the European Commission; and small-scale biomass, in the form of combined heat and power installations).

Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

Electricity storage is subject to the opinion of CREG and the approval of the federal Energy Minister, and the Minister responsible for the North Sea to the extent relevant to the connection of offshore generation units.

Investments into the network by the TSO are compensated through the regulated tariffs under the applicable tariff methodology and proposal, as approved by CREG.

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Following the Clean Energy Package and its transposition in Belgium, the possibilities for the TSO to develop storage solutions are further narrowed down to specific circumstances and under strict conditions (essentially when the market is unable to provide them). Active consumers and energy communities that own their own storage facility, on the other hand, enjoy a right to connect it within a reasonable term, offer various system services simultaneously and cannot be charged double tariffs nor be subject to unreasonable or discriminatory permit and other requirements or compensations.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

Under the current state of the legislation, no new nuclear power generation units can be constructed in Belgium.

In 2015, the federal government reached an agreement with the incumbent producer and owner of the nuclear park, Electrabel, and its mother company, ENGIE, to keep nuclear power in the Belgian energy mix at least until 2025, subject to heavy investment into the seven existing nuclear generation units.

In March 2022, the government decided on another extension by 10 years of the two youngest nuclear reactors (Doel 4 and Tihange 3). In July 2022, the federal government made a non-binding agreement of principle with ENGIE setting out the key principles of that extension, which translated into a binding agreement reached between the government and ENGIE at the end of June 2023. The agreement, among other things, provides for:

- a 10-year extension as of November 2025 (with upgrade and maintenance being spread over time between 2025 and 2028; any capacity gaps in this period will need to be filled mostly by gas-fired power plants receiving capacity remuneration mechanism subsidies, which are still to be constructed);
- a split of the risk and cost for storing and monitoring the (future) nuclear waste, with an agreed maximum invoice for nuclear waste processing payable by ENGIE of €15 billion; and
- a 50/50 participation by the Belgian state in a financing vehicle that will fund the investments necessary for the extension and future operations.

At the end of 2022, the federal government – in accordance with Regulation (EU) 2022/1854 allowing an emergency intervention to tackle high energy prices – imposed an excess profit tax on most electricity generators' windfall profits realised between 1 August 2022 and 30 June 2023. The measure covers most technologies other than gas-fired power plants, including all renewable and nuclear power generation units. Pursuant to this measure, 100 per cent of the affected generators' revenue in excess of the revenue cap is taxed away. The cap is set at €130/MWh for most technologies (€180/MWh for biomass and municipal waste-to-energy), or equal to the levelised cost of energy plus €50/MWh with a maximum of €180/MWh for installations receiving production support that varies according to the market price (eg, the youngest offshore wind parks). Installations receiving production support and whose revenues are already capped (eg, through a two-sided contract for difference) are exempted (no double taxation).

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REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

Belgium has a single transmission system operator (TSO) to operate the entire public transmission system, which is appointed for a 20-year period by the federal Energy Minister following consultation with the Council of Ministers and prior advice from the federal Commission for the Regulation of Electricity and Gas (CREG), on the proposal of one or more network owners that, jointly or separately, own a part of the transmission system covering at least 75 per cent of the national territory and at least two-thirds of the territory of each region. In addition to the national transmission grid (high and very high voltage), the TSO also operates the local grids with a transmission function (ie, with a nominal voltage level equal to or below 70kV).

Elia System Operator was initially appointed as the single TSO for a 20-year period on 13 September 2002. On 6 May 2019, Elia's TSO designation was renewed for an additional 20-year period, with effect from 17 September 2022. Following a strategic reorganisation of the Elia group (to accommodate its investments abroad without impacting Belgian consumers), newly incorporated Elia Transmission Belgium was appointed the single TSO in replacement of its mother company, renamed Elia Group, for a 20-year period with effect from 31 December 2019. The network assets are owned by its wholly owned subsidiary, Elia Asset. Under EU unbundling rules, Elia System Operator was certified by CREG as a fully ownership unbundled TSO on 6 December 2012. This certification was passed onto Elia Transmission Belgium on 31 December 2019.

Subject to certain conditions, third parties may obtain an individual licence from the federal Energy Minister to construct a direct line or may be authorised by the federal Energy Minister to operate a closed industrial network.

Much the same as for generation facilities, the construction and operation of transmission (and distribution) systems on and offshore require certain permits and authorisations under regional and federal law, depending on the nature and the location of the installations. Public utility easements may be granted to the TSO for infrastructures crossing private land and, in certain instances, the TSO may be entitled to expropriate the property of private owners in the public interest.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

In principle, all grid users connected to the transmission system on 1 July 2004 or who are otherwise eligible (ie, under the laws of another EU member state) have a right of access to the grid on the following non-discriminatory conditions: subject to their compliance with the applicable (technical) requirements, payment of the applicable, pre-approved tariffs, and entering into industry standard regulated contracts with the relevant network operators. A

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new technical regulation for the operation of and access to the transmission system entered into force on 27 April 2019, which replaced the previous one from 2002 (as amended from time to time). Following a recent law change, in line with EU rules, the technical regulation's scope is now limited to technical and safety requirements for access holding installations, while the bulk of its content (including most rules on grid connection, access, balancing and system services) will over time be replaced by a new code of conduct adopted by the federal regulator CREG.

The TSO can refuse access only if it does not have sufficient capacity available (under the applicable rules on capacity allocation and congestion management) or if the access would prevent its proper execution of a public service obligation in the general economic interest, and without breaching the rules on the exchange of energy flows in a way that would harm the European interest.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

The TSO is required to draw up and update (every four years) a 10-year network development plan, taking into account the EU-wide 10-year network development plan determined by the European Network of TSOs for Electricity. The 10-year network development plan is subject to the advice of CREG and the approval of the federal Energy Minister, and the minister responsible for the North Sea to the extent relevant to the connection of offshore generation units.

Investments into the network by the TSO are compensated through the regulated tariffs under the applicable tariff methodology and proposal, as approved by CREG.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

Grid connection, access, balancing and other system services are subject to regulated tariffs, which are pre-approved by CREG for a four-year regulatory period, based on a proposal by the TSO. The proposal must be based on a tariff methodology established in advance by CREG, which in turn takes into account the specific tariff guidelines set out in the law. The current tariff period runs from 1 January 2020 until 31 December 2023. On 30 June 2022, CREG approved the tariff methodology for the next tariff period 2024–2027, which is largely consistent with the methodology for the current tariff period and follows the same overarching principles (ie, a fair remuneration mechanism, combined with incentive components for certain expenses and revenues of the TSO). Once approved, the tariffs in principle remain unchanged during the entire tariff period, subject to revision that can be requested by the TSO or initiated by CREG if they are no longer proportionate owing to changed circumstances.

In addition to the regulated tariffs, transmission services are governed by industry-standard regulated contracts, which are also pre-approved by CREG. For electricity transmission, the

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main regulated contracts are the connection contract, the access contract and the balance responsible party contract.

The tariffs and regulated contracts are non-negotiable between the TSO and individual grid users. Any amendments are subject to prior CREG approval and are applied to all grid users simultaneously.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

The TSO is responsible for the secure and reliable operation of the grid under the law and all the applicable (national and European) grid codes. Its various tasks and roles are detailed in the law. The TSO can contract various system services from market players in accordance with the applicable grid codes. Moreover, following the transposition of the Clean Energy Package (in particular Directive (EU) 2019/944), end consumers and active consumers enjoy expanded rights to valorise their flexibility and offer various types of system services to the TSO, and to enter into agreements with, inter alia, suppliers, other off-takers, aggregators, providers of flexibility services, storage providers and balance responsible parties for that purpose.

The federal regulator, CREG, as well as the federal energy administration and the federal Energy Minister, have certain specific monitoring and supervision competencies.

In the event of a sudden crisis in the energy market or when the physical safety of persons, the safety or the reliability of equipment or installations or the integrity of the transmission system are in jeopardy, the federal government, in consultation with the TSO and following an opinion from CREG, can take emergency measures (which can temporarily deviate from the provisions of the law).

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

Distribution system operators (DSOs) are appointed by the regional regulators or, in the Brussels-Capital region, by the Brussels government, to operate the distribution system of a certain geographically confined area (of at least 200,000 individual connections, in the case of Flanders), within which they enjoy a legal monopoly. The DSOs are appointed for a maximum period of 12 years (in Flanders) or 20 years (in Wallonia and Brussels). In the Flemish and Walloon regions, several DSOs are active. In the Flemish region, all DSOs work together through the single operating company, Fluvius, a company that was created through a merger of the previously existing operating companies Infrac and Eandis. The two largest DSOs in the Walloon region are Ores and Resa, with several smaller DSOs that are locally active. Sibelga is the sole DSO in the Brussels-Capital region.

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Subject to certain conditions, third parties can obtain an individual authorisation from – or have to notify – the relevant regional regulator, to construct a new direct line or to operate a closed distribution system or a private network. Following a law change in the Flemish region, the construction and operation of a direct line that does not cross the borders of the own site, is no longer subject to prior approval, and the operation of a direct line that does cross the borders of the own site, is made subject to a levy, calculated based on the number of megawatt-hours annually injected into the line.

The construction and operation of both transmission and distribution systems may require certain permits and authorisations. Like the transmission system operator, DSOs may benefit from public utility easements for infrastructures crossing private land and, in certain instances, may be entitled to expropriate the property of private owners in the public interest.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Under EU law, all DSOs must provide non-discriminatory access to their distribution system, subject to grid users entering into regulated contracts, compliance with the (technical) requirements and payment of distribution tariffs.

The DSOs may refuse access to their distribution system on specific conditions set out in the laws of each region. For instance, access can be refused if there is insufficient grid capacity or if the technical requirements are not met.

In the event of a dispute on the conditions for access, grid users can lodge a complaint before the competent regional regulator or before the courts.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

In Belgium, the legal framework does not provide for specific rates or tax benefits to encourage the development of distribution systems.

DSOs must operate, maintain and develop the distribution system for which they are responsible. In that framework, they must establish a multi-annual network development plan, to be approved by the relevant regional regulator, to ensure the continuation of the electricity supply, security and development.

In terms of economics, distribution system expansion is mainly encouraged through the regulated network tariffs, which are approved by the relevant regional regulator.

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Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

Under EU law, the rates for access to distribution systems are monitored and approved by the relevant regional regulator.

In each region, the regulator sets up a tariff methodology taking into account the specific tariff guidelines set out in the relevant regional legislation. Based on that methodology, each DSO establishes a tariff proposal that is approved by the relevant regulator. In practice, network tariffs are payable to the DSOs by the grid users and subsequently charged to the end-users.

In general, the tariffs are established for a multi-annual term and remain unchanged during the entire tariff period, but they can be subject to revision in limited circumstances. In Belgium, the tariff models in the various regions are shifting from a cost-plus model toward a more incentive-based model, bearing in mind that each region has its own specificities and requirements. The new methodology for the tariff period 2021 to 2024 in the Flemish region, as approved by the Flemish Regulator for Electricity and Gas on 13 August 2020 (and subsequently amended), has introduced a new tariff structure, which includes a capacity tariff to better reflect the financial impact of customer behaviour on the network operation – a first in Belgium. This new structure applies as of 1 January 2023.

Like transmission services, distribution services are governed by regulated contracts to be pre-approved by the relevant regional regulator. The main regulated distribution contracts are the connection contract and the access contract. As for transmission, distribution tariffs and regulated contracts are non-negotiable between the DSOs and individual grid users and any amendments (subject to prior approval by the competent regulator) are applied to all grid users simultaneously.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

A regional supply licence is required for the sale of power to end-users in each region. These supply licences are granted in Flanders, Wallonia and Brussels by the Flemish Regulator for Electricity and Gas, the Walloon Commission for Energy and the Brussels Regulator for the Gas and Electricity Market (Brugel). Any person wanting to perform supply activities in the whole of Belgium must therefore obtain licences in all three regions. In all three regions, the supply licences are valid for an indefinite period. The laws of each region stipulate the exact licence requirements, the procedure, the reporting obligations and the grounds for suspension or revocation of the licence.

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Exceptions to the supply licence obligation exist for the transmission system operator (TSO) and distribution system operators (DSOs) in the performance of their public services obligations (eg, as a social supplier). Following the transposition of the Clean Energy Package, this also applies to energy communities, active consumers and auto-consumers selling power to other consumers within their community or building, on the conditions set out in the law.

If an end-user has a direct connection to the federal transmission system, a federal supply licence is also required to supply power to it.

Besides these general licences, Walloon and Brussels legislation provide for specific licences, namely:

- a licence for the supply of 100 per cent renewable energy (Brussels-Capital region);
- a licence limited to a capped capacity;
- a licence limited to certain types of clients or to a certain area; and
- a licence limited to ensuring a grid user's own supply (Wallonia).

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

The price of electricity is, in principle, based on market mechanisms. However, both federal and regional laws may intervene in the sale of electricity.

The federal Economy Minister may impose maximum prices for the supply of electricity to end-users and protected clients.

Federal law further provides that an electricity supplier must objectively justify its prices in comparison to its costs. In that context, the federal Commission for the Regulation of Electricity and Gas (CREG) has a general mission to monitor electricity prices. It has the power to issue opinions and impose necessary and proportional enforcement measures on electricity companies in Belgium to ensure cost-representativeness and prevent discriminatory prices and conditions that could jeopardise a well-functioning electricity market. Further, the law sets out a package of measures regarding the variable prices charged for the supply of electricity to households and small and medium-sized enterprises.

In line with EU law, suppliers serving over 200,000 individual end users are now under an obligation to offer electricity contracts with dynamic pricing to end users requesting it and which have an adequate smart meter installed. With their offer, suppliers need to provide information about the benefits, risks and costs of such dynamic pricing contracts. The CREG is charged with monitoring market developments and supervising market practices in this area (without limiting the powers of the Belgian Competition Authority).

As part of a package designed to alleviate the pressure of rising energy prices on households and small and medium-sized enterprises, the federal government, in February 2022, decided to temporarily reduce the VAT rate on power bills from 21 per cent to 6 per cent. On 1 April 2023, this reduced VAT rate became permanent. This VAT reduction is partly offset, as of the same date, by a new excise duty on energy and a phased reduction of the social tariff

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for certain eligible end users. When energy prices rise above a certain ceiling, the excise duty will automatically go down and vice versa.

More generally, power suppliers must also comply with the rules set out in the Code of Economic Law, especially regarding unfair commercial practices, distance selling or publicity, and the new version of the Consumer Agreement ('the consumer in a liberalised electricity and gas market') and the related Code of Conduct. This industry-wide agreement aims to protect consumers against abusive practices developed and misleading information given by suppliers.

The sale of electricity to household consumers is also governed by regional legislation. These regional laws determine, among other things, mandatory provisions in supply contracts and invoices, such as those dealing with minimum notice periods for termination; consumer protection; change of supplier; and dispute resolution. The Brussels legislation also enables Brugel to set up a progressive pricing system for electricity.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

Subject to rules curtailing abusive market behaviour (including reporting and disclosure obligations under Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency and its implementing legislation), power prices on the wholesale electricity markets are based on market mechanisms. The federal Economy Minister may impose maximum prices for the supply of electricity to end-users.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

Regional legislation sets out public service obligations for the TSO, DSOs and electricity suppliers.

These public service obligations vary from one region to another. As a rule, electricity suppliers must ensure the regularity and quality of the electricity supply. Besides this general public service obligation, the federal and regional legislators have imposed public service obligations on suppliers aimed at the protection of vulnerable consumers (eg, providing for specific procedures in the event of payment problems encountered by households), rational use of energy, protection of the environment and, in particular, promotion of renewable energy (eg, green certificates).

Other intermediaries, such as producers, must also abide by certain public service obligations, some of which are linked to the security of electricity supply (ie, the provision of certain services to be contracted by the network operators), such as in the framework of the strategic reserve and the future market-wide capacity remuneration mechanism.

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The supplier of last resort is the relevant DSO (although in Flanders there is no legal provision in this respect, yet).

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The responsibilities for electricity policy are split between the competent ministers and the relevant administrations for the federal state on the one hand and the three regions on the other. At the federal level, the Energy Minister and the Directorate-General for Energy, part of the Federal Public Service for Economy, Small and medium-sized enterprises, Self-employed and Energy, are the key authorities that develop and implement electricity policy.

Several agencies independent from the federal and regional governments also regulate parts of the electricity sector. There is one federal regulator, the federal Commission for the Regulation of Electricity and Gas (CREG), and three regional regulators: the Flemish Regulator for Electricity and Gas (VREG), the Walloon Commission for Energy (CWaPE) and the Brussels Regulator for the Gas and Electricity Market (Brugel). The Federal Agency for Nuclear Control and the National Agency for Radioactive Waste and Enriched Fissile Materials supervise nuclear activities in Belgium, including the seven nuclear reactors and the treatment of nuclear waste.

Lastly, the Belgian Competition Authority and the Economic Inspection have extensive competencies and enforcement powers across all economic sectors, including the energy sector.

Scope of authority

23 | What is the scope of each regulator's authority?

CREG monitors the proper functioning of the electricity market and compliance with the federal electricity legislation. The main competencies of CREG are approving transmission (including local transmission) tariffs, regulating transmission system operators, monitoring the national electricity market and a broad advisory role. Increasingly, it also has tasks and responsibilities in cross-border cooperation and coordination, including with the European Commission, the Agency for the Cooperation of Energy Regulators and national regulators in other EU member states, as well as supervising the regional coordination centres, European Networks of Transmission System Operators and the EU distribution system operator entity.

The regional regulators have broad competencies, ranging from monitoring the regional electricity markets to imposing sanctions, ensuring compliance with the regional regulations and settling disputes. They are principally responsible for granting supply licences, approving distribution tariffs, regulating distribution system operators, monitoring the regional electricity markets and the renewable support schemes (other than for offshore renewables). The regional regulators also advise the regional governments, ensure compliance with the regional regulations and settle disputes.

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The regulators are also vested with investigative powers and may impose sanctions on the electricity market players.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The federal and regional regulators are independent administrative authorities established by federal or regional legislation. Under EU law, they act fully independently of the state, governments and regulated businesses such as the network operators.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

As a rule, most of the regulators' decisions are considered administrative acts. Accordingly, their annulment can be requested before the Council of State (the highest administrative court). The Council of State reviews the lawfulness of the disputed decisions.

As an exception to this general rule, the decisions of CREG and the tariff decisions of VREG and Brugel can be appealed in a *de novo* review before the Market Court of Brussels. CWaPE's decisions can be appealed before the Court of Appeal of Liège.

Any party that is affected by a decision of a regulator may also submit a request for review to these authorities. This is the only non-judicial challenge available.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

A transaction with a nexus to Belgium may be assessed by either the European Commission or the Belgian Competition Authority.

European Commission

The European Commission has the authority to review all concentrations in the electricity sector with a 'community dimension' within the meaning of Council Regulation (EC) No. 139/2004 on the control of concentrations between undertakings (OJ 2004, L24/1) (the EU Merger Regulation).

According to the EU Merger Regulation, a concentration has a community dimension when the annual global and European turnover of the undertakings concerned exceeds specified thresholds and depends on the sales dispersion across Europe. If these thresholds are

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fulfilled, the European Commission has exclusive jurisdiction to review the proposed transaction. National competition authorities, such as the Belgian Competition Authority (BCA), are then precluded from reviewing the transaction.

Furthermore, in 2020, the European Commission published further guidance on the application of the referral mechanism under article 22 of the EU Merger Regulation. This guidance confirms that the European Commission will start accepting referrals from national competition authorities of transactions that fall below the national merger control thresholds if it affects trade between EU member states and threatens to significantly affect competition within the referring EU member state.

Nevertheless, under article 9 of the EU Merger Regulation, EU member states could request the European Commission to refer a transaction to the national competition authority, if the transaction affects competition in a distinct market within that EU member state's territory.

Belgian Competition Authority

Pursuant to the provisions of Book IV (Protection of competition) of the Code of Economic Law (CEL), the relevant merger control authority in Belgium is the BCA, which is an independent administrative body composed of the president, the Competition College, the College of Competition Prosecutors and a management committee.

Notifications of transactions are submitted to the Competition Prosecutor General and investigated by the team of prosecutors appointed for the deal. The final decision is taken by the Competition College. Appeals against decisions approving or prohibiting a notified transaction may be lodged before the Brussels Markets Court, which is a separate section within the Brussels Court of Appeal that is responsible for appeals against decisions of certain regulatory authorities in Belgium, including the BCA.

In line with the recent *Towercast* judgment (C-449/21) by the European Court of Justice, an acquisition by a dominant company can also be investigated under the abuse of dominance rules in absence of an ex-ante merger control process. The BCA has already applied this ruling in a transaction involving a regulatory sector.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

European Commission

Concentrations with a 'community dimension' within the meaning of the EU Merger Regulation must be notified to the European Commission before their implementation. There are two alternative thresholds for the community dimension.

- A merger filing is required if:

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- 1 the combined worldwide turnover of all the merging companies exceeds €5,000 million; and
 - 2 the EU turnover of each of at least two of the companies involved exceeds €250 million.
- A merger filing is also required if:
 - 1 the combined worldwide turnover of all the merging companies exceeds €2,500 million;
 - 2 the combined turnover of all the merging companies exceeds €100 million in each of at least three member states; and
 - 3 each of at least two of the companies involved have a turnover exceeding €25 million in each of the three member states included under point (2) above.

In both alternatives, there is, however, no community dimension if each of the companies achieves more than two third of its EU turnover within one and the same member state.

The European Commission must complete its initial review (Phase I) within 25 working days following the date of receipt of the notification (or receipt of complete notification if later). This period may be extended to 35 working days if the merging parties offer commitments to remedy any potential competition concerns within 20 working days from the notification, or if an EU member state requests a referral of the transaction. At the end of Phase I, the European Commission is required to decide:

- that it has no jurisdiction over the transaction, provided that such transaction does not fall within the ambit of the EU Merger Regulation;
- that the transaction does not raise serious doubts as to its compatibility with the common market; or
- to launch an in-depth investigation (Phase II).

If the European Commission opens a Phase II investigation, it has 90 working days in which it has to determine if the transaction is compatible with the EU internal market. This period may be extended to 105 working days if the parties offer commitments within 55 working days from the opening of the Phase II investigation. Following a Phase II investigation, the European Commission is required to decide if it (conditionally) clears or prohibits the transaction.

The cornerstone of the European Commission's assessment is the significant impediment to effective competition (SIEC) test. The European Commission will block a transaction if it could 'significantly impede effective competition in the internal market or a substantial part thereof, in particular as a result of the creation or strengthening of a dominant position'. Parties may avoid such prohibition by offering commitments (such as divestment of part of the business or certain behavioural measures) to counter the competition concerns raised by the Commission. To this end, mergers and acquisitions in highly concentrated electricity markets may be subject to close scrutiny.

Belgian Competition Authority

The BCA reviews concentrations that do not have a 'community dimension' and where the undertakings concerned have a joint turnover in Belgium of more than €100 million, while

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at least two of the undertakings concerned each realise a turnover in Belgium of at least €40 million. Since 2022, the Belgian merger control procedure is subject to a standard filing fee of €17,450 for simplified mergers, and €52,350 for a regular merger procedure.

After the merger notification has been submitted, the BCA has 40 working days to complete its initial review of a transaction (Phase I), which can be extended to 55 working days if remedies are proposed. If the transaction qualifies for a simplified merger control procedure, the review period is limited to 15 working days. Should Phase I reveal any competition concerns that are not yet remedied in Phase I, the BCA may open an extended Phase II investigation. Phase II generally takes 60 working days, and can be extended to 80 working days if remedies are offered.

The substantive test applied by the BCA is similar to the EU test; that is, whether the proposed concentration will result in a significant impediment to effective competition on the Belgian market, in particular by creating or reinforcing a dominant position. In applying this test, the BCA will consider the market shares of the parties to the transaction, as well as other structural factors relevant to competition (such as the existence of potential new entrants on the market, barriers to entry, the availability of alternative products, etc). The BCA will closely review mergers and acquisitions in concentrated electricity markets.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

European Commission

The European Commission can enforce articles 101 and 102 of the Treaty on the Functioning of the European Union (TFEU), which (respectively) set out the prohibition of cartels (eg, agreements on price fixing or market allocation, etc) and the prohibition of abuse of a dominant position (eg, excessive pricing, output limitation, etc). To apply and enforce these provisions, the European Commission has the power to request all necessary information and to undertake inspections of companies (including dawn raids). The European Commission can impose significant fines if companies provide incomplete, incorrect or misleading information and if they do not cooperate during investigations.

In 2014, the European Commission adopted Directive 2014/104/EU on antitrust damages actions (OJ 2014, L 349/1) (the Damages Directive), which aims to remove practical obstacles to compensation for all victims of infringements of EU competition rules. The Damages Directive applies to all damages actions, whether individual or collective, that are available in the EU member states, including before the national courts.

Belgian Competition Authority

Under Book IV of the CEL, the BCA has the power to investigate (upon complaint of another market player or at its own initiative) and prosecute anticompetitive behaviour (including cartels, abuse of dominance, and abuse of economic dependence). To this end, the BCA is entitled to request all necessary information (including the production of emails and instant messages) and to conduct on-site investigations at the company's premises (ie, dawn raids).

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Not providing the required information or not cooperating during investigations can lead to high fines. Recently, the BCA has also received the power to impose fines for a failure to decline investigative interviews, which will be based on the average daily turnover of the undertaking.

Based on the Damages Directive, the Belgian federal parliament in June 2017 approved the Act on Antitrust Damages, which establishes a specific civil liability regime aimed to facilitate the recovery of damages suffered by victims of anticompetitive practices. Belgian legislation also provides for several claimant-friendly changes to the generally applicable liability regime in Belgium, such as a presumption that cartels cause harm, specific rules on the passing-on of cartel overcharges and the disclosure of evidence.

Energy regulators

The Federal Public Service for Economy, Small and medium-sized enterprises, Self-employed and Energy has identified the production of electricity and gas as a sector that deserves special attention. One of the missions of the federal and regional regulators is monitoring and supervising the energy market and guaranteeing transparency and competitiveness of those markets. In the performance of their tasks, they have the power to investigate anticompetitive behaviour (eg, the occurrence of elevated prices and price peaks). In that framework, there is a formal reciprocal exchange of information and regular coordination between the federal Commission for the Regulation of Electricity and Gas (CREG) and the BCA to allow for efficient coordination between the regulation of the energy sector and the enforcement of competition rules.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

There are no sector-specific criteria for the energy sector under Belgian or EU competition rules. Therefore, the general provisions apply. Mirroring the provisions of articles 101 and 102 of the TFEU, articles IV.1 and IV.2 of the CEL prohibit agreements and concerted practices among undertakings, as well as the abuse of a dominant position, which lead to the prevention, restriction or distortion of competition on the Belgian market. The energy sector has been a consistent priority sector for the BCA and the European Commission.

Certain agreements caught under article VI.1 of the CEL or article 101 of the TFEU may be exempted if they:

- 1 yield benefits such as improving production or distribution or promoting technical or economic progress;
- 2 result in a share of the benefit being allocated to consumers;
- 3 provided that such agreements are not capable of eliminating competition in respect of a substantial part of the market; and
- 4 provided that the restrictive practices do not go beyond what is necessary. For the purpose of this assessment, sustainability benefits can play an increasingly important role.

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In addition, article IV.2/1 of the CEL prohibits the abuse of a position of economic dependence that may distort competition in the Belgian market. A position of economic dependence on an undertaking is characterised by the absence of a reasonably equivalent alternative, allowing a company to impose terms on its counterparts that could not be obtained under normal market conditions. The abuse of such a position, through the actual enforcement of those terms, can take place in similar forms as an abuse of dominance, such as discrimination or refusal to supply.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The BCA or the European Commission may take certain actions if an undertaking has intentionally or negligently breached competition rules.

If an undertaking has breached article 101 or 102 of the TFEU or article IV.1 or IV.2 of the CEL, it may be fined up to 10 per cent of its worldwide group turnover and be ordered to cease the operation of the anticompetitive behaviour. Any agreements caught under these provisions are void and unenforceable. In cartel cases, a company can however receive a reduction in fines or even full immunity from fines when it provides evidence of the cartel and cooperates in full with the authority. In addition, a reduction of a fine for cartels or abuse of dominance is also possible through a settlement with the authority. If an undertaking has breached article IV.2/1 of the CEL (prohibition of an abuse of economic dependence), it may be fined up to 2 per cent of its worldwide group turnover and be ordered to cease or modify its conduct. In addition, the European Commission or the BCA may impose structural or behavioral remedies proportional to the anticompetitive behavior of the undertaking concerned.

Further, the BCA or the European Commission can impose interim measures to suspend restrictive practices in the case of urgency to prevent serious, imminent and irreparable damage to other undertakings or the general economic interest. Such interim measures can be imposed after a complaint or on the own motion of the BCA or the European Commission. While the European Commission rarely makes use of this power, the BCA has a standard practice of interim measure procedures, which mainly follow complaints by market participants.

The federal and regional regulators may, within their respective jurisdictions, also impose sanctions. Finally, CREG can also request the BCA to open an investigation in the case of breach of certain provisions of the CEL in the electricity sector.

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INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

Belgium has adopted a foreign investment (FI) screening regime which entered into force on 1 July 2023. The Belgian FI regime introduces a mandatory and suspensory notification requirement for all in-scope transactions that are signed as of that date.

The Belgian FI regime will only screen investments by non-EU investors. This covers both companies that have their main residence outside the EU, as well as EU companies with an ultimate beneficial owner outside the EU.

The regime applies to direct or indirect acquisitions of voting rights in entities incorporated in Belgium. Investments in a non-Belgian target may therefore also trigger a filing if the target has a Belgian subsidiary. The Belgian regime will broadly be based on two different types of notification thresholds:

- acquisitions of 25 per cent or more of a Belgian company whose activities relate to (physical or virtual) critical infrastructure (including for energy and a number of other sectors), critical technologies including energy storage), critical inputs (including energy and raw materials), access to sensitive information, private security, freedom of media or biotech. There is no size or turnover threshold applicable for these sectors, except for investments in the biotech sector where the Belgian company's global turnover must exceed €25 million in the financial year preceding the investment to trigger a filing; or
- acquisitions of 10 per cent or more of a Belgian company that:
 - 1 is active in certain strategic sectors in Belgium (including energy, defence cybersecurity, etc); and
 - 2 realised a global turnover exceeding €100 million in the financial year preceding the investment.

Greenfield investments are excluded from the scope of the screening regime.

Notifications for qualifying investments will need to be submitted to an Inter-federal Screening Commission (ISC), composed of representatives from the various Belgian governments. Approval of the ISC must be obtained ahead of the implementation of the investment. The ISC will evaluate foreign investments for potential risks to Belgian national security, public order or strategic interests. To address identified risks, foreign investors can offer different types of remedies, including measures such as agreeing a code of conduct for the exchange of sensitive information, appointing one or more compliance officers in charge of dealing with sensitive information, appointing a separate supervisory board or periodic reporting or controls.

The regime also provides for a series of administrative measures and sanctions in case of non-compliance with the law. In particular, authorities may suspend voting rights in relation to the foreign investment and annul any decision taken on the basis of suspended voting

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rights. They may also order investors to modify their involvement or restore the previous situation at their own expense in case an operation is implemented without authorisation. In addition, fines of up to €5 million for legal persons and €1 million for natural persons may be imposed.

In addition to the Belgian FI regime, the region Flanders has also a limited control mechanism, as set out in the Flemish Governance Decree of 7 December 2018 (in force since 1 January 2019). In contrast to the Belgian FI mechanism, the Flemish control mechanism involves an ex-post screening that applies solely to investments in Flemish government institutions. There are no specific thresholds for screening to be triggered, and it can also apply to EU investors. Legal acts resulting in investments that threaten the Flemish region's or community's strategic interests can be declared null or inapplicable or be suspended by the Flemish government. Such power could, for example, be used to oppose the privatisation of power assets in Flanders.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

Interconnectors are considered part of the transmission system in Belgium. Consequently, their construction and operation in Belgian territory are subject to the transmission system operator's (TSO) legal monopoly and therefore subject to the same authorisation and permitting requirements as other parts of the transmission system. The construction and operation of transmission (and distribution) systems on and offshore may require certain permits and authorisations under regional and federal law, depending on the nature and the location of the installations. Public utility easements may be granted to the TSO for infrastructures crossing private land and, in certain instances, the TSO may be entitled to expropriate the property of private owners in the public interest.

Incorporated offshore interconnectors must be structured in such a way that the TSO holds at least 50 per cent of the share capital and voting rights of the vehicle developing, maintaining and owning the offshore interconnector. In the case of unincorporated offshore interconnectors, the TSO must at all times remain the owner of the Belgian interconnector assets.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

The Belgian electricity transmission grid is part of a larger, European interconnected system. Grid users in principle enjoy a right to non-discriminatory grid access, including access to the interconnectors. Several mechanisms control the flows of electricity between countries. Each Balance Responsible Party (BRP) can exchange energy with BRPs in neighbouring countries on a non-discriminatory and non-transactional basis (ie, not involving a choice between transactions that have been entered into), while maintaining the balance between injection and offtake at the respective injection point or points falling under its responsibility.

Several allocation mechanisms are used to allocate the desired volumes of electricity to BRPs on an annual, monthly, daily or intraday basis. Annual and monthly capacity is

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allocated through explicit auctions. At such auctions, the BRP can set the price for the import or export concerning a specific bidding zone border for a certain volume (in megawatts) of power for each hour of the year or month in question through the acquisition of long-term transmission rights. Price formation on the European power exchanges is also influenced by market and price coupling mechanisms. The European transmission system operators have created shared rules governing the explicit auctions for allocating annual and monthly capacity.

The specific rules and requirements set out above apply to cross-border supplies of electricity to end-users in Belgium.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

No specific restrictions exist on transactions between electricity utilities and their affiliates. Listed electricity utilities are, however, subject to the provisions of the Belgian Companies and Associations Code, which apply to related-party transactions with a listed company. Such provisions, which do not apply to transactions between the listed company and its subsidiaries, set out a procedure that purports to safeguard the corporate interest of the listed company through a review of the relevant transaction by a committee of independent directors.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

Not applicable.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

Key trends and topics in Belgium include:

- the ongoing preparations for the tendering of new offshore concessions for renewable power production in the North Sea (now planned for Q3 2025);
- the agreement reached between ENGIE and the federal government on a 10-year life extension as of November 2025 of the two youngest nuclear reactors and a maximum invoice for nuclear waste processing; and

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- various government interventions in the electricity market, particularly on prices (including, amongst other things, the introduction of an excise profit tax on electricity generators, the permanent reduction of VAT on electricity from 21 per cent to 6 per cent in combination with a new excise duty on energy, and the obligation for large suppliers to offer dynamic pricing contracts).

The promotion and development of a viable use case and appropriate incentives for hydrogen and its derivatives (including green hydrogen production via electrolyzers and power-to-gas installations) is a topic that is currently high on the agenda, particularly in Flanders, and is largely driven by the industry in a bid to make production processes cleaner and render climate goals more achievable. This is also true for the development of (more efficient) carbon capture usage and storage technologies. A regulatory framework for all these activities has been proposed by the European Commission (as part of the Fit for 55 package) and is currently going through the EU legislative process before it will be transposed into Belgian law. In anticipation of this, a federal midstream hydrogen bill was approved in parliament on 6 July 2023 and is currently awaiting ratification. The bill aims to regulate hydrogen transport in line with the federal government's hydrogen strategy, which is to make Belgium and import and transit hub for hydrogen and its derivatives.

The retreat from certain (regional) markets of electricity (and gas) suppliers due to a combination of rising wholesale energy prices, insufficient hedging and locked-in (fixed) supply contracts remains a persisting trend. Other noteworthy events include several successful financing rounds by system operators to refinance existing and fund new investments to facilitate the energy transition. In the M&A field, the sale of Parkwind, Belgium's largest offshore wind platform, by Colruyt's Virya Energy to Japanese utility JERA Green stands out.

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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

The national policy in the electricity sector of Bulgaria is predominantly predetermined by the current legislative framework at EU level. The trend is towards stimulating the production of electricity from low-carbon resources [ie, renewable energy sources].

Another current aspect of Bulgaria's national electricity policy is whether the country should continue developing nuclear energy, or whether the development of this sector will be a thing of the past with the completion of the life cycle of the operational Kozloduy nuclear power plant. Despite the turbulent political times in which our country finds itself, there seems to be a consensus among the leading political forces that Bulgaria should remain on the nuclear map of the world. However, it should be mentioned that precisely because of the political upheavals in the country and the established impossibility of forming a sustainable government with a regular mandate, there is currently no approved strategy for sustainable energy development in Bulgaria. The strategy in question should cover planning in the electricity sector in the period 2020–2030, with a horizon up to 2050.

According to the normative basis in Bulgaria, there are several laws that set the framework for the electricity sector. This legislation is:

- the [Energy Act](#);
- the [Energy from Renewable Sources Act](#);
- the [Safe Use of Nuclear Energy Act](#);
- the [Energy Efficiency Act](#);
- the [Electricity Trading Rules](#); and
- the acts in force at EU level (the relevant sector regulations and directives).

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Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

The overall organisational structure includes the following participants:

- electricity producers – thermal power plants, Kozloduy nuclear power plant; producers of energy from renewable sources such as hydroelectric power plants; photovoltaic power plants; wind power plants, etc);
- the National Electric Company (NEC) EAD, which is a public supplier and operates on the wholesale electricity market with a licence for public supply of electricity and is also a supplier of last resort. In its capacity as a public supplier, NEC EAD buys electricity from producers and sells electricity to final suppliers for sale on the regulated market, to other suppliers of last resort, on the platforms of the Bulgarian Independent Energy Exchange, on the balancing energy market. In its capacity as a supplier of last resort, NEC has the obligation to supply electricity to end customers who are connected to the electricity transmission network, where these customers have not chosen another electricity trader, or when the trader they have chosen does not deliver electricity for reasons beyond the control of the customer;
- transmission network operator – the electricity system operator carries out the unified operational coordination and management of the electricity system of Bulgaria. It ensures the operation, maintenance, repair and reliable functioning of the power transmission network;
- distribution network operator – these are electricity distribution companies that are responsible for the distribution of electric energy on an electricity distribution network and are responsible for the operation of an electricity distribution network, for its maintenance, its development in a certain territory and for its interconnections with other networks;
- an operator of a facility for storage (ie, a natural or legal person who carries out a function of storage and is responsible for the use of the facilities for storage of electric energy) – the operator of an electrical energy storage facility that stores its own or purchased electrical energy (or both) and enters into transactions with electrical energy or for the provision of additional services;
- traders – companies trading in electricity;
- end customers;
- stock energy market – the Bulgarian Independent Energy Exchange; and
- balancing energy market.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

Depending on the type of the generation facilities, there are also differences in the types and number of permits that investors should obtain, which are necessary for their construction.

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For example, for the construction of hydroelectric power plants, a special permit for water abstraction and water usage is required. This permit is most often issued by the relevant basin directorate at the location of the generation facilities.

Another example of a specific permit is for determining the location for building a nuclear power generation facility.

In addition to the above-mentioned, insofar as generation facilities are 'constructions' according to the law, it is mandatory to issue a general construction permit by the chief architect of the respective municipality.

As for permits related to the operation of generation facilities, the production of electrical energy falls under the licensing regime. Such licences are issued by the Energy and Water Regulatory Commission. A licence is not required when it concerns the production of electrical energy from a plant with a total installed electrical capacity of up to 20 MW. No licence is needed for the production of electricity for own consumption only. The issuance of a licence is not also required for storage of electrical energy when the storage construction is built on a new or existing site for production or consumption of electrical energy when the operator of the facility trades with electric power or natural gas for which a licence is required.

Electricity producers must conclude a connection agreement and an access agreement to the electricity distribution or electricity network with the relevant network operator.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

In general, for a generation facility to be connected to the electricity transmission or distribution network, they are required to have:

- received opinion on the conditions and method of connection;
- signed a preliminary connection agreement and, based on it, a final connection agreement; and
- a contract for access to the relevant network.

When it comes to transmission electricity network, producers with a total installed capacity of more than 5MW are predominantly connected.

Bulgaria has introduced numerous mechanisms with the aim of promoting investment in the electricity generation sector from renewable sources. Part of this system of approach is the guaranteed access of the producers of electricity from renewable sources to the electricity transmission and distribution networks.

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Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Taking into account European trends, as well as the positive effect of the diversification of the electricity market, the Bulgarian legislator has introduced numerous mechanisms that aim to stimulate the direction of investments in the field of energy production from renewable sources.

Such a measure aimed at providing entrepreneurs with certainty regarding the realisation of their investment is the introduction of a mechanism for guaranteed access to the transmission or distribution network of electric energy produced from renewable sources.

Another measure is the state's obligation to ensure the construction of the necessary infrastructure and power capacities for regulating the power system.

An important step in the promotion of investments in the sector of electricity production from renewable sources is the introduction of preferential prices for purchasing the power produced by the plants.

The state also guarantees the transmission and distribution of electricity produced from renewable sources.

Another incentive measure is the provision of priority in the dispatching of electricity produced from renewable sources.

Last but not least, the state guarantees the purchase of electricity from renewable sources produced by plants with a total installed capacity of less than 500kW for a certain period.

Identical measures apply to the combined production of heat and electricity from renewable sources.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

In implementing the European decarbonisation policy, the Bulgarian government has taken steps to gradually reduce the use of coal in electricity production. In this regard, the deadline that Bulgaria has set for closing coal-fired power plants is 2038, though there are expectations that this could happen even earlier. Bulgaria's strategy is to replace energy produced by high-carbon coal plants with energy produced from renewable sources. In fulfillment of this idea, the government has foreseen the construction of 1.4GW of low-carbon capacities under the Plan for Recovery and Sustainability of the Republic of Bulgaria.

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Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

After the successful defence of the Plan for Recovery and Sustainability before the European Commission, Bulgaria can boast that it is among the countries that actively promote the construction of electricity storage facilities. The government has foreseen a scheme to support the construction of a minimum of 1.7GW of RES and batteries in Bulgaria, from which investors interested in the construction of such facilities can benefit.

From 2023 onwards, the Energy Act regulates the activity of energy storage that is carried out by operators of storage facilities. The electrical energy storage facilities have equal access to the transmission and distribution networks and equal access to the electricity market and capacity balancing mechanisms. There are several preferences that the law provides for the operators of storage facilities. For instance, the electric transmission network operator (ie, the electricity distribution network operator) is obliged to connect every site of an electric energy storage facility located on the respective territory. Moreover, the transmission network operator cannot refuse the connection of a new electric energy storage facility based on possible future constraints on the transmission capability of the network. Additionally, the operators of electrical energy storage facilities are required to enter into access agreements with the operator of the electricity transmission network or with the operator of the relevant electricity distribution network (or both).

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

Nuclear energy plays an important part in guaranteeing the national security of Bulgaria's energy. A specialist state body in the field of nuclear energy operates in the country – the Nuclear Regulatory Agency (NRA).

A key moment for nuclear energy development in Bulgaria was the successfully implemented project to extend the operational resource of units 5 and 6 of the Kozloduy power plant for another 30 years. In this regard, in 2019, the NRA extended the licences for the operation of units 5 and 6 for a new 10-year period. Another important element is the increase in the installed electric power of each of the units of Kozloduy to 104 per cent Nnom (ie, from 1,000MW to 1,040MW).

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REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

In Bulgaria, electricity transmission is placed under a licensing regime. The licence is issued by the Energy and Water Regulatory Commission (EWRC). It is issued to registered traders and is issued by a decision of the EWRC and constitutes an integral part of the decision. The licence is issued for a period of up to 35 years.

Currently, in Bulgaria, the licence for the transmission of electrical energy is exclusive for the territory of the entire country and was issued in favour of the electricity system operator single-owner joint stock company (ESO EAD).

In addition to the licence, to be able to carry out activities as a transmission network operator in Bulgaria, the licensed party must also receive an additional certificate for the fulfillment of the independence requirements provided for in the Energy Act for transmission network operators. The certificate is also issued by the EWRC.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

Both consumers and producers of electricity can be connected to the electricity transmission network in Bulgaria.

To be connected, a consumer must have received a connection statement and must have signed a contract for connection. The documents are submitted to the independent operator of the transmission network in Bulgaria (ESO) – the independent operator of the transmission network in Bulgaria only in cases in which the voltage level is specified in the application. The operator of the transmission network connects the producer or consumer if the conditions of the connection contract are met, there are electrical installations built within the boundaries of the connected property and the connection fee determined by the network operator has been paid.

For a producer to connect, they must have received an opinion on the study of the conditions and method of connecting, have a preliminary contract for connecting and, based on it, a final contract for connecting. The connection documents are submitted to the ESO when the installed power of the connected object is over 5MW. The operator of the transmission network connects the producer if the conditions of the connection contract are met, there are electrical installations built within the boundaries of the connected property, a contract for access to the power transmission network is concluded and the specified connection fee is paid.

The transmission network operator cannot refuse the connection of a new site of an electricity producer, or of a new electric energy storage facility, based on possible future constraints

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on the transmission capability of the network. Similarly, the transmission network operator is not allowed to refuse the connection of a new site of an electricity producer – or a new electric energy storage facility on the grounds – on the basis that this will lead to additional costs associated with increasing the transmission capacity of network elements in the immediate vicinity of the point of attachment.

In addition to connected consumers and producers of electricity, distribution network operators and electricity traders also have the right to access the transmission network in Bulgaria when they enter into import and export transactions and do not deliver electricity to end customers under these transactions.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

First of all, the Bulgarian electricity transmission network is part of the unified transmission network of the countries of continental Europe, and the state's policy regarding its development is closely related to the development of the networks of neighbouring countries.

The legislative measures in an internal political aspect provide for the existence of a state regulator, EWRC, which is the regulator that issues licences for electricity transmission and which certified in 2015 the state company ESO EAD as the sole and independent transmission operator of the electricity transmission system of Bulgaria.

Regarding the measures to promote the transmission policy, on a pan-European scale, the Integrated Plan in the field of Energy and Climate of the Republic of Bulgaria for 2021–2030 foresees a number of measures, including supporting key projects in the field of transmission infrastructure by using funds from European financial sources; promoting local energy communities to encourage energy users to participate more effectively; for the integration of the electricity market to the common European energy market and others.

Another type of measures that are undertaken by the Bulgarian legislator is a set of obligations foreseen in the Energy Act concerning the activity of the electric transmission network operators. For example, the electric transmission network operator is obliged to provide the expansion, reconstruction and modernisation of the transmission network in correspondence with the long-term prognoses and plans for development of the electric power sector established by the Ministry of Energy. Furthermore, the electric transmission network operator is obliged to carry out expansion and reconstruction of the electric transmission or electric distribution networks related to connection of sites of producers or of electric energy storage facilities to the place of connection.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

Tariffs and conditions for transmission services are determined by the state energy regulator EWRC, as normatively, these powers of EWRC are implemented in laws and in an Ordinance

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(Ordinance No. 1 of 14 March 2017 on the regulation of electricity prices). The prices of access and transmission services through the electricity transmission network are paid by all customers, both in the regulated and on the free market. By a Decision of 1 July 2022, EWRC approved a price for access to the electricity transmission network of the electricity system operator ESO EAD, which should be paid by the electricity producers whose objects for production of electricity are connected to the electricity distribution networks.

The EWRC, with an Ordinance on licensing of activities in the energy sector, determines the conditions and procedure for issuing, amending, supplementing, extending the term, terminating, suspending and revoking licences for activities in the energy sector, including, but not limited to transmission services. The legal standard that the Commission applies in carrying out its activity in compliance with the normative acts and working in conditions of transparency and publicity.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

The electricity system operator ESO EAD is responsible for the maintenance, usage and reliable functioning of the electricity transmission network.

Other powers granted to ESO EAD include:

- implementation of operational planning, coordination and management of the electricity system of Bulgaria;
- responsibility for the joint operation of the electricity system with the electricity systems of other countries; and
- responsibility for the maintenance of auxiliary networks, as well as repair works and services in the field of energy.

The company carries out electricity transit on the national grid and organises an electricity market.

In principle, the overall development, management and planning of the electricity system in the country is most complete in the joint actions of both the transmission company ESO, as well as the producers of electricity, the electricity distribution companies, the consumers, the public supplier and traders in electric energy.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

In Bulgaria, the distribution of electrical energy is placed under a licensing regime. The licence is issued by the Energy and Water Regulatory Commission (EWRC). It is issued to

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registered traders. The licence is issued via a decision of the EWRC and constitutes an integral part of the decision. The licence is issued for a period of up to 35 years.

The licence for the distribution of electric energy is issued for a specific territory of the country. This territory must include no less than 150,000 customers connected to the adjacent electricity distribution network, and its borders include no less than one area according to the administrative-territorial structure of the country.

Currently, Bulgaria is divided into four separate territories, which are licensed for the distribution of electrical energy. The licences for the distribution of electric energy were issued in favour of four commercial companies: Electrohold AD (previous name CHEZ Distribution Bulgaria AD), Electrorazpradelenie Yug AD, Energo-pro Networks EAD and ERP Golden Sands AD.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Both consumers and producers of electricity have the right to access the electricity distribution network in Bulgaria. To gain access, they must first be connected to the relevant distribution network at the site location.

To be connected, a user must have received a statement on connecting and must have signed a contract for connecting. The connection documents must be submitted to the relevant distribution network operator when the voltage level is not specified in the application. The operator of the relevant electricity distribution network connects the user if the conditions of the connection contract are met, there are electrical installations built within the boundaries of the connected property and the connection fee determined by the network operator has been paid.

For a producer to connect, they must have received an opinion on the study of the conditions and method of connecting, have a preliminary contract for connecting and, based on it, a final contract for connecting. The connection documents are submitted to the operator of the relevant distribution network when the installed power of the connected object is up to 5MW. The operator of the relevant electricity distribution network connects the producer, if the conditions of the connection contract are met, there are electrical installations built within the boundaries of the connected property, a contract for access to the electricity distribution network is concluded and the specified connection fee is paid.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

Bulgarian legislation has stipulated an obligation for the operators of the electricity distribution networks to prepare at least once every two years plans for rehabilitation and taking new measures to improve the efficiency of existing networks. The development of the distribution network includes the construction of new elements (for the expansion of the network)

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and reconstruction of its existing elements, compensating devices and auxiliary networks and control systems.

With regards to other measures, the law includes a number of obligations for the electric distribution network operators related to the modernisation and expansion of the distribution network. For example, the electric distribution network operator is obliged to carry out expansion and reconstruction of the electric distribution networks related to connection of sites of producers or of electric energy storage facilities to the place of connection. Additionally, the electric transmission network operator is obliged to connect sites of an electric distribution network operator in relation to the expansion, reconstruction and modernisation of the electric distribution networks.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

Tariffs and conditions for access to electricity distribution services are determined by the EWRC, which is Bulgarian's main national regulatory body in the field of energy. The powers of the EWRC in this area derive from the Energy Act, as well as from approved acts on its implementation (regulations). It is in implementation of these acts that the EWRC has drawn up rules for connection to the electricity distribution network for both consumers and producers.

The prices of electricity distribution services are approved by decisions of the specified regulatory body. They are subject to annual update or once a year. Charges for the operation of the distribution network are paid by all customers, both on the regulated as well as on the free market.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

In Bulgaria, electricity trading is subject to a licensing regime. The licence is issued by the Energy and Water Regulatory Commission (EWRC). The licence is issued by decision of the EWRC and constitutes an integral part of the decision. The licence is issued for a period of up to 35 years. Licences for electricity trade in Bulgaria are non-exclusive. Currently, over 200 licences have been issued in the country for trading in electrical energy.

According to the legislation in Bulgaria, licensed electricity traders can sell to both non-domestic (commercial) and domestic consumers.

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Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

Electricity in Bulgaria is sold to domestic customers at regulated prices, which are determined or updated annually by an EWRC decision.

As of 1 October 2020, all non-domestic customers should purchase electricity on the free market from a supplier (trader) of their choice at market prices. As of this date, non-domestic customers can no longer participate and purchase electricity on a regulated market (ie, at prices regulated by the EWRC). When non-domestic customers have not chosen an electricity supplier at freely negotiated prices, they are supplied with electricity from a supplier of last resort – at prices according to EWRC methodology for determining the prices of electricity of the supplier of last resort, which are always higher.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

Tariffs for wholesale electricity are determined by the state regulator EWRC. As we have already mentioned, the electricity market in Bulgaria is divided into two segments – a segment with regulated prices (the regulated market) and a segment with free negotiable prices (the free market).

On the free market, the EWRC does not determine the price of electricity. The Commission only has the role of a regulator that controls the market participants. It has the power to set the Electricity Trading Rules, the amount of network charges and the Obligations to Society price.

Some of the main methods of price regulation that the EWRC applies are:

- rate of return on capital;
- upper limit of prices; and
- upper limit of income.

There is an exception to the application of the above-described methods for energy companies publicly supplying electricity and supplying electricity from a final supplier, whose prices are approved according to the formulas specified in an ordinance.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The regulation of services of public interest is carried out by EWRC. In carrying out its functions, once a year the EWRC publishes recommendations regarding the conformity of prices for sale by public suppliers, final suppliers and suppliers of last resort with the obligations

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for services of public interest, including for the protection of users of energy services and protection of the environment.

The EWRC monitors the implementation of all measures adopted in connection with the recommendations, including for the protection of users of energy services and for the protection of the environment, and for their possible effect on domestic and international competition, and informs the European Commission of these measures and all their changes.

The EWRC also sets a price for obligations to society, which is paid by customers on the free electricity market additionally. On the regulated market, this supplement is included in the electricity price.

The National Electricity Company acts as a supplier of last resort. The company is obliged to supply electricity to final customers whose objects are connected to the electricity transmission network only in the following cases – when these customers have not chosen another electricity trader, or when for reasons beyond the control of the customers the trader they have chosen does not deliver electrical energy.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The main state entities involved in determining the regulatory policy of Bulgaria in the electricity sector are the National Assembly, the Council of Ministers, the Ministry of Energy, the Energy and Water Regulatory Commission (EWRC) and the Sustainable Energy Development Agency.

Scope of authority

23 | What is the scope of each regulator's authority?

The National Assembly is the main legislative body that adopts the laws in the country, including the main laws relating to the electricity sector:

- the Energy Act;
- the Energy from Renewable Sources Act; and
- the Energy Efficiency Act.

The National Assembly also adopted the Strategy for Sustainable Energy Development of Bulgaria.

The Council of Ministers adopts national plans and long-term programmes in the energy sector in coordination with the Minister of Energy.

The Ministry of Energy adopts the main by-laws (regulations) in the electricity sector.

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The EWRC is the main regulator in the electricity sector. The EWRC issues all licences for activities in the electricity sector. The Commission also adopts numerous by-laws: ordinances, decisions, methodologies, tariffs, instructions and others. The EWRC exercises control in the electricity sector. Another important role is that the Commission carries out the regulation of prices in the sector in the cases defined by law.

The Sustainable Energy Development Agency (SEDA) carries out functions in connection with the promotion and provision of various incentives for the production of electrical energy from renewable sources and increasing energy efficiency.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The EWRC is a legal entity, a first-level authority with a budget, with headquarters in Sofia. It is a collegial body consisting of nine members, including a chairman. The EWRC is a specialist state body that is completely independent, from both the Ministry of Energy and from other bodies of the executive power, officials and businesses. In its activities, the EWRC is guided by the principles of independence, impartiality, publicity and transparency. The Commission is accountable for its activities directly to the National Assembly.

SEDA is a budget-supported legal entity. SEDA has the status of an executive agency under the Minister of Energy, in view of which it is assumed that it does not have an independent status, but is subordinate to the line Ministry in the energy sector.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

Decisions made by the main regulator in the sector, EWRC, are subject to judicial appeal.

Decisions can only be appealed as to their legality (but not as to their expediency).

The appeal shall be made before the Sofia City Administrative Court (SCAC), within 14 days of their notification. The appeal does not stop the implementation of the relevant decision.

Decisions of the SCAC are subject to appeal before the Supreme Administrative Court (SAC). SAC's decisions are final.

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ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

In cases of conversion of commercial companies, an entry in Commercial Register should be made, during which a check is undertaken to establish whether all the requirements of the Commerce Act are met. If there is a business concentration within the meaning of the Act on Protection of Competition, then the supervision is carried out by the Commission for the Protection of Competition. In addition, a rule specific to the Electricity Regulation is that the Energy and Water Regulatory Commission (EWRC) must grant permission for the conversion of a licensed electricity utility by merger, consolidation, spin-off or by a change in the legal form of a company, if the legal entity that will carry out the licensed activity after the conversion meets the requirements for the issuance of a licence or amendment of a licence for the activity. The procedure before the EWRC shall be conducted prior to the general one under the Commerce Act.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

Concentrations are subject to mandatory prior notification to the Commission for the Protection of Competition (CPC), if the value of the total turnover of all undertakings participating in the concentration on the territory of the Republic of Bulgaria in the previous financial year exceeds 25 million lev, and the total turnover of each one of at least two of the undertakings – participants in the concentration on the territory of the Republic of Bulgaria in the previous financial year, exceeds 3 million lev, or the total turnover of the enterprise – object of acquisition on the territory of the Republic of Bulgaria in the previous financial year – exceeds 3 million lev.

The Commission authorises the concentration if it will not result in a significant impediment to effective competition in the relevant market. The Commission may authorise a concentration that, even if it leads to a significant impediment to the effective competition on the relevant market, aims at modernising the relevant economic activity, improving market structures and better satisfying consumer interests.

The CPC first conducts an accelerated investigation and renders a decision within 25 working days of the referral. An in-depth investigation of the concentration is carried out when, as a result of the accelerated investigation, the Commission considers that there are suspicions that the resulting concentration will impede effective competition in the relevant market. The in-depth investigation is carried out and completed within 90 working days.

Regarding the procedure before the EWRC (for granting permission for the conversion of a licensed electricity utility prior to the general procedure under the Commerce Act), this lasts a month, and the administrative body renders a decision to grant the conversion or

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reject it. An important criterion is whether the transformed company will meet the regulatory requirements for continuing the activity under the licence. If it does not comply with the requirements in question, the licence is terminated.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The main state regulatory agency competent to establish violation of the rules of fair competition is the CPC. The EWRC is also charged with special powers in the field of prevention and prosecution of anticompetitive practices in the electricity sector. It carries out controls to prevent restriction and distortion of competition in the energy markets. The EWRC also monitors the degree and effectiveness of market opening and competition in the wholesale and retail sectors, monitoring the connection with the energy markets of other EU member states. In addition to the above, it should be noted that employers in the electricity sector can create and be members of industry chambers and organisations in the energy market. The industry chambers and organisations of the energy market are developing an Ethics Code regulating the non-admission of unfair competition between energy producers.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

The CPC considers whether there is a prohibited agreement and concerted practices of two or more undertakings, which have the purpose or result of distorting competition in the relevant market; whether there is an abuse of a monopoly or dominant position; whether there is an activity that violates the rules of fair competition – damage to the good name of a competitor, imitation, unfair attraction of customers, disclosure of production and trade secrets.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

If it considers that an infringement of the law is committed, the CPC imposes a property sanction or a fine and orders the termination of the violation. The Commission imposes a property sanction of up to 10 per cent of the total turnover for the previous financial year of the undertaking. When determining the amount of the property sanction, the gravity and duration of the infringement, as well as mitigating and aggravating circumstances are taken into account. The specific amount of the sanction is determined by the Commission in accordance with the Methodology adopted by it. The Commission may impose the participants in a transaction constituting a concentration that has not been notified to the Commission behaviour and structural measures necessary to restore effective competition, including by ordering a spin-off of the combined capital, shares or assets.

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INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

There are no such regulatory restrictions. According to the law, foreign legal entities can participate in competitions for issuing licences for activities in the energy sector in the Republic of Bulgaria. In certain cases, the regulatory body the Energy and Water Regulatory Commission (EWRC) may provide a requirement to create a legal entity registered under the Bulgarian Commerce Act, when the competition is won by a foreign entity that is not registered in a member state of the European Union, or in another state, a party under the European Economic Area Agreement.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

EU member states, such as Bulgaria, as well as their regulatory authorities, cooperate to integrate their national markets, they promote and support cooperation between transmission system operators at regional level, including on cross-border issues, stimulate the synchronisation of their legal, regulatory and technical frameworks and assist on the integration of isolated systems. So, the regulatory framework regarding interconnectors connecting the electrical networks of the individual EU members consists of both EU acts Regulations and Directives, as well as internal regulatory sources. According to Bulgarian legislation, the EWRC must certify each transmission network operator to fulfil the requirements to become an independent transmission operator. The decision for certification is notified to the European Commission and published in the Official Journal of the European Union, and the European Commission considers immediately any notification of a decision to certify a transmission system operator under Directive 2009/72. All transmission system operators cooperate at Community level through the European Network of Transmission System Operators for Electricity to contribute to the completion and functioning of the internal electricity market as well as cross-border trade, and to ensure the optimal management of the European network for electricity transmission. In the EU, projects of common interest that have a significant cross-border impact have been created and implemented.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

The rules are determined predominantly by European acts.

Charges applied by network operators for access to networks are transparent and formed by taking into account the need for network security and they do not depend on distance.

When determining network access charges, the following are taken into account: payments and revenues from the compensatory mechanism between transmission system operators;

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actual payments made and amounts received, as well as expected payments for future periods of time calculated on the basis of past periods. The determination of network access charges according to the preceding paragraph shall not affect the charges for declared exports and declared imports as a result of an overload of management. No special network fee applies to individual transactions for the declared transit of electricity.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

The legislation does not prohibit or restrict transactions between electricity utilities and their affiliates. The Energy Act explicitly states that electricity utilities can supply their branches, enterprises and facilities located on the territory of the country with electricity under the following alternative conditions:

- through the power transmission network or power distribution networks, for which purpose they must enter into a transmission contract with the operator of the respective network; or
- on direct power lines built at their expense.

For producers of electrical energy from renewable sources with an installed capacity of less than 500kW, there is a certain proviso. In relation to such producers, there is an obligation for the public supplier and final suppliers to purchase certain quantities of electricity from them at preferential prices, determined by the Energy and Water Regulatory Commission (EWRC). Accordingly, such producers can supply their branches, enterprises and objects only with the amounts of energy exceeding those that should be purchased at the preferential price determined by the EWRC.

In addition, it should be pointed out that, in recent years, the principle of liberalisation of the free electricity market has been strengthened in Bulgaria, and seeks to remove restrictions on the electricity trade for non-domestic consumers.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The EWRC is the body that generally controls compliance with the rules for trading in electricity. For any violations, the Commission can impose administrative penalties, fines and property sanctions.

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UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

One of the most current topics in the field of the electricity sector in Bulgaria is the increased interest of investors in the construction of photovoltaic power plants. According to current electricity system operator data and the electricity distribution companies in the country, declared power in the received applications for the construction of such power plants exceeds 24,000MW. This, in turn, creates a need for the expansion and modernisation of the electricity transmission and distribution networks in Bulgaria, as in their current state they do not have the necessary capacity to absorb such power. In this regard, mutually beneficial solutions are sought by considering options for joint initiatives of the state and business in terms of improving the electricity network.

During 2023, an emerging hot topic in the electricity regulation sector in Bulgaria is the amendments to the regulatory frame regarding the development of infrastructure for the storage of electrical energy. New legal opportunities were created in this regard.

Another important topic is a new opportunity provided by the legislation for the producers of electrical energy to join schemes providing temporary access to the relevant electric network. Upon request of the producer of the electrical energy, the operator of the electric transmission network shall have the right to offer connection to a temporary access scheme for all or part of the requested power of the site, to be applied until the expansion or reconstruction in the electric transmission network is carried out. In this case, the operator shall offer a temporary access scheme to each of the producers that have submitted a request for joining a temporary scheme for which the specific technical solution is applicable, in the procedure of receipt of their request.

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Chile

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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

The policy implemented in the Chilean electricity market is mainly set out in Supreme Decree 148 issued by the Ministry of Energy in 2016 in which the National Energy Policy establishes a long-term vision for the energy sector (updated 2022).

Furthermore, the regulatory structure of the electricity sector is mainly comprised of the following legislation:

- the General Electric Services Law;
- General Bylaw of the General Electric Services Law, National Electric System Coordination and Operation Bylaw, Transmission Systems and Transmission Planning Bylaw, among other by-laws;
- Technical Standards issued by the National Energy Commission; and
- Joint instructions issued by the National Electric Coordinator as system coordinator in accordance with article 72-1 of the General Electric Services Law.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Organisational structure

The Chilean institutional framework for energy is mainly composed of the following entities:

- Ministry of Energy: The President of the Republic's highest collaborative body, which is responsible for preparing and coordinating plans, policies and standards for the proper functioning and development of the sector, overseeing their compliance and advising the

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- government on all matters related to the energy sector, including all types of primary and secondary energy sources.
- National Energy Commission: a decentralised public body related to the President of the Republic through the Ministry of Energy that analyses prices, tariffs and the technical standards to which the various players in the Chilean electricity market must adhere in order to provide adequate and reliable quality service that is compatible with the most economical operation.
 - Electricity and Fuel Agency: a functionally decentralised service that is responsible for monitoring and supervising compliance with legal and regulatory provisions and technical standards for the generation, production, storage, transportation and distribution of liquid fuels, gas and electricity in order to verify that the quality of the services provided complies with current regulations and does not constitute a danger to persons or property. To comply with the aforementioned objectives, among others, it has the authority to interpret electrical regulations.
 - National Electric Coordinator: an independent technical body in charge of coordinating the joint operation of all the interconnected facilities of the National Electric System.
 - Panel of Experts: an autonomous collegiate body that resolves discrepancies and conflicts that arise among stakeholders in the Chilean electricity market arising from the application of the General Electric Services Law and the Gas Services Law.

Operational structure

Chile's current electricity legislation organises the Chilean electricity market into three segments: generation, transmission and distribution.

The generation segment operates under the principle of free competition and free access to transmission and distribution facilities to commercialise production. It is not recognised by the General Electric Services Law as a public service activity.

Companies can participate in the Chilean electricity market through spot market transactions at marginal costs (spot market), or through the market for agreements to supply free customers or the distribution companies of regulated customers (power purchase agreements).

The transmission segment, due to its economies of scale and extensive area, is recognised by the General Electric Services Law as a natural monopoly. Therefore, the state is in charge of actively regulating it through the assessment, valuation and remuneration of its main facilities (which are recognised by the General Electric Services Law as a public service activity), as well as other costs associated with the maintenance, operation and administration of the respective facilities. Likewise, the state, through the National Energy Commission, conducts centralised planning of the National Electric System's expansions. Then, through public and international bidding processes carried out by the National Electric Coordinator, the exploitation rights to the tendered works are awarded.

The distribution segment, due to its high-density economy, high investment cost and extensive customer supply area, is considered a natural monopoly, which implies the granting of a concession by the state. As is the case with transmission, particularly regarding its main segments, it is recognised by the General Electric Services Law as a public service. Therefore,

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it is regulated in a similar manner to transmission, except that network expansions are not centralised in the state; they are carried out autonomously by the concessionary company.

Finally, it should be noted that although Chilean electricity regulations, unlike those of other countries, do not expressly include the energy commercialisation segment, a growing market of customers is demanding more competition, which will lead to regulatory change. In fact, a bill on electricity portability is currently being processed, which, in general terms, expressly regulates the commercialisation segment.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

In Chile, companies do not require any special licence for the construction and operation of generation facilities.

Nevertheless, they must obtain certain permits set out in the electrical and sectorial regulations.

The following are the most important permits and requirements.

- Any owner, lessee, usufructuary or whoever in any way exploits generating plants connected to the National Electric System and subject to the coordination of the National Electric Coordinator, must constitute electricity generation companies domiciled in Chile.
- The authority must grant authorisation for the connection of any project to the National Electric System.
- Environmental permits must be obtained according to the specifics of the respective Project.
- A declaration that the project is under construction must be obtained from the National Energy Commission.

Furthermore, the General Electric Services Law restricts vertical integration among companies in the national transmission segment, on the one hand, and generation and distribution companies, on the other hand.

First, the law establishes that companies belonging to the national transmission segment may not engage, either by themselves or through related individuals or legal entities, in activities that in any way include the generation or distribution of electricity.

In addition, any individual company participating in the distribution and generation segment, or any user not subject to price fixing in the national transmission system, may not, directly or indirectly, hold a share greater than 8 per cent of the national transmission system's total investment value. Additionally, the combined share of generation and distribution companies and of the users not subject to price fixing in the national transmission system

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may not exceed 40 per cent of the National Electric System's total investment value. These ownership limitations extend to corporate groups or legal or natural persons that belong to transmission companies or that have joint action agreements with transmission, generation and distribution companies.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

The principles and regulations applicable to connections are mainly set out in the following electrical norms:

- Chapter II bis and III of the General Electric Services Law;
- Transmission Systems and Transmission Planning Bylaw; and
- The National Electric System Coordination and Operation Bylaw.

The General Electric Services Law generally recognises that the transmission systems' electrical facilities are subject to an 'open access' system, which means that they can be used by third parties under technical and economic conditions that do not discriminate among users, with payment of the corresponding transmission system remuneration.

Consequently, the owners, lessees, usufructuaries or whoever exploits the transmission system facilities under any title, cannot deny access to the transportation or transmission service to any interested party on the grounds of technical capacity. Additionally, they must provide the facilities necessary for the construction of the works required to achieve the connection. Regarding transmission facilities that are not for public service, the same open access system applies but their use is subject to the availability of technical capacity.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Chile promotes renewable energy generation in many ways.

- In 2008, the law on electricity generation from non-conventional renewable energy sources was passed in the Republic of Chile and amended in 2013. This law obliges electricity generation companies with an installed capacity of more than 200 megawatts to market 20 per cent of their own or contracted energy from non-conventional renewable energy sources or hydroelectric power plants with a capacity of less than 40,000kw as of January 2010.
- A bill is currently being processed to update the energy commercialisation percentages from these plants to 25 per cent of non-conventional renewable generation by 2025 and 40 per cent by 2030. An additional target states that generating companies shall sell at least 30 per cent of renewable energy in each time block of the system to prevent situations in which renewable energy is used predominantly during the day.

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- The State of Chile has ratified the Paris Agreement. This agreement was reached within the framework of the United Nations Climate Change Convention. In this agreement, Chile agreed to reduce carbon emissions in the medium term.
- In March 2020, Chile signed an agreement with the largest companies that own thermolectric power plants located in the country to remove coal-fired power plants from the energy grid.
- In November 2020, the State of Chile published the National Green Hydrogen Strategy, which entails Chile becoming a hydrogen-producing country using renewable energies, such as solar and wind energy.
- The government recently ratified the Escazu Agreement, which was launched within the framework of the Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean. This agreement reinforces, among others, the idea of every person's right to live in a healthy environment and enjoy sustainable development.
- In June 2022, the Climate Change Law was passed in Chile to achieve the goal of carbon neutrality, requiring 70 per cent of the energy grid to be supplied by renewable energies and achieving climate resilience by 2050.
- Through the National Energy Policy drafted in 2019 and updated in 2022, the State of Chile committed to reducing greenhouse gas production until carbon neutrality is achieved by 2050.
- Finally, the Ministry of Energy recently published an Initial Agenda for a Second Stage of the Energy Transition, a document which establishes different initiatives for the current year, of a legislative nature; of public policy; regulatory and administrative actions, of a short- and medium-term nature to achieve, as a country, carbon neutrality. Among them, the Ministry presented an energy transition bill that seeks to promote energy transmission, enabling sustainable development of renewable energy generation.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

Current government policy aims to combat climate change by achieving and maintaining greenhouse gas emission neutrality goals by 2050. By doing so, the government aims to promote renewable energy development and thus green hydrogen production to replace fossil fuel consumption.

As a result, the promotion of renewable energies is intended to reduce the price of electricity.

Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

The Chilean regulatory framework considers storage systems essential to the flexibility of a system with an important share of essentially variable non-conventional renewable energies. To this end, law number 20,936 was published in 2016 to define energy storage

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systems, establish their obligation to coordinate with the National Electric System and regulate compensations for lack of supply availability.

However, at the end of 2022, Law No. 21,505 was published to promote electric energy storage and electromobility. This regulation enables anyone interested in investing in this technology to do so, participating in the short-term electricity market.

On the other hand, the government, considering that storage systems are essential to achieve carbon neutrality goals, recently presented an energy transition bill which, among other things, identified the main challenges for the development of storage systems as obtaining financing.

To mitigate the exposure of market players to this risk, it proposed public and international bidding for large-scale storage infrastructure allowing mobilize an investment of close to two billion dollars, which will to be able to enter into operation in the electric system before 2026.

In addition, the National Energy Commission issued new definitive bases for the National and International Public Bidding for the supply of energy and electric power to supply consumption of customers subject to price regulation. These bases incorporated certain modifications that seek to encourage the participation of storage and non-variable renewable energy projects. The main modifications are related to:

- segmentation of energy blocks;
- lateral cost transfers; and
- price discounts for the incorporation of storage and non-variable renewable energies.

The current legislation obliges the National Electric Coordinator to carry out functions in research, development and innovation in energy matters to improve the operation and coordination of the electric system. In this sense, the National Electric Coordinator has carried out different studies related to flexibility and storage systems in the National Electric System.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

The State of Chile does not promote the use of nuclear energy because of the country's advantages in the development of zero-emission and cheaper energy generation options. In addition, since Chile is a seismic country, it has historically preferred to promote safer forms of energy generation.

The government does not currently offer any benefits for nuclear power projects aimed at producing electricity, as opposed to other forms of energy generation, such as renewable energy projects. Furthermore, the current regulations governing this type of projects require special authorisation from the Chilean Nuclear Energy Commission, which makes it simpler to develop other types of electricity generation projects that do not require said authorisation.

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REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

In Chile, companies do not require any special licence to build and operate transmission facilities. Notwithstanding the foregoing, they must obtain specific permits set out in the electrical and sectorial regulations. The following are the most important permits and requirements:

- the operating companies or owners of the national transmission systems must be incorporated as open or closed corporations subject to the information and publicity requirements of the Law on Corporations;
- the authority must authorise any connection to the National Electric System;
- environmental permits must be obtained according to the specifics of the respective project; and
- a declaration that the project is under construction must be obtained from the National Energy Commission.

Furthermore, it should be noted that the General Electric Services Law restricts vertical integration among companies in the national transmission segment as well as generation and distribution companies.

First, it establishes that companies belonging to the national transmission segment may not engage, by themselves or through related individuals or legal entities, in activities that in any way, include the generation or distribution of electricity.

Second, companies in the domestic transmission segment may only carry out activities that do not include electricity generation or distribution through subsidiaries or affiliated companies.

Finally, the individual share of companies operating in the distribution and generation segment, or of users not subject to price fixing in the national transmission system, may not exceed, directly or indirectly, 8 per cent of the total investment value of the national transmission system. The joint share of generation and distribution companies and users not subject to price fixing, in the national transmission system, may not exceed 40 per cent of the total investment value of the national system. These ownership limitations apply to business groups, legal entities, or individuals belonging to transmission companies or that have joint action agreements with transmission, generation and distribution companies.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

The General Electric Services Law recognises that the electrical facilities of transmission systems are subject to an 'open access' system, which means that they can be used by third

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parties under technical and economic conditions that do not discriminate among users, through the payment of the corresponding transmission system remuneration.

Consequently, the owners, lessees, usufructuaries or whoever exploits the transmission system facilities under any title, cannot deny any interested party access to the transportation or transmission service for reasons of technical capacity. Additionally, they must provide any facilities necessary for the construction of the works required to achieve the connection. With respect to transmission facilities that do not provide public service, although the same open access system applies, the use of such facilities is subject to the availability of technical capacity.

Notwithstanding the foregoing, in order to connect to a transmission system, the third party must begin a process of interconnection of the respective project to the National Electric System under the supervision of the National Electric Coordinator. The process will depend on the type of transmission system to which it intends to connect:

- Public service transmission system: the third party must submit a request for connection approval to the National Electric Coordinator and, if declared admissible, pre-operational studies must be also submitted for review by the authority, which may approve or reject the connection based on reasonable grounds.
- Dedicated or private transmission system: In this case, the third party must submit a request for approval for the use of available technical capacity to the National Electric Coordinator. If the authority deems the request admissible, it must request information indicating whether or not there is technical capacity available in the transmission system owner's facilities and then, based on such information, it may approve or reject the use of such capacity.

In contrast to the previous case, once the applicant obtains approval from the National Electric Coordinator to use the available capacity, it must reach a technical and economic agreement with the facility owner to make use of the facility.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

The planning and expansion policy of the transmission system is centralised in the state, through the Ministry of Energy, which must initiate a long-term energy planning process every five years, considering energy generation and consumption expansion scenarios within a 30-year horizon. The planning must consider energy supply and demand projection scenarios, particularly for electricity, in light of impactful environmental policies, energy efficiency targets and the identification of energy generation development hubs, among others, in order to prepare possible development scenarios.

Subsequently, the National Energy Commission will be the body in charge of annually reviewing the results of the long-term energy planning and other variables related to transmission expansion in order to determine which works are necessary for the long-term supply. The respective report prepared by this authority may be reviewed at the request of

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interested third parties in the case of a discrepancy by the Panel of Experts. Then, it will be approved by the Ministry of Energy.

The above allows the set of transmission works required by the electric system to be determined annually, so that the National Electric Coordinator can then proceed with the respective public and international bidding processes to award the exploitation rights of such works.

Recently, the government presented an energy transition bill which, among other things, aims to promote the development of the transmission system and put an end to the congestion affecting it. The congestion affecting the transmission system in Chile prevents the transportation of electric power from renewable energy generation centers to large consumption centers, resulting in greater use of polluting energy.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

The tariff system for different transmission systems, with the exception of the dedicated transmission system, is regulated by the General Electric Services Law, which entrusts them to the National Energy Commission, a public agency created by law. Said tariffs are set for four-year periods, after which the National Energy Commission must conduct a new tariffing process to determine the tariffs applicable for the next four-year period.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

The entity responsible for the safety of the National Electric System is the National Electric Coordinator, which is an autonomous non-profit corporation under public law whose structure, functions and powers are governed by the General Electric Services Law, as well as by its own regulations. The National Electric Coordinator is a technical independent body in charge of the National Electric System operation.

The most important duties of the National Electric Coordinator are the following:

- to guarantee the coordination, safety and most economical operation of the national electric system;
- to guarantee open access to the transmission systems;
- to continuously monitor the competitive conditions of the electricity market;
- to issue any instructions necessary for the achievement of the coordinated operation targets; and
- request the submission of any information or updates thereto from the coordinators that it deems necessary for the fulfillment of its duties.

In addition, there is the Electricity and Fuel Agency, a service reporting to the Ministry of Energy that monitors and oversees compliance with legal and regulatory provisions and

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technical standards on electricity generation, production, storage, transportation and distribution. This includes verifying the quality of service provided to final customers and ensuring that energy resource operations and usage do not pose any danger to people or property. In order to fulfil its purpose, this body has, among others, the power to interpret the electric regulation.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

The general rule is that a permanent or provisional public distribution service concession is required to establish, operate and exploit distribution facilities. In this segment, there is no centralised planning by the state and the distribution company decides how to plan the development and operation of its facilities to meet its customers' needs, without prejudice to the fact that the distribution systems are subject to the National Electric Coordinator's approval.

Additionally, it should be noted that electric service concession companies have the duty to report to the Electricity and Fuel Agency regarding the connection of any new facilities and/or users, as well as the performance of their facilities, including failures, their number and restoration times, among other variables. Consequently, this authority will be the body responsible for overseeing the distribution companies' operations, detecting any failure to comply with the regulations, and applying compensations and penalties when applicable.

On the other hand, it should be noted that public distribution service concessionaires must be incorporated as open or closed corporations and their business must exclusively consist of electricity distribution, subject to the information and publicity obligations referred to in the Law on Corporations.

The main purpose of the aforementioned legal obligation is to identify and limit any financial movements arising from the distribution activity, separating the accounting of companies that provide public distribution service from any other activities that they are allowed to carry out in parallel, such as, for example, the sale of energy to free customers (retail commercialisation and electricity product sales, among others). Notwithstanding the foregoing, public service concessionaires are not limited to conducting activities related to the segment. However, it should be noted that a bill on electricity portability is currently being processed, which, in general terms, expressly regulates the commercialisation segment.

Finally, it should be noted that obtaining environmental and sectoral permits will depend on the specifics of each respective project.

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Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

In accordance with the provisions of the General Electric Services Law, public distribution service concessionaires must provide service to anyone who requests it, whether or not the user is located in the concession area or is connected to the company's facilities through its own lines or third-party lines, under the conditions stipulated in said law. The obligation to supply electricity implies the provision of the same voltage of the line subject to concession to which the user is connected.

The public service concessionaires may require reimbursable financial contributions from users of any kind who request service, or who expand their connected power, for the execution of the required electricity generation, transmission and distribution capacity expansions. Additionally, the company may require a sufficient guarantee from users requesting or extending their connected power by more than 10 kilowatts to ensure that the power requested will be used for an acceptable period of time.

Furthermore, in accordance with the provisions of the General Electric Services Law, the concessionaires of the public electricity distribution service must allow any means of generation whose surplus power that can be supplied to the electric system does not exceed 9,000 kilowatts to connect to their corresponding distribution facilities, as long as they comply with the safety and quality requirements of the services in force. To verify said requirements, the third party must request connection from the respective distribution company, which will determine whether said third party complies with the technical requirements to connect to the grid by means of the procedure indicated in Supreme Decree No. 88, which approves the regulations for small scale means of generation.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

There are no government incentives for the expansion or increase of distribution networks.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

The tariffs are determined by the National Energy Commission, which is a public agency created by law.

The design of the tariffs is based on a four-year process of technical studies to determine the companies' efficient costs. Based on these costs, the authority sets a regulated rate, which is a discount rate that fluctuates between 6 and 8 per cent. This distribution tariff process is called Distribution Added Value and to determine its components, the National Energy

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Commission commissions a cost study through a bidding process with private parties. Said study is conducted and supervised by a committee of distribution company representatives.

The results of the study may be reviewed, corrected and adjusted by the National Energy Commission and in such case, the distribution companies may make observations that, if not addressed, may be filed as discrepancies before the Panel of Experts.

Then, the National Energy Commission will prepare the preliminary basic tariffs to determine the segment's profitability rates. The results of this process allow the National Energy Commission to set, by means of decrees, different tariff options for regulated customers and tolls for free customers within the distribution concession zone.

On the other hand, the distribution service provision conditions are determined by law and by the technical standards established by the National Energy Commission.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

Chilean electricity regulations distinguish between two types of customers.

On the one hand, the regulated customer has connected power equal to or less than 500 kilowatts (regulated customer) and, on the other hand, the free customer has connected power equal to or greater than 500kw (free customer). There is no distinction between commercial and domestic customers.

Regulated Customers are supplied by public distribution service concessionary companies whose distribution concession must be processed and granted by the Ministry of Energy to provide said service. As for free customers, they may be supplied by generation companies without the need for any special authorisation.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

Chilean electricity regulations distinguish between two types of customers. On the one hand, regulated customers' connected power is equal to or less than 500kw (Regulated Customer) and, on the other hand, free customers' connected power is equal to or greater than 500kw (Free Customer).

Regulated customers are supplied by public distribution service concessionaires in exchange for a tariff consisting of the following components:

- cost of energy and power supply;
- costs associated with one-time charges for use of the different transmission systems;

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- public service charge; and
- distribution added value: average investment, operation, maintenance and administration costs of serving customers. This indicator includes three items:
 - fixed charge;
 - energy and power loss factors applied to supply cost prices; and
 - distribution cost through which the distribution company receives its remuneration.

As for Free Customers, they may be supplied by generation companies and distribution companies through related companies by signing an energy supply agreement.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

The General Electric Services Law requires public distribution service concessionaires to have a permanent energy supply that allows them to satisfy all their price-regulated customers' consumption. To comply with the aforementioned obligation, such companies must have supply agreements that are the result of public international bidding processes, whereby the distribution concessionaires award tenders to the most economical offers. These processes may not include the consumption of customers not subject to price regulation.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The General Electric Services Law states that public distribution service concessionaires, as public utilities deemed to be natural monopolies, must comply with different requirements in order to fulfil their objectives. The main requirements are as follows:

- to supply all users who request the service without discrimination, regardless of whether they are located within the concession area or connected to the company's facilities by means of its own or third-party lines;
- to ensure the quality of supply;
- to have a permanent energy supply agreement that allows it to supply the total projected consumption of its regulated consumers for at least the next three years;
- to maintain the facilities in good condition and prevent any risk to persons or property in accordance with the law; and
- to provide transportation services so third parties may supply free customers located within the distribution concession area.

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REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The Ministry of Energy and the National Energy Commission.

Scope of authority

23 | What is the scope of each regulator's authority?

The Ministry of Energy is the highest collaborative body of the President of the Republic regarding energy sector governance and administration. It is in charge of the policies, plans and regulations for the development of the electricity sector.

The National Energy Commission is a technical decentralised body that is primarily responsible for planning transportation systems and analysing prices, tariffs and technical standards to which energy production, generation, transmission and distribution companies must adhere in order to provide adequate, safe quality service that is compatible with the most economical operation.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The Ministry of Energy is a public state department created by Law No. 20,402 of 2009 that operates in accordance with the policies and instructions issued by the President of the Republic. It is completely independent from the regulated business.

The National Energy Commission is a public regulatory department created in 1978 by Law Decree No. 2,224 that reports directly to the Ministry of Energy. Notwithstanding the foregoing, like the Ministry of Energy, it is completely independent from the regulated business.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

The decisions of the regulatory bodies may be challenged in different administrative and judicial proceedings. Notwithstanding the foregoing, once a claim has been filed by an interested party with the administration, said claimant may not file the same claim before the Courts of Justice until the original claim has been resolved or the term for said claim to be considered dismissed has elapsed.

Administratively, decisions may be challenged by interested third parties before the same authorities by means of an appeal for reconsideration, or, alternatively, an appeal to a

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higher authority. Lastly, acts that are contrary to the law may be invalidated by an ex-officio administrative authority or at the request of a party within two years from the notification or publication of the act.

The following are considered interested parties in the administrative procedure:

- anyone who promotes the procedure as holders of individual or collective rights or interests;
- anyone who, without having initiated the procedure, has rights that may be affected by the decision made therein; and
- anyone whose individual or collective interests may be affected by the decision and who appears in the proceeding until a final decision has been handed down.

Subsequently, it should be noted that, when stipulated by law, the legality of acts by administrative authorities will be reviewed by the Office of the Comptroller General of the Republic.

In addition, the decisions of the regulatory bodies may be reviewed by the Ordinary Courts of Justice upon the filing of an illegality claim by the interested parties before the respective Court of Appeals, whose decision may then be reviewed by the Supreme Court upon the filing of an appeal.

Furthermore, anyone who suffers deprivation, disturbance or threat in the legitimate exercise of their constitutional rights and guarantees due to an illegal or arbitrary act or omission may file an action for protection before the respective Court of Appeals, which will immediately take any steps it deems necessary to restore the rule of law and ensure the due protection of the affected party.

Finally, in the cases covered by the General Electric Services Law, the interested parties may bring a discrepancy before the Panel of Experts, an autonomous collegiate body whose main duty is to resolve any discrepancies or conflicts that may arise among stakeholders in the national electricity market arising from the application of the General Electric Services Law and the Gas Services Law.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

The general rule states that the authorities authorised to approve or block mergers or other modifications in the market shall be the National Economic Prosecutor's Office and the Court for the Defense of Free Competition.

Notwithstanding the foregoing, according to articles 7 and subsequent articles of the General Law of Electric Services, there are rules that limit vertical integration among companies of the electric sector, and according to article 9 of the General Law of Electric

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Services, the Electricity and Fuel Agency shall be the body in charge of overseeing compliance with said law.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

Pursuant to Law Decree No. 211 on free competition, the procedures aimed at analysing and controlling concentration operations may be administrative when they are conducted before the National Economic Prosecutor's Office or jurisdictional when the case is heard by the Court for the Defense of Free Competition at the request of an individual or the National Economic Prosecutor's Office.

Second, it should be noted that the criterion used to determine whether an economic concentration operation infringes on free competition is the assessment of the competition levels by modelling the market with and without the merger taking place. Then, based on said modelling, it is determined whether said transaction grants, reinforces, increases, or may grant, reinforce, or increase the merged entity's capacity, individually or jointly with others, to exercise market power, or when it tends or may tend to do so.

Furthermore, it should be noted that, the General Electric Services Law contains rules limiting the vertical integration of companies in the transmission segment with companies in the distribution and generation segments. Therefore, to conduct a merger or acquisition of electric companies, an analysis must be performed to determine whether these special rules have been contravened.

Finally, the administrative procedure before the National Economic Prosecutor's Office has a maximum duration of 60 days. Regarding the procedure before the Court for the Defense of Free Competition, there is no data showing a clear trend in procedure time so the duration will depend on the complexity of the case and the Court's workload at the time the procedure is processed.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The authorities that have such powers are:

- The National Electric Coordinator: an independent technical body in charge of coordinating the operation of the jointly interconnected facilities in the National Electric System that operate in an interconnected manner. Among other duties, said body is responsible for the ongoing monitoring of the competitive conditions in the electricity market in order to guarantee the electric system's coordination principles.
- The Electricity and Fuel Agency is a functionally decentralised service whose purpose is to supervise and oversee compliance with legal and regulatory provisions and technical standards for the generation, production, storage, transportation and distribution

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of liquid fuels, gas and electricity. It verifies whether the quality of the services provided complies with current regulations and does not pose any danger to persons or property. In order to comply with the aforementioned objectives, it has, among others, the power to interpret electrical regulations.

In accordance with article 7 and following the General Electric Services Law, there are rules that limit vertical integration between companies in the electricity sector, and in accordance with article 9 of said law, the Electricity and Fuel Agency is the body in charge of ensuring compliance. Therefore, said agency can only inspect free competition in this specific case.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

Law Decree No. 211 on unfair competition states that any person who executes or signs a deed, act or agreement, individually or collectively that prevents, restricts or hinders free competition will be punished by law.

According to Law Decree No. 211, the main facts, acts or agreements that prevent, restrict or hinder free competition or tend to produce such effects include the following:

- agreements or concerted practices among competitors that consist of fixing sales or purchase prices, limiting production, allocating market zones or quotas, or affecting the outcome of bidding processes, as well as agreements or concerted practices that, conferring market power to competitors, consist of determining marketing conditions or excluding current or potential competitors;
- the abusive exploitation of a dominant market position by an individual economic agent or a group thereof by fixing purchase or sale prices, imposing the sale of another product, allocating market zones or quotas, or imposing similar abuse on others; and
- predatory or unfair competition practices, aimed at achieving, maintaining or increasing a dominant position.

Furthermore, the General Electric Services Law has a series of special rules on the prohibition of vertical integration that apply to companies in the generation, transmission and distribution segments, which consist of the following.

- The operating companies or owners of the national transmission systems must be incorporated as open or closed corporations subject to the information and publicity requirements referred to in Law No. 18,046 on corporations.
- The operating companies or owners of the national transmission systems may not engage, either by themselves or through related individuals or legal entities, in activities that include any form of generation or distribution of electricity. However, if they intend to engage in other business that does not include the aforementioned activities, they may only carry them out through subsidiaries or affiliated companies.
- The individual share of companies operating in any segment of the electric power system other than the national transmission system, or of users not subject to price fixing in the national transmission system may not directly or indirectly exceed eight percent of the total investment value of the national transmission system. The joint share of

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generation and distribution companies and of groups of users not subject to price fixing in the national transmission system may not exceed 40 per cent of the total investment value of the national system. These ownership limitations extend to business groups, legal entities or individuals that belong to transmission companies or that have joint action agreements with transmission, generation and distribution companies.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The electricity market regulators do not currently have the authority to preclude or remedy anticompetitive practices, since this power is legally vested in other government agencies, such as the National Economic Prosecutor's Office and the Court for the Defense of Free Competition, among others.

INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

There are no special requirements or limitations on foreign companies acquiring an interest in the electricity sector. Notwithstanding the foregoing, acquisition transactions that are considered concentration transactions must be authorised by the National Economic Prosecutor's Office in accordance with the rules set forth in Law Decree No. 211 on free competition.

Finally, the acquisition transaction must comply with the rules set forth in Law No. 18,045 on the securities market.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

The authorisations required to build and operate power lines are the same as those required to operate national transmission facilities. The authorisations are as follows:

- the operating companies or owners of the national transmission systems must be incorporated as open or closed corporations subject to the information and publicity requirements set forth in the law on corporations;
- the authority must grant authorisation for the interconnection to the national electric system;
- environmental permits must be obtained in accordance with the specifics of the respective project;
- a declaration that the project is under construction must be obtained from the national energy commission; and

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- finally, it should be noted that companies do not require any special licence for the construction and operation of transmission facilities.

Additionally, it is important to point out that the General Electric Services Law restricts vertical integration among companies in the national transmission segment as well as generation and distribution companies. First, it establishes that companies belonging to the national transmission segment may not engage, either on their own or through related individuals or legal entities, in activities that include the generation or distribution of electricity in any form.

Finally, companies in the domestic transmission segment may only conduct activities that do not include electricity generation or distribution through subsidiaries or affiliated companies.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

The policies and legal norms that regulate the connection are mainly set out in the following electrical norms:

- Chapter II Bis and III of the General Electric Services Law;
- transmission systems and transmission planning regulations; and
- Regulations for the National Electric System coordination and operation.

Then, the rules applicable to the International Interconnection Systems (IIS) include the following:

- article 78 of the General Electric Services Law, which defines the concept of IIS;
- article 82 of the General Electric Services Law, which sets forth the requirements to carry out the international exchange of electric services; and
- The Transmission Systems and Transmission Planning Regulations in Supreme Decree No. 37 issued by the Ministry of Energy and published on 25 May 2021.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

The General Electric Services Law restricts vertical integration among companies in the national transmission segment as well as generation and distribution companies. These limitations on ownership extend to business groups, legal entities and individuals that belong to transmission companies or that have joint action agreements with transmission, generation and distribution companies.

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The limitations are as follows:

- First, regarding public distribution service concessionaires, the individual share of companies operating in the distribution and generation segment or of users not subject to price fixing in the national transmission system may not directly or indirectly exceed eight percent of the total investment value of the national transmission system.
- In addition, the law states that the joint share of generation and distribution companies and groups of users that are not subject to price fixing in the national transmission system may not exceed 40 per cent of the total investment value of the national system. These ownership limitations extend to business groups, legal entities and individuals that belong to transmission companies or have joint action agreements with transmission, generation and distribution companies.
- Finally, transactions among related companies must comply with the rules established in Law No. 18,045 on the securities market.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The Electricity and Fuel Agency is the inspection authority in the case of any violation of the General Electric Services Law in this regard.

The penalties set forth in the General Law of Electric Services for this case are as follows:

- written warning;
- fine of approximately US\$50 to US\$7,500,000;
- revocation of authorisation or licence;
- confiscation;
- temporary or definitive closure; and
- forfeiture of the provisional concession.

Notwithstanding the foregoing, offenders may also be sanctioned by special laws or sued in the ordinary courts for any damage caused by their action or omission.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

Chile is currently in the process of drafting a new proposed constitution, which will be submitted to a plebiscite in December of this year, with the possibility of approving the new proposal or maintaining the current constitution. In this process, the content of the constitution is being discussed in its entirety, covering issues relevant to the electricity industry. Notwithstanding this, it is not yet possible to confirm whether there will be substantial

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changes that could modify the current energy regulation. However, the constitutional draft contemplates an obligation for the State of Chile to promote renewable energy sources.

The government recently presented an energy transition bill that mainly seeks to:

- modify the tariff revenue allocation mechanism enabling the reallocation of extraordinary tariff revenues, which significantly exceed the average tariff revenue levels, to suppliers with negative balances and which are subject to restrictions of a spatial and not temporary nature;
- the development of transmission works more efficiently; and
- promote storage projects by conducting a public and international bidding process for large-scale storage system infrastructure (such projects should represent investments for up to US\$2 billion approximately).

Recently, the Ministry of Energy announced the modifications to be made at the regulatory level to promote investments in storage systems. The main modifications proposed are:

- the incorporation of power payment for renewable plants with separate storage;
- the establishment of a new methodology for calculating initial power to determine the contribution for storage sufficiency;
- enabling renewable plants with storage capacity to make withdrawals from the National Electric System to charge their storage component; and
- establishing the direct integration of the withdrawal plan proposed by the coordinated.

National Energy Commission issued new definitive bases for the National and International Public Bidding for the supply of energy and electric power to supply consumption of customers subject to price regulation. These bases incorporated certain modifications that seek to encourage the participation of storage and non-variable renewable energy projects. The main modifications are related to the following:

- segmentation of energy blocks;
- lateral cost transfers; and
- price discounts for the incorporation of storage and non-variable renewable energies.

In environmental matters related to storage systems, the government has recently issued guidelines from the Executive Directorate of the Environmental Assessment Service to address the technical criteria that will be considered during the environmental assessment of energy storage projects in the Environmental Impact Assessment System, to provide greater certainty to investors, whether domestic or foreign.

A bill to update the share of renewable energy is currently being processed to update energy commercialization percentages from these plants to 25 per cent non-conventional renewable generation by 2025 and 40 per cent by 2030. Another target specifies that at least 30 per cent of the energy sold by generating companies must be renewable in each of the different hourly blocks of the system to avoid situations in which renewable energy is used predominantly during the day.

The National Electric Coordinator is preparing a study to eventually propose a design for the implementation of a bid-based wholesale electricity market, including energy, ancillary

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services and, if required, a capacity market. These studies are in a preliminary stage; however, if accepted and promoted by the Ministry of Energy, they could modify the current energy remuneration scheme used in Chile, known as the marginalist model.

Recently, the Short-Term Market has been exposed to a series of difficulties whose origin lies, at least in part, in a group of generating companies that have found it impossible to continue complying with their payment obligations derived from the Economic Transfers Balance Sheets. The main reason for this non-compliance is related to the financial problem caused by (1) the impossibility or restriction to sell the energy produced in the system, due to transmission congestion and (2) the high value of the energy they need to purchase to comply with their supply obligations derived from energy supply contracts. Therefore, in order to mitigate the negative consequences mentioned in the previous paragraph, the following actions have been taken:

- the presentation of a bill by the government that takes charge of the energy transition of the electric system, encouraging efficiency in the construction of transmission projects and the promotion of the development of storage systems;
- the National Electric Coordinator has issued a new procedure to specify the methodology regarding the invoicing and payment processes between coordinates and, as well as the process of calculation, delivery and eventual collection of the guarantees of the Short Term Market to ensure the continuity of the payment chain in the system; and
- changes have been made to the bidding bases prepared by the National Energy Commission to supply regulated clients, to promote the development of storage systems, decongesting the transmission system.



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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

Ghana's electricity industry is unbundled into three main sub-sectors; namely, electricity generation, transmission and distribution. The policies of the government for the electricity sector are mainly concerning these sub-sectors.

The National Energy Policy 2010 (the Policy) is the underlying policy guiding governmental actions and strategies in the power sector. The objective of the Policy is to create a conducive environment for increased investment in the energy sector; to create jobs, generate export revenue; and to also put in place a framework for the efficient management of Ghana's energy resources as well as the revenue accruing from it. The Policy covers the following energy sectors:

- power sub-sector;
- petroleum sub-sector;
- renewable energy sub-sector;
- waste to energy;
- energy efficiency and conservation;
- energy and environment;
- energy and gender; and
- managing the future of the energy sector.

The objective of the government under the Policy was to increase installed generation capacity from about 2 gigawatts to 5 gigawatts by 2015 and to achieve universal access by 2020.

The government's approach to achieve this goal is through thermal power plants (seeking private sector funds for the rehabilitation and expansion of existing power plants; completing the construction of on-going power projects, encouraging private sector investment in the construction and ownership of additional power plants) and hydro power resources

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development (completing the development of hydro power projects and support the development of small and medium scale hydro power projects).

According to the Energy Commission (the regulator and manager of Ghana's energy resources); the total grid installed electricity generation capacity, including distributed generation, increased from 2,170 MW in 2011 to 5,481 MW in 2021, representing an annual average growth of 9.7 per cent. The national population electricity access rate in 2021 is also reported as 87 per cent.

In its 2023 budget, the government of Ghana reported that it aims to achieve universal coverage by 2024 and further reported that the national electricity access rate has increased from 87.03 per cent in 2021 to 88.54 per cent. The goal of the government of Ghana for power transmission under the Policy is to provide an adequate, safe and reliable electricity transmission network. The government seeks to achieve this goal by:

- supporting the mobilisation of commercial and domestic capital resources to supplement external funding for transmission infrastructure development;
- enforce technical regulations and operational standards; and
- provide support for the maintenance of existing transmission infrastructure.

With respect to power distribution under the Policy, the goal of the government of Ghana is to seek adequate investment to improve the electricity distribution network and thereby reduce high system losses and improve the quality of electricity supply. This is intended to be achieved by assisting distribution utilities financially to become stable, encouraging distribution utilities to seek commercial loan financing to modernise their infrastructure, encouraging the injection of investment capital from private sector sources and from the domestic capital market in the medium to long term, and supporting management in the restructuring of the distribution utilities operations towards achieving improved operational performance.

In line with this objective, the government of Ghana, with funding from the Millennium Challenge Corporation, entered into a concessionaire arrangement with Power Distribution Services Limited (PDS), which saw PDS taking over the assets and operations of the Electricity Company of Ghana (ECG).

On 30 July 2019, however, the concession agreement between the ECG and PDS was suspended owing to 'fundamental and material breaches of PDS's obligations in the provision of Payment Securities (Demand Guarantees) for the transaction', which were discovered by the government upon further due diligence. According to the government of Ghana, PDS failed to provide demand guarantees for the agreement. The Energy Commission then appointed the ECG as the interim operator of electricity retail sale functions in the Southern Distribution Zone. An investigation was also initiated during that period, which found that the payment security provided by PDS for the transaction was invalid. Consequently, the Concession Agreement was terminated by the government.

There has been no subsequent concession agreement since then. The government also has not evinced an intention to re-enter another concession agreement.

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To secure future fuel supplies, the policy objective is to increase and diversify the fuel mix in power generation through:

- infrastructure for new fuel supply sources, such as support the strategic exploitation of domestic natural gas discoveries and encourage public-private partnership financing for natural gas infrastructure;
- nuclear power development;
- coal power development; and
- regional integration of energy resources such as harmonising the legal, regulatory and institutional regimes in conformity with the Energy Protocols of the Economic Community of West African States.

Regarding electricity pricing, the government's policy direction is to ensure that electricity pricing is efficient and competitive while providing rates that are affordable by setting uniform electricity tariffs throughout the country, supporting the implementation of cost recovery pricing in electricity supply and providing special rates for the needy (lifeline tariffs), among others.

Power sector reforms were initiated in 1995 to ensure an efficient and effective power sector and to allow increased private-sector investment and participation.

In implementing the power sector reform programme, government intends to continue to pursue the following actions:

- promote competition in the generation of electricity through the development of a Wholesale Electricity Market (WEM);
- create the environment for retail competition in the electricity market;
- facilitate the entry of independent power producers (IPPs); and
- ensure the improved performance of electricity utility companies.

In 2017, the cabinet approved the full operationalisation of the Wholesale Electricity Market (WEM) and its associated mechanisms as well as the establishment of the Electricity Market Oversight Panel (EMOP). The WEM controls the supply and trading of wholesale electricity between retailers and generators. The EMOP is an 11-member panel tasked with monitoring the general performance of the ECG and ensuring the smooth operation of the WEM.

The government has shown significant interest in developing the renewable energy industry and has identified renewable energy as one of the options that could contribute to the overall energy supply mix and minimise the adverse effects of energy production on the environment. However, most of the renewable energy interventions in Ghana are either being carried out as pilot projects or on a short-term planning cycle basis.

To address the attendant effects of such short-term planning on the overall development of the renewable energy sector, the Renewable Energy Master Plan (REMP) has been developed to provide an investment-focused framework for the promotion and development of the country's rich renewable energy resources for sustainable economic growth, contribute to improved social life and reducing the adverse climate change effects.

The REMP aims to achieve the following by 2030:

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- increase the proportion of renewable energy in the national energy generation mix from 42.5 MW to 1363.63MW (with grid connected systems totaling 1094.63MW;
- reduce the dependence on biomass as main fuel for thermal energy application;
- provide renewable energy-based decentralised electrification options in 1,000 off-grid communities; and
- promote local content and local participation in the renewable energy industry. The implementation of the REMP began in 2019 and is expected to be running through to 2030.

Legislative framework

The Ministry of Energy is the government ministry responsible for energy policy formulation, implementation, monitoring and evaluation as well as supervision and coordination of activities of Ghana's energy sector agencies.

Ghana has two main regulatory agencies for the power sector; namely, the Energy Commission and Public Utilities and Regulatory Commission.

The Energy Commission Act 1997 (Act 541) (the Energy Commission Act) established the Energy Commission. The Commission's mandate is to:

- regulate and manage the utilisation of energy resources in Ghana; and
- ensure the provision of affordable energy supplies in a reliable, efficient and secure manner in order to promote the social and economic wellbeing of the people of Ghana and enhance environmental quality and public safety.

The Commission is responsible for granting licences for the transmission, wholesale supply, distribution and sale of electricity and natural gas in Ghana.

There are subsidiary legislation and several guidelines enacted under the authority of the Energy Commission Act for the proper management and regulation of Ghana's power sector.

The Public Utilities and Regulatory Commission Act 1997 (Act 538) (as amended) established the Public Utilities Regulatory Commission (the PURC). It is an independent body that is not subject to the control of any authority in the performance of its functions.

The PURC's responsibility is to:

- provide guidelines for rates to be charged for the provision of utility services;
- examine and approve water and electricity rates;
- protect the interest of consumers and providers of utility services;
- monitor and enforce standards of performance for provision of utility services;
- promote fair competition among public utilities;
- receive and investigate complaints and settle dispute between consumers and public utility; and
- advise any person or authority in respect of any public utility.

There are several other acts of Parliament, legislative instruments and sector codes enacted for specific purposes within the electricity industry.

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The Volta River Development Act 1961 (Act 46) established the oldest power entity in Ghana – the Volta River Authority (VRA). The VRA is wholly owned by the government. Its initial mandate was to generate, transmit and distribute electricity. However, in line with the government's power sector reform in 2005, VRA's mandate has now been largely restricted to generation of electricity.

The Ghana Grid Company (GridCo) is currently in charge of transmission. GridCo is responsible for the operation of the National Interconnected Transmission System (NITS), bulk power purchase of electricity from generators of electricity and sale to NEDCo and the ECG. IPPs that intend to transmit electrical power over the NITS are required to enter into a connection agreement with GridCo.

VRA's subsidiary, the Northern Electricity Development Company (NEDCo), is responsible for electricity distribution in the northern regions of Ghana. The ECG, a wholly state-owned utility company, is responsible for the distribution of power in the southern regions.

In 2007, Parliament enacted the Bui Power Authority Act 2007 (Act 740), which established the Bui Power Authority to oversee the development of the Bui hydroelectric power project on the Black Volta River and any other potential hydroelectric power sites on the Black Volta River.

The Renewable Energy Act 2011 (Act 832) (as amended) is the most recent energy-related legislation geared toward the encouragement of Ghana's drive to boost the renewable energy sector. This act focuses on the development, management, utilisation, sustainability, and adequate supply of renewable energy sources for the production of heat and power in an efficient and environmentally sustainable manner.

In line with the policy objectives under the Energy Commission Act, the Energy Commission (Local Content and Local Participation) (Electricity Supply Industry) Regulations 2017 (LI 2354) was made to ensure, among other things, that an enabling environment was created to ensure maximum use of financial capability, expertise, goods and services and to create employment for Ghanaians, promote businesses in the electricity supply industry and to retain the benefits in Ghana.

The Energy Sector Levies Act 2015 (Act 899) (as amended) was passed to address the huge debt burden and operational challenges facing state-owned enterprises in the energy sector, support power generation and power supply sustainability, support road maintenance and fund the activities of the Energy Commission.

The Act imposed the following levies:

- Energy Debt Recovery Levy: to facilitate the debt recovery of the Tema Oil Refinery, downstream petroleum sector, foreign exchange under recoveries and power generation and infrastructure support.
- Road Fund Levy: to support road maintenance.
- Energy Fund Levy: to support Energy Commission activities.
- Price Stabilisation and Recovery Levy: to be used as a buffer for under recoveries or subsidies to stabilise petroleum prices for the consumer.

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- Public Lighting Levy: to support payment of energy consumed by traffic lights, street-lights, public lights and investment in them.
- National Electrification Scheme Levy: to provide funding to support the national electrification programme to improve access to electricity.
- Energy Sector Levies: to support the payment of energy sector bills, capacity charges and Feedstock.
- Sanitation and Pollution Levy: to, among others, improve air quality in urban areas and combat pollution.

The Energy Commission developed the National Electricity Grid Code (the Grid Code) in 2009, which establishes the requirements, procedures, practices, and standards that govern the development, operation, maintenance and use of high voltage transmission system in Ghana. The purpose of the Grid Code is to ensure that the National Interconnected Transmission System (NITS) provides fair, transparent, non-discriminatory, safe, reliable, secure and cost-efficient delivery of electrical energy.

The Grid Code describes the responsibilities and obligations associated with all the functions involved in the supply, transmission and delivery of bulk electric power and energy over the NITS including the functions of the electricity transmission utility, a NITS asset owner, a wholesale supplier, a distribution company and a bulk customer.

In 2022, Parliament passed nineteen legislative instruments to regulate the markets for electrical appliances and renewable energy products, and to promote the efficient use and conservation of energy in Ghana and to mitigate climate change.

To ensure that electric power is produced, transmitted and distributed in an environmentally sustainable manner, the Environmental Protection Agency Act 1994 (Act 490) (the EPA Act) was enacted in 1994. The EPA Act established the Environmental Protection Agency (EPA) as the principal environmental watchdog in Ghana.

All electricity utilities must receive an environmental permit from the EPA before they undertake any project. The EPA ensures compliance with the laid down environmental impact assessment procedures in the execution of electricity projects.

The existing legal regime envisages a spot as well as a bilateral market for power trading. The present position is largely bilateral as there are not yet enough players for a fully functioning liquid spot power trading market. The GridCo, as market operator, is currently working on establishing systems and procedures to support enhanced market operations.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Generally, electricity goes through a three-step process before arriving at the end-user for consumption; namely:

- power is produced from generators that are usually located far from the load centres;

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- the power is transported over the transmission grid, which is composed of transmission lines, transformers and other components, to the bulk load distribution substations; and
- the power is then delivered to the individual customer sites from the bulk load distribution substations using distribution lines.

The generation market is made up of two main players; namely, the government (through the VRA and Bui Hydroelectric Company) and the IPPs.

The VRA operates a total installed electricity generation capacity of 2,532 MW. This is made up of:

- two hydro plants with installed capacities of 1,020 MW and 160 MW at Akosombo and Kpong, respectively;
- six thermal plants with total installed capacities of 1330 MW; and
- three solar plants with total installed capacities of 22 MW.

The VRA is also working on developing 150 MW of wind power at four locations in the southern part of Ghana.

Several IPPs operate in the generation space in Ghana, with a total installed generation capacity exceeding 1505 MW. These IPPs include Sunon-Asogli, Cenit Power Plant, Karpower Barge, Ameri Energy Power, AKSA, Early Power, Amandi and BXC Solar. In the renewable energy sector, Africa Plantations for Sustainable Development is currently developing a eucalyptus plantation to power a proposed 60 MW power plant for the national grid. Other companies providing renewable energy in Ghana include Soater Solar Ghana Limited, Orion Energy Ghana Limited and Signik Energy Limited.

After generation, electricity is transmitted. In 2006, GridCo was created out of VRA and was tasked with wholesale power transmission. Currently, GridCo is the only company responsible for the transmission of electricity in Ghana. There are no private players in the transmission sub-sector. GridCo operates the NITS and all power-producing companies that intend to supply electricity over the national grid to the various load centres are required to enter into a connection agreement with GridCo to connect to the NITS.

Ghana has an extensive transmission system that covers all the country's regions. The transmission system is an interconnected network that supports the bulk transfer of electricity over long distances from generation facilities to distribution centres called bulk power distribution substations. While the role of the generation system is to make sure that there is sufficient electricity available to meet customer demand, the role of the transmission system is to make sure electricity is available where customers need it.

This high-voltage transmission network connects generation sites in Akosombo, Aboadze, Takoradi, Kpong and Tema to the various load centres across the country. The network features more than 4,000 kilometres of high-voltage electric transmission lines that connect to more than 40 substations.

The backbone of Ghana's transmission system is a network of 161 kilovolts, 69 kilovolts and 225 kilovolts lines and substations. This primary network is supplemented with a

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sub-transmission system of 34.5 kilovolts lines and a single 69 kilovolts line in the lower Volta region – the 34.5 kilovolts network is sometimes classified as distribution.

Under the Transmission System Rehabilitation Project, which began in 2017, GridCo continued to improve operational reliability, security and control of transmission via various transmission system improvement projects. GridCo completed the Tumu–Han–Wa 161 kilovolts line and commenced the Kpandu–Kadjebi 161 kilovolts line project and the Aboadze–Prestea 330 kilovolts in 2017.

Under the Transmission System Improvement Projects, GridCo continued with the Transmission System Reinforcement to improve operational reliability, security and control, among other things. The project included the Aboadze–Prestea 330 kilovolts Transmission Line, the Prestea–Kumasi 330 kilovolts transmission line and the Kumasi–Bolgatanga 330 kilovolts transmission line, which have been completed.

GridCo is also undertaking the upgrade of 161 kilovolts Western Corridor transmission lines to enable it deliver power reliably, minimise system interruptions, lower transmission losses, and meet increasing demand. The project is expected to be completed in 2025 and includes the following transmission lines:

- Aboadze–Takoradi;
- Takoradi–Tarkwa;
- Tarkwa–New Tarkwa;
- New Tarkwa–Prestea;
- Bogoso–Dunkwa; and
- New Obuasi–Dunkwa.

Ghana’s high-voltage transmission system interconnects with Togo and Benin via a double-circuit 161 kilovolts transmission line connecting the Akosombo Generating Plant in Ghana to Lome in Togo, and with the Ivory Coast via a single circuit 225 kilovolts 220 kilometre transmission line between Prestea substation in the Western Region of Ghana and Abobo substation. The 225 kilovolts Bolgatanga–Ouagadougou Interconnection project, which is a component of the West African Power Pool (WAPP) Inter-zonal Transmission Hub Project, was completed in June 2018 and inaugurated by the presidents of Ghana and Burkina Faso.

These cross-border interconnections allow Ghana to trade power with its neighbouring countries. Regional efforts have been underway to integrate the transmission networks of the Economic Community of West African States member states to facilitate power trading among the regional entities. In this regard, the WAPP has begun efforts to build regional transmission lines to interconnect major load centres. As part of these efforts, a 330 kilovolts interconnection with Togo has been constructed.

The distribution system is a network of low-voltage distribution lines that deliver electricity directly to customers. The distribution system is generally considered to begin at the bulk power distribution substation where GridCo delivers power to the wholesale power buyers and end at the retail consumer’s meter. Beyond the meter lies the customer’s electric system, which consists of wires, equipment and appliances.

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Electricity distribution and sale services are currently carried out by three companies:

- the ECG;
- NEDCo, a wholly owned subsidiary of VRA; and
- Enclave Power Company Limited (EPC).

Of the three, EPC is the only company that is privately owned.

Substations on the transmission system receive power at higher voltages and lower them to lesser volts to feed the distribution systems. The distribution system consists of the poles and wires commonly seen in neighbourhoods. At key locations, voltage is again lowered by transformers to meet customer needs.

The ECG operates in the southern part of Ghana comprising the Greater Accra, Ashanti, Western, Western North, Eastern, Central, Volta and Oti regions. The ECG network currently has 40 bulk supply points (BSP) with 121 Primary Substations (33/11 kilovolts).

The ECG has more transformer capacity than the present peak demand but growth in demand in certain areas has resulted in under capacity in those areas.

The ECG serves more than five million customers including residential, commercial and some large industries.

In 2022, the ECG had twenty-eight bulk customers. These bulk customers, despite being located within the ECG's concession, may opt to buy power from the VRA or any other wholesale supplier except that they are required to pay for the use of the ECG system to access the facilities of other electricity suppliers.

NEDCo's operations cover largely the northern part of Ghana comprising the Ahafo, Bono, Bono East, Northern, Savannah, North East, Upper East and Upper West regions. NEDCo's distribution network consists of about 5,488 kilometres of medium-voltage lines and 7,832 kilometres of low-voltage (415 volts) lines connecting 24 BSPs. The NEDCo system has a transformer installed capacity of 200 megavolt amperes compared with its average peak load of 130 megavolt amperes.

NEDCo operates at 34.5 kilovolts, 11 kilovolts and 400 volts voltage levels. NEDCo serves more than 380,000 customers, including residential, commercial and some large industries.

NEDCo has no bulk customers under its jurisdiction primarily because of the absence of large industrial customers in its areas of operation. The northern part of the country is comparatively underdeveloped.

Enclave Power Company Ltd is the only privately-owned electricity distribution company, licensed by the Energy Commission in 2009 to distribute and sell electricity within the Free Zones Enclave at Tema Industrial Area and the Dawa Industrial Zone. Enclave Power Company's network consists of nearly 3 kilometres of service lines connecting one BSP at the New Tema substation.

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Enclave Power Company Ltd currently serves over 80 multinational and local manufacturing companies operating within the Tema Free Zones Enclave and the Dawa Industrial Zone. distributing about 45 MW of power purchased from the VRA via its 130 MVA substation in Tema.

The power market is evolving and there is a lot of interest being shown in the sector by IPPs. GridCo, as the market operator, is working towards putting systems and procedures in place to support market operations.

The new market structure enables and encourages the free entry of IPPs into the generation market, creating a competitive generation market that, when combined with open access to transmission, also facilitates a bulk power trading market. The structure also emphasises decentralisation at the distribution level, with plans for eventually adding more distributors, each operating in a defined geographic service area.

All bulk customers are permitted to purchase electricity directly from any wholesale suppliers of their choice at prices negotiated directly between the parties. In other words, the bulk customer has the prerogative to decide which wholesale supplier it is willing to contract with.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

Under the Energy Commission Act, no person shall engage in any business or any commercial activity for the transmission, wholesale supply, distribution or sale of electricity or natural gas or the refining, storage, bulk transportation, marketing or sale of petroleum products unless authorised to do so by a licence issued by the Energy Commission.

The Energy Commission is required to decide on any application within a maximum period of 16 days. Applications are generally granted unless there is a compelling reason not to do so. These reasons must be founded on technical data, national security concerns, public safety or any other reasonable justification.

Generators wishing to be connected to the transmission system must enter into an electrical connection agreement or transmission services agreement with the Ghana Grid Company (GridCo).

Under the Renewable Energy Act 2011 (Act 832) (the Renewable Energy Act), every person who intends to engage in commercial activity in the renewable energy sector requires a licence. The commercial activities in the renewable energy industry are production, transportation, storage, distribution, sale and marketing, importation, exportation and re-exportation, and installation and maintenance.

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The licensing requirements are subject to compliance with the Energy Commission (Local Content and Local Participation) (Electricity Supply Industry) Regulations 2017 (LI 2354), which apply to all persons engaged in the energy supply industry.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

The policy for the transmission market is to provide an adequate, safe and reliable electricity transmission network. To achieve this, the Board of the Energy Commission established the Electricity Transmission (Technical, Operational and Standards of Performance) Rules 2008 (the Transmission Rules). The purpose is to establish the requirements, procedures, practices and standards that govern the operation and use of the National Interconnected Transmission System (NITS).

Under the Transmission Rules, GridCo is required to operate the NITS to offer fair, transparent, open access and non-discriminatory services to grid participants.

To connect to the NITS, the operator of a generation facility is required, among others, to design, install and maintain its plant and equipment to meet the requirements of the connection requirements of GridCo. Further, the operator must operate its plant and equipment under the dispatch instructions of GridCo and meet system performance and reliability requirements in a manner that is consistent with the reliable operation of the transmission system.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Available renewable energy sources

In Ghana, the government has the policy and legislation frameworks to encourage power generation based on alternative energy sources. The government's policy is to increase access to modern forms of power generation. The implementation of the Renewable Energy Master Plan reinforces the government's desire to increase the utilisation of renewable energy sources.

According to the Renewable Energy Act, renewable energy includes energy obtained from non-depleting sources including wind, solar, hydro, biomass, biofuel, landfill gas, sewage gas, geothermal energy and ocean energy. Ghana is well endowed with renewable energy resources, particularly biomass, solar and wind energy resources, and to a limited extent mini-hydro.

The goal of the renewable energy sub-sector is to increase the proportion of renewable energy, particularly solar, wind, mini-hydro, and waste-to-energy in the national energy supply mix and to contribute to the mitigation of climate change.

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The development and use of renewable energy and waste-to-energy resources have the potential to ensure Ghana's energy security and mitigate the negative climate change impacts of energy production and use as well as solve sanitation problems.

Biomass is Ghana's dominant energy resource in terms of endowment and consumption. In 2020, biomass production in Ghana reached nearly 4.3 million metric tons of oil equivalent. Ghana's vast landmass has the potential for the cultivation of crops and plants that can be converted into a wide range of solid and liquid biofuels.

The production, transportation, sale and pricing of wood fuels are all undertaken by the private sector except for taxes and levies, which are regulated by local government authorities. The wood fuels business will continue to be operated and managed by the private sector.

The development of alternative transportation fuels such as gasohol and other biofuels can provide substitute fuels for the transportation sector and help diversify and secure future energy supplies for Ghana.

The major challenge in biomass energy supply is how to reverse the decline in the wood-fuel resource base of the country and further sustain its production and use by improving the efficiency of production and use.

The biomass policy focuses on improved production and efficient use of biomass in the short term while increasing regeneration and fuel substitution in the medium to longer-term, as well as shifting from the use of biomass to alternative sources of energy.

Under its geographic location, Ghana is well endowed with solar resources that could be exploited for electricity generation and low heat requirements in homes and industries. Solar energy utilisation has, however, been limited owing to its comparatively higher cost.

The government is committed to improving the cost-effectiveness of solar and wind technologies by addressing the technological difficulties, institutional barriers, as well as market constraints that hamper the deployment of solar and wind technologies.

A major challenge in the development of solar and wind is the high cost of these energy sources owing to the current state of their technology.

Waste-to-energy projects have become a very important mechanism for the management of the growing sanitation problem facing urban communities as well as a means of contributing to energy supply and security. Significant amounts of waste are generated in Ghana. These include municipal waste (both solid and liquid), industrial waste and agricultural waste.

Many energy technologies can convert these waste materials into electricity, heat and fuel. The conversion technologies include combustion, gasification, pyrolysis, anaerobic digestion, fermentation and esterification.

Some waste-to-energy technologies that have been developed in Ghana are anaerobic fermentation of municipal waste and industrial liquid wastes to produce biogas for heating and electricity generation, and combustion of solid wastes to produce electricity in combined heat and power (CHP) systems.

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Government policies and legislative framework

The Renewable Energy Act is the most recent energy-related legislation geared toward the encouragement of Ghana's drive to boost the renewable energy sector in Ghana.

The key policy focus of the government is to engage Ghanaian engineers and scientists to cooperate with other experts to bring down the cost of renewable energy technologies to make them competitive as well as create fiscal and pricing incentives to enhance the development and use of renewable energy. Competitive renewable energy technologies will be promoted.

The government intends to diversify the national energy mix by implementing programmes to support the development and use of renewable energy sources. Under the Renewable Energy Act, there are financial incentives (including a lucrative feed-in tariff) for renewable energy projects.

More specifically, the Public Utilities Regulatory Commission (PURC) has the power to mandate feed-in tariffs for renewables, which includes a requirement that, for each energy purchase, an offtaker will have to obtain a certain percentage from renewable sources to benefit. The commission is tasked with recommending exemptions from taxes, duties and levies concerning machinery, equipment and other input into renewable projects.

The feed-in tariffs introduced by the PURC on 1 September 2013 remain in force until 1 September 2023.

Free zone developers and enterprises granted licences under the Free Zones Act are exempted from the payment of income tax on profits for the first 10 years. The income tax rate after 10 years does not exceed a maximum of 8 per cent of the profit.

The benefits enjoyed by operators in the free zones include a guarantee against expropriation, unconditional transfers of profits, dividends, charges and fees, remittances and other payments through an authorised dealer bank in free convertible currency.

The Renewable Energy Master Plan (REMP) also prescribed action plans for Renewable Energy Technologies such as wind, solar, and hydro. It is expected that the implementation of REMP would reduce the dependence on biomass as the main fuel for thermal energy applications.

Interventions considered for solar under REMP include water heaters, lanterns, crop dryers, utility-scale systems, solar home systems, street and community lighting, traffic signals, and irrigation and water supply systems. Some of the challenges in considering these interventions include:

- the high import duty;
- value added tax;
- the National Health Insurance Levy;
- the high cost of solar power; and
- the variable nature of solar power.

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Interventions considered for wind energy under REMP are water pumping and irrigation, standalone and utility-scale grid-connected wind power systems. The challenges concerning these interventions include:

- the high capital cost;
- variable wind speed; and
- limited local expertise.

Further, the government plans to develop some of the remaining alternate energy source potentials in the country, including the 60 megawatts Pwalugu Hydro and Solar Plant, which is expected to be completed in 2024. Also, wave and tidal energy will be harnessed from viable sites for power generation.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

Environmental concerns are a prominent part of every industry today and the electric power industry is no exception. Climate change emerged on the political agenda in the mid-1980s with the increasing scientific evidence of human interference in the global climate system and with the growing public concern about the environment.

Currently, the electricity supply is vulnerable to climate change. About 66 per cent of electricity generation in the country is from hydropower and 33 per cent is from thermal generation using diesel, with a small contribution (less than 1 per cent) from small-scale solar systems. In 2019, the Renewable Energy Master Plan was published. It seeks to ensure a cleaner environment; help mitigate climate change; increase the proportion of renewable energy in the national energy generation mix; and reduce the dependence on biomass as main fuel for thermal energy applications.

The production and use of energy impact the environment and global climate to varying degrees. The exploitation of biomass for energy purposes results in deforestation, while the use of fossil-based fuels contributes to climate change.

Ghana's participation in the Stockholm Conference in 1972 signified the beginning of the country's desire and willingness to make concerted and conscious efforts at the management of its environment.

At the Earth Summit in Rio de Janeiro 20 years later, Ghana and the world moved closer to the objective of living in harmony with our environment by signing the Rio Conventions.

Before a person undertakes any activity or operation concerning electricity, that person must obtain the necessary environmental approvals and permits valid for 18 months. The Environmental Protection Agency (EPA) will not grant an environmental permit unless the applicant submits an environmental impact assessment (EIA).

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In addition to the granting of a licence by the Energy Commission, before any project can take place, the EPA must give a permit for the project after a detailed EIA has been carried out regarding the potential effects of the project on the environment.

Ghana generates most of its power from hydroelectric facilities, which do not cause emissions of harmful elements into the atmosphere. However, their large reservoirs have some impact on the environment by flooding large areas, dislocating people, changing the ecology and causing silt formation.

Transmission lines may require intrusion into natural areas. They may be visible from scenic areas or intrude on residential neighbourhoods. They may destroy or disrupt wildlife habitats. Therefore, prospective operators in the electricity market seeking to obtain a licence must provide environmental disclosure to the Energy Commission. Before construction, the applicant must acquire siting clearance (siting permit).

The applicant for a licence must provide an EIA report certified by the EPA and an environmental permit or permanent environmental certificate issued by the EPA.

The government's policy on climate change is that there will be a shift towards generation from renewable energy sources. Thermal generation using crude oil will shift towards the use of natural gas. Consumption of power will decline owing to energy conservation methods, and the cost of electricity might increase owing to the high cost of generation from using renewable energy technologies.

The medium-term policy objectives for the achievement of the energy sector goals include steps to minimise the environmental impacts of energy supply and consumption through increased renewable energy and efficient energy delivery.

The government's strategic goal is to ensure that energy is produced, supplied and used in an environmentally sustainable manner. The strategies will focus on the conduct of strategic environmental assessment and EIA studies and social impact assessment studies of all energy projects, with associated adaptation and mitigation plans for the environment and climate change.

The government's policy on climate change concerning the energy sector includes the following resolutions:

- to adopt an inter-sectorial approach to energy planning and development that integrates energy development with energy conservation, environmental protection and sustainable utilisation of renewable energy resources;
- to reduce the pressure on forests for wood fuels and encourage the use of renewable energy resources to reduce the use of fossil energy;
- to ensure that rigorous feasibility studies are undertaken for hydroelectricity facilities and other significant generating facilities, all of which must be subjected to an EIA; and
- to maximise the use of the nation's hydrocarbon resources in the production and distribution of energy.

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Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

Ghana's Renewable Energy Act provides a regulatory framework that supports electricity storage, research and development. The regulatory framework mandates anyone who seeks to engage in any storage or other commercial activity in the renewable energy industry to obtain a licence from the Energy Commission. The licence may require the installation of a suitable facility for the storage of renewable energy, which suitability shall be determined by the Energy Commission.

The establishment of the Renewable Energy Fund and Energy Fund is to promote research and development of storage solutions. The object of these funds is basically to provide financial resources for the promotion, development, sustainable management and utilisation of electricity and renewable energy sources.

The funds are primarily applied to the provision of financial incentives, feed-in tariffs, capital subsidies, equity participation, among others, for projects related to the development and utilisation of energy resources, including storage solutions.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

Policy framework

In 1964, Ghana decided to undertake the Ghana Nuclear Reactor Project. The project was intended to introduce nuclear science and technology into the country and to exploit the peaceful applications of nuclear energy for national development.

At present, the government's policy is to diversify the energy mix by exploring options to develop nuclear energy. The goal is to develop nuclear power as an option for electricity generation in the long term.

Ghana has participated and is still participating in coordinated research projects with the International Atomic Energy Agency (IAEA), which helps to increase the nuclear knowledge base of the country. The Ghana Atomic Energy Commission (GAEC) is in close contact with other international nuclear agencies such as the Global Nuclear Energy Partnership.

The Nuclear Power Planning Committee (NPPC) involving stakeholder institutions was established in 2008 for the formulation of the nuclear power policy and the development of the basic elements of nuclear infrastructure. Based on the NPPC's recommendations, the government made a cabinet decision in 2008 to introduce nuclear energy into Ghana's energy mix.

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In line with this objective, the Ghana Nuclear Regulatory Authority was established with a mandate to develop regulations for the licensing of, and guidance during the construction and operation of, a nuclear facility.

The human resource capacity-building currently in place is in two forms (ie, degree and non-degree awarding programmes).

In the degree-awarding category, the GAEC has established a Graduate School of Nuclear and Allied Sciences in collaboration with the University of Ghana with assistance from the IAEA to award masters and PhD degrees in nuclear science.

The non-degree training programmes involve the use of the 30 kilowatts nuclear research reactor in the teaching and training of scientists and technicians in the field of nuclear reactor operation, physics, safety, engineering and maintenance, and so on.

The IAEA has also formulated technical cooperation projects such as:

- GHA0008: planning for sustainable energy development;
- GHA0009: human resource development and nuclear technology support; and
- GHA0011: to increase the country's nuclear knowledge base.

Ghana participates in IAEA training courses and workshops on national, regional and international levels and made progress in implementing the recommendations of the IAEA Integrated Nuclear Infrastructure Review (INIR). In October 2019, a team from the IAEA conducted a follow-up INIR mission to assess the progress made since the 2017 Phase 1 INIR mission and assist Ghana in prioritising further activities to develop the national infrastructure for nuclear power, at the request of the government.

The government established the Ghana Nuclear Power Programme Organisation to coordinate all preparatory activities related to the development of the nuclear power programme.

On May 30 2023, Ghana's Nuclear Power Institute settled on a site for its first nuclear power plant and has begun making preparations to construct this nuclear power plant by 2030.

Legal and regulatory framework

The Atomic Energy Commission Act 2000 (Act 588) provides the legislative framework for nuclear power in Ghana. The Act deals with national energy policy including economic and commercial considerations, with a clear designation of responsible institutions or bodies, including their relationships with nuclear power.

The Atomic Energy Commission is the independent regulatory authority responsible for the safety, security and safeguards of nuclear power. This includes a system of licensing, inspection and enforcement covering all subject areas of nuclear law.

At the international level, there are some basic international legal instruments that Ghana has to ratify and implement to show commitment to the peaceful use and application of nuclear technology.

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The Nuclear Regulatory Authority Act 2015 (Act 895) also establishes a Nuclear Regulatory Authority, provides for the regulation and management of activities and practices for the peaceful use of nuclear material or energy, radioactive material or radiation. It also provides for the protection of persons and the environment against the harmful effects of radiation hazards.

REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

The construction and operation of transmission networks require the acquisition of an electricity transmission licence.

According to the Electricity Transmission (Technical, Operational and Standards of Performance) Rules 2008, the transmission system comprises the electricity plants and equipment within the borders of Ghana that function or are operated at any voltage higher than 36 kilovolts, as well as any associated feeder or supply equipment that is for shared or for common use.

The electricity transmission utility (ETU) is the exclusive and independent operator of all transmission assets irrespective of ownership and plays the central role in respect of activities related to the National Interconnected Transmission System (NITS). The ETU transports electricity from the producers to bulk consumers. The Ghana Grid Company (GridCo) is the sole owner and operator of the NITS.

All prospective participants in the deregulated segment of Ghana's electricity supply industry must obtain a transmission licence from the Energy Commission. They must also negotiate and conclude an interconnection service agreement with the ETU.

The ETU and all grid participants must comply with all relevant laws, the requirements of the National Electricity Grid Code (the Grid Code), permits, prudent utility practice and applicable international standards. Generators wishing to be connected to the transmission system must enter into an electrical connection agreement or transmission services agreement with GridCo.

To ensure transparency and non-discriminatory access to the relevant information, the ETU must make available to the public at its offices the procedures for obtaining and terminating transmission interconnection services agreements with any licensee.

A transmission licence authorises the licensee to monitor and control the operation of the national interconnected network to provide open access transmission and interconnection services and provide open access transmission and interconnection services to operators domestically and internationally.

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There are three stages in acquiring an electricity transmission licence. At stage one, the prospective operator must acquire a provisional licence.

At stage two, the prospective licensee must obtain a siting clearance (siting permit) and a construction permit (authorisation to construct). A construction permit authorises the operator to physically construct its machinery and plants on the approved site. Stage three involves the acquisition of an operational licence (authorisation to operate). This authorises the operator to operate.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

Every bulk power customer (distribution utilities, companies, etc) is eligible to obtain transmission services at a fee if it satisfies all established technical and operational requirements.

A grid participant must be a legal entity with a valid connection agreement with the ETU for:

- constructing, owning and providing NITS infrastructure or ancillary services;
- injecting, wheeling or offtaking power for its own use or retail; or
- exchanging power either with the electricity networks of neighbouring countries or within the West African Power Pool.

Under section 11 of the Energy Commission Act 1997 (Act 541), participation in any segment of the power sector, either for transmission, wholesale supply, distribution or sale of electricity, requires a transmission licence.

A transmission licence is subject to the conditions determined by the Energy Commission. The commission is required to decide on any application within a maximum period of 16 days. Applications will be granted as a matter of course unless there is a compelling reason not to do so. These reasons must be founded on technical data, national security concerns, public safety or any other reasonable justification.

A distribution company or bulk customer who wishes to receive power from the NITS must design, construct and operate its network connected to the NITS under prescribed standards and the instructions of the ETU.

GridCo is responsible for the good governance and management of the NITS under the Grid Code and is guided at all times by generally accepted best practices for an independent system operator.

All wholesale suppliers, distribution companies and permitted bulk customers have the opportunity to connect to the NITS and have fair and equitable access to the services provided by the ETU.

No facilities can be connected without a minimum arrangement for communications, metering and protective relaying being in place.

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Any operator that wants to obtain transmission services must negotiate and execute a connection agreement with the ETU before the completion of the installation, erection or construction of the connection to the NITS. The connection agreement sets out the terms and conditions for connection to the NITS and provision of service.

The ETU is empowered to spell out its own transmission conditions and charges in the transmission agreement subject to approval by the Public Utilities Regulatory Commission (PURC).

The Energy Commission in consultation with the PURC prescribes standards of performance for the supply, distribution and sale of electricity to consumers by licensed public utilities. The standards of performance include matters relating to voltage stability, the maximum number of scheduled and unscheduled outages, the number and duration of load shedding periods, and metering.

Every grid participant that intends to establish and connect to the NITS any new or modified equipment or network that it owns, operates or controls must liaise with the ETU and the NITS asset owner, and obtain the required approval from the Energy Commission.

To avoid discrimination in the transmission of electricity, the ETU must develop and publish in detail all the requirements, qualifications and administrative procedures to be fulfilled or followed by those seeking to be provided services by the ETU.

A grid participant must construct, operate and maintain all equipment that is part of its facility under the requirements of the Grid Code, prudent utility practice and applicable national and international laws, protocols and standards.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

Ghana's transmission policy objective is to provide an adequate, safe and reliable electricity transmission network. To achieve this, the National Energy Policy requires the government to support private sector co-financing with the government for grid extension to designated franchised zones, to increase funding from the government and other multilateral and bilateral sources for the National Electrification Scheme and to support new service connections for electricity in the rural areas. There are many government incentives to encourage the expansion of the transmission grid. For instance, there are tax exemptions and reliefs, easy clearing at the ports and the like, meant to encourage expansion of the transmission grid.

Ghana's exchange controls were relaxed substantially in 2006 so that now the only necessary prerequisite for the repatriation of funds is to repatriate funds through an authorised dealer bank. These banks report foreign exchange transactions to the Bank of Ghana, but no exchange controls are imposed.

In 2013, Ghana passed the Ghana Investment Promotion Centre Act 2013 (Act 865) (the GIPC Act). Among other things, the GIPC Act's purpose is to encourage and promote investments in Ghana and to provide an attractive framework and a transparent, predictable and facilitating environment for investments into various sectors (including the energy sector) in

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Ghana. Foreign investors are now required to register with the Ghana Investment Promotion Centre (GIPC) before commencing business operations in Ghana. Upon registration, a foreign investor is entitled to receive investment support from the GIPC and benefit from the investment incentives under the GIPC Act.

The GIPC Act provides an express guarantee for the repatriation of dividends, foreign debt service costs and distributions of equity following the winding-up of the business. Repatriations from Ghana can be made in freely convertible currency without any restriction if the repatriation is done through a licensed bank.

Further, the GIPC Act provides a guarantee against expropriation or nationalisation by the government. A foreign investor cannot be compelled by law to cede his or her investment to another person. Every nationalisation or expropriation must be done under a law that provides for payment of fair and adequate compensation and a right to access the High Court of Ghana for determination of investor's interest or right and the amount of compensation to which the investor is entitled.

The government has also shown commitment to providing support for the expansion of its transmission facilities by providing guarantees and comfort letters, subject to parliamentary approval, to foreign investors who enter into power purchase agreements and other forms of support agreements with public utilities in Ghana. The government is also minded to provide special tax reliefs, subject to parliamentary approval, to foreign investors who invest resources in expanding the transmission grid.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

Rates and other economic terms and conditions for transmission services are determined by the PURC. The technical terms for the provision of transmission services are determined by the Energy Commission. The Grid Code contains technical standards and requirements for transmission services.

The only licensed utility that provides transmission services is GridCo. All grid participants are required to enter into a transmission agreement with GridCo before they can operate. All rates set by GridCo are subject to approval by the PURC.

The PURC provides the guidelines for a fixing rate to be charged by public utilities for their services. In doing this, the PURC considers such factors as the interests of the consumer; the interests of an investor; the cost of production of the service; and the assurance of the financial integrity of the public utility.

A public utility cannot directly or indirectly demand or receive a higher rate than the rate approved by the PURC. A public utility may, with the written permission of the commission, demand and receive from a consumer a special rate agreed to by the public utility and the consumer.

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The PURC may also fix a uniform rate throughout the country, region or district for a service provided by a public utility. In doing this, the commission may consider the population distribution in the country, the need to make the best use of a natural resource of the country and the economic development of the whole country.

All revisions of rates or new rates chargeable in respect of new services must be filed with the PURC at least 60 days before they become effective.

Before approving a rate, the PURC is required to give the public utility and consumers affected by the rate a reasonable opportunity of being heard. Rates approved by the PURC must be gazetted. In 2023, the PURC reviewed and approved the revised utility tariff rates for various categories effective 1 June 2023.

Entities responsible for grid reliability

13 Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

The regulators (the PURC and the Energy Commission) are responsible for the reliability of the transmission grid.

The functions of the PURC include the following:

- approving rates for provision of utility services;
- monitoring standards of performance for provision of a service; and
- protecting the interest of consumers and providers of utility services.

The Energy Commission performs functions including the following:

- granting licences to public utilities for the transmission, wholesale supply distribution, and sale of licences and natural gas;
- promoting and ensuring uniform rules of practice for transmission, wholesale supply, distribution and sale of electricity and natural gas; and
- monitoring standards of performance for provisions of services.

To maintain the stable and secure operation of the NITS and to provide the expected standard of service for the benefit of all grid participants, certain minimum technical, design and operational criteria are to be met by all grid participants seeking connection to the NITS.

GridCo is responsible for wholesale power supply reliability from generation and transmission to delivery at the bulk power distribution centres.

To ensure the reliability of the transmission grid, transmission licences are granted subject to conditions. The Energy Commission monitors and enforces compliance with all licence conditions. A contravention of the licence conditions may lead to suspension or cancellation of the licence.

As part of the compliance monitoring procedure, the licensee is required to submit to the Energy Commission detailed corporate performance statistics half-yearly and an annual

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report at the end of each financial year. The performance statistics include the benchmarks stipulated in all the relevant legislation and codes as well as the benchmarks stipulated in the respective licences.

Authorised officers of the Energy Commission have the right of free access to the premises or operational area of the licensee to inspect and ensure compliance with the licence conditions.

Before suspension or cancellation of a licence, the defaulting licensee must be given an opportunity to respond to the commission's written complaint and the proposed action of the remedy.

The commission may cancel a licence that has been granted but has not been utilised within one year from the date of issue after giving 30 days' notice to that effect. The ETU monitors and reports to the Energy Commission the performance of the NITS in terms of quality and reliability (ie, adequacy and security) of supply.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

To construct and operate distribution networks, an operator requires an electricity distribution licence issued by the Energy Commission. The Volta River Authority is exempted from the requirement for a licence to produce and supply wholesale electricity from the hydro-power installations in the Volta River basin. An electricity distribution licence is site-specific.

In Ghana, a distribution licence includes a sale licence. This is because the electricity distributors also sell electricity to consumers. A distribution and sale licence authorises the licensee to operate a distribution network, and to distribute, sell or retail electricity.

There are four stages for the acquisition of an electricity distribution licence.

Stage one involves the acquisition of a project registration certificate. To obtain a project registration certificate, the applicant must submit a signed letter to the Executive Secretary of the Energy Commission. The applicant will also be required to submit relevant documents, including its business registration documents.

Stage two involves the acquisition of a siting permit. An applicant must submit the required documents to the Energy Commission, including a description of the distribution network and a site analysis report.

Stage three involves the acquisition of a construction permit. An applicant must submit the required documents to the Energy Commission including an Environmental Protection Agency permit, and a health, safety and environmental plan.

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The final stage and involves the acquisition of authorisation to operate. To obtain this authorisation, the applicant will be required to submit relevant documents, including an operational experience and expertise or operation and maintenance agreement.

A distribution licence is granted on the conditions determined by the Energy Commission and includes a condition that the rates or charges for services are subject to the approval of the Public Utilities Regulatory Commission (PURC).

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

All power consumers, especially the bulk customers or special load customers have access to the distribution grid. The distribution utility must ensure that all requirements are met before granting access.

A participant seeking to engage in embedded electricity generation or distributed generation services must negotiate and conclude a distribution network access agreement with the relevant licensed distribution entity. This must be done while seeking a licence from the Energy Commission.

The conditions for connection agreements must comply with the National Electricity Grid Code. The Energy Commission facilitates these negotiations as and when required.

Licensed distribution service providers must connect embedded electricity installations to their distribution network.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

Under Ghana's National Energy Policy, the policy direction of the government in respect of the distribution infrastructure is to seek adequate investment to improve the electricity distribution network and thereby reduce high system losses and improve the poor quality of electricity supply.

Accordingly, the policy requires the government to:

- assist distribution utilities in regaining their financial health;
- encourage the distribution utilities to seek commercial loan financing to modernise their infrastructure;
- encourage the injection of investment capital from private sources and from the domestic market in the medium to long term; and
- support management in the restructuring of the distribution utilities' operations towards achieving improved operational performance.

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There are many government incentives focused on encouraging the expansion of the distribution network.

For instance, the Renewable Energy Act 2011 (Act 832) establishes the Renewable Energy Fund. The money from the Fund is applied primarily for the provision of financial incentives, feed-in-tariffs, capital subsidies, production-based subsidies and equity participation for, among others, grid interactive renewable electricity and mini grid and off grid renewable power systems for remote areas and islands.

The government, on its part, is committed to improving and expanding the distribution network to achieve its universal accessibility objective. In that light, the government is minded to grant guarantees, comfort letters and tax benefits, subject to parliamentary approval, to foreign investors in the power sector over some time.

Foreign investors also benefit from the incentives under the Ghana Investment Promotion Centre Act 2013 (Act 865), including guarantees from expropriation, repatriation of dividends, capital and debt costs in free convertible currency through a licensed bank.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

Rates and other economic terms and conditions for distribution services are determined by the PURC. The technical terms for the provision of distribution services are done by the Energy Commission.

The Energy Commission in consultation with the PURC prescribes standards of performance for the supply, distribution and sale of electricity to consumers by licensed public utilities.

The standards of performance are contained in the Electricity Supply and Distribution (Standards of Performance) Rules, 2008 (LI 1935) which deals with matters relating to voltage stability, the maximum number of scheduled and unscheduled outages, the number and duration of load shedding periods, and metering.

An electricity supplier must ensure that the voltage at the point of supply to a customer's premises or electrical installation is within the prescribed voltage levels. The prescribed voltage levels are 230 volts, 400 volts, 11 kilovolts, 33 kilovolts or 34.5 kilovolts.

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REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

In Ghana, an electricity sale licence is required for the sale of power to customers. Distribution companies hold both an electricity distribution licence and an electricity sale licence. This is because the electricity distributors also sell electricity to consumers.

A distribution and sale licence authorises the licensee to operate a distribution network and to distribute, sell or retail electricity.

There are two stages involved to acquire an electricity sale licence. These are the acquisition of a provisional licence and acquisition of an operational licence (authorisation to operate).

The sale of power to consumers in Ghana is done by three distribution companies, namely:

- the Electricity Company of Ghana;
- the Northern Electricity Development Company; and
- Enclave Power Company Limited.

The authorities that grant approvals are the Energy Commission and the Public Utilities Regulatory Commission (PURC).

There are two types of markets, namely, the regulated market and deregulated market.

The regulated market includes the distributors and sellers that are directly supervised by the PURC. Their tariffs are set by the PURC.

The deregulated market is made up of bulk consumers or customers with an average demand of 3 megavolt amperes or annual consumption of 6 gigawatt hours. They must obtain a permit as bulk customers from the Energy Commission before they can negotiate with suppliers or generators of electricity.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

In Ghana, the distribution and sale of power are done by the same entities. The PURC determines distribution or sale service charges in accordance with the PURC Guidelines on Tariffs, 2017 . Because distribution and sale are done by the same entities, the tariff for end users for the distribution of power is embedded in the tariff for the sale of power. Power sales tariffs for end-users, the End-User Tariffs, include a charge for services rendered by the distribution utility, as approved by the PURC.

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Wholesale suppliers are entities that generate power and feed into the grid. They also sell power to bulk customers or the electricity distribution utilities. The tariffs to be charged by wholesale suppliers are also subject to approval by the PURC.

The PURC publishes approved tariffs every year, quarterly.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

The rates or charges for wholesale supply of electricity are determined by the PURC.

As a regulatory requirement, utility companies are required to submit rates to the PURC for approval. The PURC approves rates after careful examination of the tariff filings made by the utility company.

The PURC Guidelines on Tariffs guide the PURC in approving tariffs for the supply of electricity. The Guidelines are informed by the following objectives.

- Consumer interest: this involves maintaining an optimum balance between affordability and availability of service, fair apportionment of total cost of supply to various classes of consumers, and ensuring long term availability of the service among others.
- Investor/utility interest: this requires allowance for an appropriate rate of investments to ensure ability of the utility company and its investors to recover operational and capital expenditure and earn a reasonable return.
- Reasonable cost of production: this involves examination of the cost of production against agreed key performance indices and efficiency benchmarks to exclude unreasonable or inefficient costs.
- Financial viability: this involves allowance for prudent costs as pass-through costs with provision for reasonable return on investment. This includes power purchase costs and provision of adequate revenue for the sustainability of the business.
- Uniformity of prices and population distribution: this involves allowance for a tariff structure that incorporates uniform rates for all customers within a particular category of consumers regardless of geographical location, and incorporates different rates for different consumer categories in accordance with cost of service.
- Economic development of the country: this involves allowance for special rates for priority consumers whose activities may enhance economic development.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

There are standards of performance to be observed by the utilities. Except where a licence or authorisation given to a public utility is revoked, suspended, cancelled or expires, a public utility cannot refuse to provide its service to any person within its catchment area without the prior written permission of the Energy Commission.

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Licensed public utilities are required to maintain their equipment and property used in the provision of the service in a condition that enables them to effectively provide their services. They must make the reasonable effort necessary to provide to the public a service that is safe, adequate, efficient, reasonable and non-discriminatory.

Public utilities must submit monthly bills to their consumers. Strict rules govern the termination of services by public utilities.

Licensed public utilities are required to make the repairs, changes, extensions and improvements in or to the service that are necessary or proper for the efficient delivery of the service to the consumer. Licensed public utilities are subject to penalties for failure to discharge their service obligations, including payment of compensation to consumers who suffer on account of that failure.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The Energy Commission and the Public Utilities Regulatory Commission (PURC) are the regulatory bodies established to ensure the proper functioning of all players in the energy sector and to create the requisite conducive environment for the protection of private investment in the sector.

The Energy Commission is mandated, among other things, to license and regulate the technical operations of service providers in the electricity supply industry. The Commission performs these regulatory functions by enforcing licensing conditions, technical rules of practice and standards of performance rules.

On the other hand, the PURC is responsible for the economic regulation of the electricity sector. Its main function is to set tariffs and monitor compliance with the performance standards of the service providers in the power supply chain.

The PURC is responsible for approving electricity tariffs, monitoring the quality of service and consumer protection.

Scope of authority

23 | What is the scope of each regulator's authority?

The Energy Commission has responsibilities for the licensing of operators and setting technical standards for the power sector. The Energy Commission also advises the Minister for Energy on energy sector policy and planning issues.

The statutory functions of the Energy Commission include to recommend and advise the Minister for Energy on national energy policies; to prepare, review and update periodically

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indicative national plans to ensure that reasonable demands for energy are met; and granting licences to public utilities.

The Energy Commission is required to establish and enforce uniform rules of practice and standards of performance for public utilities engaged in the transmission, wholesale supply, distribution and sale of electricity and natural gas.

The Energy Commission also has a role to play in developing and promoting renewable energy sources in Ghana. The commission is independent.

The PURC's regulatory mandates are:

- to provide guidelines on rates chargeable for electricity services;
- to examine and approve the rates;
- to protect the interests of consumers and providers of utility services;
- to monitor the standard of performance of the utilities; and
- to promote fair competition.

Under the Energy Commission Act 1997 (Act 541) (the Energy Commission Act), the PURC is also required to approve charges for the supply, transportation and distribution of electricity.

The PURC approves rates and charges chargeable in respect of renewable energy sources.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The Energy Commission was established by the Energy Commission Act. The Commission is governed by the Board.

The source of funds for the Commission is the Energy Fund. The Commission manages and administers the Fund. The sources of money for the Fund are:

- a proportion of the government levy on electricity, natural gas and petroleum products determined by the cabinet and approved by Parliament;
- monies accruing to the Commission in the course of the performance of its function; and
- grants.

Parliament is statutorily required to annually provide the Commission with such monies as may be necessary for the efficient performance of the functions of the Commission.

The Minister for Energy is allowed to give directions of a general character to the Commission concerning the functions of the Commission where the Minister considers it to be in the interest of the public.

The President appoints the members of the Board who act as Commissioners of the Energy Commission. Appointment of the executive secretary, other staff and employees of the Commission is done by the President acting under the advice of the Commission given

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in consultation with the Public Services Commission. The Minister responsible for Energy in consultation with the Minister responsible for Finance determines the allowance of members of the Board.

Members of the Board of the Commission are required to disclose their interest in any contract to be entered into by the Commission or any matter to be discussed by the Board and an interested board member will be disqualified from discussions and voting in respect of that matter. However, it may also be decided at the meeting that the interested board member should not be disqualified.

The PURC is established by the Public Utilities and Regulatory Commission Act 1997 (Act 538) (the PURC Act).

The President appoints the Commissioner and members of the PURC. The President also determines their allowance.

The Commission is not subject to the direction or control of any person or authority in the performance of its functions.

The PURC Act specifies four sources of funding for the PURC:

- government subventions;
- loans granted to the PURC;
- monies accruing to the PURC in the course of the performance of its functions; and
- grants it may obtain.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

A complaint that relates to the provision of utility service or rates chargeable for service provided by a public utility is required to be referred to the PURC for investigation and settlement. The PURC may apply to the High Court for the enforcement of its decision or direction.

Persons who are dissatisfied with a decision of the Energy Commission concerning a licence application may have the decision reviewed by the Commission.

An application for the review of a decision is required to:

- be made in writing;
- set out the decision to which the application relates;
- set out in detail the grounds on which the applicant seeks a review of the decision in question;
- be accompanied by any information or evidence that the applicant considers should be considered by the commission; and
- be lodged with the Commission within 14 days after the decision is given.

Once the application for the review of a decision has been received, the Commission:

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- may stay the execution of the decision to which the application relates;
- will decide on the review within 30 days;
- may confirm, amend or substitute the decision; and
- will give the applicant written notice of the Commission's decision, and the reasons for the decision on the review.

An applicant who is dissatisfied with a decision of a review by the Energy Commission has a right to appeal to the Minister for Energy, and subsequently to the courts. The appeal must be made within 14 days after receipt of the written notice of the decision appealed against.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

As the regulator of the wholesale electricity market, the Energy Commission has the power to approve or block mergers or other changes in control over businesses in the sector. The Commission requires that all operators be licensed, and licences granted by the Commission are not transferable except with the Commission's prior written approval. So, whenever a merger occurs, a new licence has to be applied for.

However, no licence is required where the entities were named, and the fact of the merger was mentioned, in the regulations of the licensed operator or the application for the licence.

To avoid double licensing in the event of a merger, the merging entities are required to prepare a single corporate module or structure that reflects the merger.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

A licensed operator that intends to undergo a merger must state that in its application for a licence, specifying the new corporate identity.

The non-licensed company merging with a licensed operator must demonstrate to the Energy Commission that it has all the technical and financial capacities to operate as an independent power operator.

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Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The current legal regime does not make any express provision for the regulation of anti-competitive practices in the electricity market. However, the Public Utilities Regulatory Commission (PURC) is mandated to promote fair competition among public utilities.

The PURC is responsible for competition regulation and the quality of services provided. So, in its guidelines for fixing rates for services, the PURC permits public utilities to consider the cost of production. However, in approving rates, the PURC may investigate and determine the reasonableness of the rate being charged or proposed to be charged by third parties to the public utility.

The Energy Commission is also empowered to promote and ensure uniform rules of practice for the transmission, wholesale supply, distribution and sale of electricity.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

It is expected that the market rules that exist in the wholesale electricity market are the standards that will be applied in determining anticompetitive or manipulative conduct. However, these market rules are still draft form, being developed by the Ghana Grid Company.

So, in determining anticompetitive or manipulative conduct, the Energy Commission and the PURC apply their own benchmarks. They also apply the various legislative instruments and licensing conditions as well as international best practices.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The PURC has the statutory power to promote fair competition among public utilities. The law does not specify how this power is to be exercised for the purposes of precluding or remedying anticompetitive or manipulative practices.

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INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

The law requires all entities engaging in activities within the electricity supply industry to ensure that local content and local participation form part of those activities. The interest or equity shareholding of a Ghanaian in the electricity supply industry is not transferable to a non-Ghanaian.

Operators within the electricity supply sector must be registered in Ghana. And, an operator must include in its corporate structure all the foreign companies it intends to partner or deal with (eg, for the supply of equipment).

For the wholesale power supply industry and the renewable energy sector, operators must ensure local equity participation of 15 per cent initially, which is expected to grow to 51 per cent in 10 years.

For investments in electricity supply transmission infrastructure, electricity sales services and electricity brokerage services, there must be at least 80 per cent initial minimum local participation, which is expected to grow to 100 per cent in five years.

Operators in the electricity distribution industry are also required to ensure a 30 per cent minimum local participation upon start up, which is expected to grow to 51 per cent in 10 years.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

An authorisation is required to operate interconnectors in line with the National Interconnected Transmission System (NITS) for the transmission of electricity throughout the country. An operator requires a licence granted by the Energy Commission authorising the licensee to operate the interconnector.

This imposes conditions for the safe, reliable economic dispatch and operation of the NITS for the transmission of electricity without discrimination to a wholesale supplier of electricity. Similarly, conditions are imposed in that tariffs to be charged by the licensee for its services are subject to the approval of the Public Utilities Regulatory Commission.

Even upon the grant of a licence for distribution and sale of electricity, it must be shown that the licensee can interconnect distribution facilities or installations with transmission systems in the designated area.

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Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Access to interconnectors is governed primarily by the National Electricity Grid Code and the Electricity Transmission (Technical, Operational and Standards of Performance) Rules, 2008 (LI 1934).

In relation to cross-border electricity supply, the Economic Community of West African States Energy Protocol and the West African Power Pool (WAPP) agreement are the applicable rules.

Ghana's imports and exports of electricity are driven primarily by two factors: the need to meet growing peak demand and the variability of the Volta River flow rates. The primary electricity trading partners are the Ivory Coast and Togo, with which electricity is traded via the existing transmission interconnections.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

The laws regulating the electricity supply industry do not impose restrictions on transactions between electricity utilities and their affiliates.

Licences granted by the Energy Commission, however, are granted on conditions stated in each licence. The conditions in licences may impose some restrictions on transactions between electricity utilities and their affiliates.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The laws regulating the electricity supply industry, do not impose restrictions on transactions between utilities and their affiliates.

If such restrictions are specified in a licence granted by the Energy Commission, the Energy Commission would be responsible for enforcing such restrictions. It is also likely that the sanctions for non-compliance would be stated in the licence conditions.

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UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

Ghana's energy sector is the biggest driver of the country's debts, as the country currently owes independent power producers about US\$1.58 billion. This debt stems directly from the 'take-or-pay' power purchase agreements that the government had signed with Independent Power Producers (IPPs), which require the government to take electricity that remains unused while amassing large debts.

In May 2023, the government attempted to restructure the debts owed to IPPs as part of its efforts to implement conditions to secure a US\$3 billion bailout from the International Monetary Fund. The negotiations fell through, as the IPPs rejected the government's restructuring proposal and threatened to shut down supply of power from 1 July 2023.

However, in June 2023, the Electricity Company of Ghana successfully reached an interim deal with the IPPs for a grace period to work towards a permanent settlement of the debt.

Renewable and alternative energy remain very relevant to the electricity regulation industry in Ghana, as the government indicated in its 2023 Budget Statement that the second phase of the 912 kilowatt Jubilee Solar PV Project will be completed by the end of the year to significantly reduce the consumption of grid electricity.



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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

Constitutional framework

The seventh schedule of the Constitution of India sets out the subjects on which the parliament and the state legislatures can frame legislation. It demarcates such subjects into three lists:

- the Union List;
- the State List; and
- the Concurrent List.

While Parliament and the state legislatures legislate exclusively upon subjects mentioned in the Union List and the State List respectively, the subjects mentioned in the Concurrent List can be legislated upon by both. However, in the case of a conflict between the laws made by the state legislatures and Parliament on the same subject matter under the Concurrent List, the state legislation will be void to the extent it is inconsistent with the legislation made by parliament. Electricity is a subject mentioned in the Concurrent List.

Legislative framework

The Electricity Act 2003 (the Electricity Act) is the parent legislation governing the electricity sector in India (other than nuclear energy, which is governed by the Atomic Energy Act 1962). The Electricity Act consolidated various laws governing the electricity sector in India and introduced key reforms such as:

- restructuring of state electricity boards into separate entities governing generation, transmission and distribution activities;

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- delicensing most generation activities, recognising power trading as a distinct activity and promoting captive generation;
- introducing the requirement for providing non-discriminatory open access;
- constituting electricity regulatory commissions at state and central levels (ie, state electricity regulatory commissions (SERCs) and the Central Electricity Regulatory Commission (CERC) respectively), and an appellate tribunal (ie, the Appellate Tribunal for Electricity, among other things) to hear appeals against decisions of the SERCs and the CERC;
- recognising the Central Electricity Authority (CEA) as the technical advisory body to the government of India and the electricity regulatory commissions; and
- promoting renewable energy projects.

The Electricity (Amendment) Bill 2022 was introduced in Lok Sabha in August 2022 and has been referred to the Standing Committee on Energy for further consideration. This bill proposes the following key amendments to the Electricity Act:

- requiring that distribution companies (DISCOMs) provide non-discriminatory access to their network for all other DISCOMs operating in the same region;
- deemed grant of licenses in cases where there is inordinate delay in processing the applications of grant of licenses by the relevant commission; and
- authorising the CERC and SERCs to settle disputes concerning the performance of contracts for sale and transmission of electricity.

The government of India, under the provisions of the Electricity Act, and in consultation with CEA and state governments, has prepared the National Electricity Policy 2005 (NEP) and the Tariff Policy 2016 (Tariff Policy) for the development of the power sector, based on the optimal utilisation of natural resources. A draft of the updated National Energy Policy was issued in 2021 by the Ministry of Power (the Power Ministry), which is yet to be notified. The draft Policy proposes actions for the revitalisation of distribution companies, development of efficient markets for electricity, and generally a move towards light-touch regulation.

In May 2018, the Power Ministry issued draft amendments to the Tariff Policy. Some of the key amendments proposed include:

- stricter operating norms with certain restrictions on aggregate technical and commercial losses;
- adoption of direct benefit transfer for subsidy payments;
- moving electricity consumers from a post-paid to a pre-paid metering system;
- prescribing mandatory debt-to-equity ratio for financing the capital cost of future projects;
- allowing for a change in law relief on the introduction of any charges and surcharges after the awarding of the bids;
- stricter implementation of renewable purchase obligations (RPOs);
- providing a service standard framework for the distribution of electricity;
- identifying clear categories of consumers for tariff fixation; and
- reduction of cross-subsidy charges.

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Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

The Electricity Act restructured the electricity sector into separate generation, distribution and transmission sectors. Additionally, there exists a separate market for electricity trading that is undertaken by companies with a trading licence or at power exchanges.

Generation

Generation of electricity (including captive generation) is a delicensed activity (other than for hydro projects exceeding the notified capital cost, for which an approval of the CEA is required). Private entities are permitted to set up power stations using any type of fuel or power source (eg, coal, gas, wind, solar and biomass) except for nuclear power projects, which may be undertaken only by a government of India entity or a government company (ie, where the government holds a minimum of 51 per cent of the shareholding).

While India has historically been a power deficit country, the Power Ministry has recently reported a significant shift – India is now a power surplus nation. Between 2014 and 2021, India augmented its power generation capacity with 83,920 megawatts of fossil fuel based generation and 76,900 megawatts of non-fossil fuel generation.

Conventional power

Power generation activities in India have until now been dominated by long-term power offtake purchase agreements. For thermal power projects (coal and gas) and hydro projects, long-term power is procured either through a negotiated route or a competitive bidding route. Under the negotiated route, a distribution company's power procurement tariff is determined by the relevant electricity regulatory commission, upon considering various factors such as return on equity, interest on loans and working capital, depreciation, operation and maintenance expenses and allowances for any renovation and modernisation. Under the competitive bidding route, the tariff discovered through a competitive bidding process is adopted by the relevant electricity regulatory commission and procurement is governed by standard bid documents including power purchase agreements, which are issued by the Power Ministry. While the statutory option to procure electricity under the negotiated route still exists, the Power Ministry has directed state governments and distribution companies to procure power only under the competitive bidding route (except that negotiated route may be used for hydropower projects until the end of 2022 and waste to energy projects).

Before 2013, all tariff-based competitive bidding for thermal power projects was done through standard bidding documents, which provided for two modes for procurement (ie, Case 1 and Case 2). Under Case 1, all project assets and inputs (eg, land, fuel, water, etc) and relevant statutory approvals required for the construction and operation of, and the supply of power from, the power station had to be arranged by the power producer, while the same had to be arranged by the distribution licensee in Case 2. While these standard bidding documents provided a comprehensive framework for procurement of electricity, they did not address key concerns such as:

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- shortage of fuel availability in the domestic market;
- indexation of fuel prices to market rates;
- uncertainty in obtaining key approvals such as environmental clearance;
- delays in land acquisition; and
- foreign exchange variations.

To address the manifold concerns of all stakeholders, in 2013, the Power Ministry issued revised competitive bidding guidelines and standard bidding documents that provided for two modes of bidding and supply of electricity (the Revised standard bidding documents (SBDs)):

- design-build-finance-own-operate model (DBFOO) (on the lines of Case 1); and
- design-build-finance-operate-transfer model (DBFOT) (on the lines of Case 2).

The Revised SBDs prescribe higher normative availability, single variable bidding, restrictions on usage of fuel procured at subsidised rates from government suppliers, pass-through of variable charges (including the cost of fuel) to consumers, detailed construction, operation and maintenance standards, the appointment of a mandatory independent engineer for each project and also provision for the cost of imported fuel to be benchmarked at actuals and linked to prevailing prices on international indices.

Following the dismal industry response to the competitive bidding process for allotment of ultra-mega power projects (UMPPs, ie, coal-based projects of at least 4 gigawatts capacity) that were proposed on the DBFOT model, and general criticism from developers and lenders concerning various aspects of the DBFOT model, the Power Ministry issued draft guidelines and standard bidding documents for UMPPs. The draft bidding documents for UMPPs (which are based on domestic captive coal blocks) contemplate a build, own and operate structure where the government provides part of the land for the power plant and the captive coal block on a long-term lease to the selected bidder and the selected bidder is required to build and operate a power plant and sell the power generated under a long-term power purchase agreement with state distribution licensees. The draft proposes that upon expiry of the power purchase agreement term the power generator will cease to have any rights over the coal block but will continue to have leasehold rights over the power plant land.

In addition to long-term power procurement guidelines, the Power Ministry has introduced guidelines (and revised standard bidding documents) for medium-term power procurement (ie, one year to five years) of electricity from coal, gas or hydro-based power stations on a DBFOO basis, and power traders and distribution licensees that have back-to-back arrangements with power generators. In January 2019, the Power Ministry released new norms for the procurement of electricity for the medium-term (five to seven years). The Power Ministry has also issued revised guidelines for the procurement of power on a short-term basis (ie, for a period of more than one day up to one year). The revised guidelines introduce tariff determination through an e-auction with an overall aim of reducing power procurement costs in the short term for distribution licensees. Additionally, the Power Ministry is also in the process of finalising new bidding documents for short-term power procurement (one day to one year).

Further, for coal-based generation of electricity, the Power Ministry ran a scheme for procurement of aggregate power of 2,500 megawatts for three years from commissioned coal-based generating companies that are not a party to a power purchase agreement. Through a

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notification, the Power Ministry has also recently liberalised the eligibility criteria of thermal power plants for participation in auctions. The notification has permitted power plants that do not have power purchase agreements to participate in an auction of coal linkage for a short-term period. The government of India has also recently approved a single window based e-auction of non-linkage coal for both regulated sectors such as the power sector and for non-regulated sectors (including merchant trade). The government's policy in this regard is 'one nation – one grade – one rate', to ensure parity of price and availability of coal throughout the country.

Other than the above amendment, to introduce competition, transparency and private sector participation in the coal sector, the government of India is also looking to further amend the methodology for auction of coal and lignite mines or blocks for sale of coal or lignite. Some of the key amendments proposed by the government of India through Part 4 of the Atmanirbhar Bharat Plan, dated 16 May 2020, include:

- the introduction of a revenue-sharing mechanism instead of the regime of a fixed rupee per tonne;
- any party is allowed to bid for the coal block and sell it on the open market;
- the liberalisation of entry norms for nearly 50 blocks offered immediately and with no eligibility conditions, other than an upfront payment;
- partially explored blocks to be open for auction;
- increased private-sector participation in exploration; and
- rebates offered in revenue share payments in the event of the early production of coal.

In November 2022, the Power Ministry launched a scheme for procurement of power with coal linkages on a finance-own-operate (FOO) basis under the SHAKTI Policy (Scheme to Harness and Allocate Koyla Transparently in India). Under this scheme, the government intends to purchase electricity on a long term basis (12 to 15 years) and medium term basis (exceeding one year up to seven years) through tariff-based competitive bidding.

The Power Ministry has also recently introduced acquire-operate-maintain-transfer (AOMT) based public-private partnership model for transmission assets with a view to maximise savings for the government while unlocking private sector capabilities.

Non-conventional power

For renewable energy projects, power is typically procured through contracts entered into with state utilities under specific state policies at a regulator determined feed-in tariff or at a tariff discovered through competitive bidding depending on the state or central policy. All distribution utilities, captive-power users and open-access consumers are mandated to procure a prescribed quantum of electricity generated from renewable energy sources (ie, RPO). The Tariff Policy sets out several measures to promote renewable energy development in the country, including:

- an increase in the solar RPO to 10.5 per cent by 2022;
- the procurement of power from renewable energy sources by distribution licensees through competitive bidding; and
- applicability of RPOs on co-generation power plants.

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To further the objective of renewable energy development, the relevant electricity regulatory commissions have introduced market-based policy instruments (called renewable energy certificates (REC)), which the renewable energy producers can get if they do not opt for the preferential feed-in tariff offered by distribution utilities. To incentivise distribution licensees to procure renewable energy, all distribution licensees procuring renewable power above their RPOs are also eligible for obtaining RECs. The CERC (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations 2022 were notified in December 2022. These regulations provide procedures and eligibility requirements for issuance and sale of RECs. Under the current regulatory framework, RECs may be issued to open access consumers, captive generating stations based on renewable energy sources and DISCOMs. Additionally, the Supreme Court of India has also upheld the imposition of RPO on captive power generators and open-access consumers on the ground that there is a need to promote renewable energy. On the other hand, despite electricity regulatory commissions having the authority to enforce RPOs, there is repeated failure by the state distribution utilities to comply with their RPO requirements, and accordingly, there is an abundant supply of RECs in the market, with few takers.

To further the government's policy objectives to better RPO compliance, penalties for failure to meet RPOs are proposed to be increased under the Electricity (Amendment) Bill 2022. To better the monitoring of RPO compliance, the Ministry of New and Renewable Energy has also constituted the National Portal for Renewable Purchase Obligation to manage RPO compliance issues across states and publish monthly reports on RPO compliance.

Captive power plants

Another mode of setting up generation facilities is through captive power plants where the captive power user has to hold a minimum of 26 per cent of the ownership of such a power plant and should consume at least 51 per cent of the annual aggregate electricity generated by such a power plant. On 30 June 2023, the Electricity (Amendment) Rules 2023 were notified, which provides that each captive power user, including those in a group captive structure, is required to hold at least 26 per cent ownership in the captive generating plant. Prior to this amendment, a minimum of 26 per cent was required to be collectively held by all captive users. In addition to that, the amendment also provides that if the captive power generating plant is set up by an affiliate company, the captive user would have to hold a minimum of 51 per cent ownership in the affiliate company. The amendments have met with stiff industry opposition as in case of an affiliate company setting up the captive power generating plant, the other affiliate company being the captive user is required to hold not less than 51 per cent of the ownership, while on the other hand, for un-related entities, the captive user is only required to have not less than 26 per cent ownership in the captive power generating plant. It seems that the government is reconsidering the amendments to address these issues. Additionally, the CERC has amended its regulations, to disqualify renewable energy generators (including captive generators) – to the extent of their self-consumption and selling of power on open access while availing promotional wheeling, transmission, cross-subsidy or banking charges – from obtaining the benefit of RECs. The amendment aims to reduce the unsold inventory of RECs, of which a major portion is contributed by captive generators. The CERC was of the view that developers under the third-party model were able to leverage the concessional benefits while participating under the REC framework and has therefore amended the regulations to prevent developers from doing so. However, the CERC has given renewable energy generators (including captive generators) the option of availing the benefit

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of RECs three years after they forgo the benefits of concessional transmission or wheeling charges or the banking facility benefits (or both).

Transmission

Transmission of electricity in India is a licensed activity and transmission systems are divided into interstate and intra-state transmission systems. The interstate transmission system is mainly owned and operated by Power Grid Corporation of India Ltd, a government of India-owned company, and the intra-state transmission systems are owned and maintained by respective state transmission utilities.

Transmission projects may be undertaken for developing new transmission systems or for strengthening the existing transmission system (which typically include investments in substations along with transmission lines for augmenting the capacity of the existing transmission system). Like generation projects, such projects may be implemented under two modes, namely the negotiated route (where the transmission tariff is determined by the relevant electricity regulatory commission) and the competitive bidding route (where the transmission tariff is discovered through competitive bidding under standard bidding documents). For interstate transmission projects, the Tariff Policy states that while all future interstate transmission projects should ordinarily be developed through competitive bidding, the central government may give an exemption for certain projects that are of strategic importance or technical upgrading and where works are required to be done to cater to an urgent situation on a case-by-case basis. For intra-state transmission projects, the Power Ministry requested the state and union territory governments to adopt a tariff-based competitive bidding route for the development of projects costing above a threshold, to be decided by the SERCs.

Distribution

The sale and distribution of power to consumers is undertaken under a single licence and once the distribution licence has been issued, the licensee does not require a separate licence for the sale of power. However, the Electricity (Amendment) Bill 2022 not only expands the meaning of distribution companies but also aims to delicense the distribution sector on the same lines as the power generation sector. The distribution sector has been the weakest link in terms of financial and operational sustainability, a realisation that has led to many such changes in the sector.

It has also been indicated under the Atmanirbhar Bharat Plan that privatisation of the distribution of electricity may also improve the sub-optimal performance of the power distribution and supply sector. However, while the government of India is moving towards privatisation of the distribution and supply sector, it was noted in the budget speech for the financial year 2020–2021 that both government and private distribution companies have started monopolising. Thus, the sector needs to provide a choice to consumers to promote competition. Also, the Electricity (Rights of Consumers) Rules, notified on 31 December 2020, empower customers with rights against distribution companies and provides access to the continuous supply of quality and reliable electricity to increase accountability of the distribution sector.

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Trading

Electricity trading is a distinct recognised activity for which a separate licence is required (except for distribution licensees) from the CERC or a SERC (for interstate and intra-state trading respectively). Trading may involve the purchase of electricity from generating stations or distribution licensees for sale to end consumers.

Trading has led to the rise of real-time markets, which allow distribution licensees to buy electricity an hour before the delivery. The CERC (Power Market) Regulations, 2021 allow power markets to schedule and deliver transactions for the day ahead contracts and real-time contracts in coordination with the National Load Despatch Centre.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

Generation is a delicensed subject; however, construction, operation and maintenance of a generation facility require permits, consents and approvals under other laws relating to land acquisition, environmental clearance, corporate and labour compliances, approvals for use of restricted land and consent to establish and operate the power station from pollution control authorities (except for renewable energy projects that fall under the white category and are exempt from the requirement of obtaining consent to establish and operate). Further, in the case of power stations using domestic coal, the developer is required to obtain a coal linkage (which provides for assured fuel supply from the coal mines of Coal India Ltd and its subsidiaries) or use coal extracted from a coal block specifically allotted to it by a government entity. If coal is used from an allotted mine, the developer is also required to obtain specific approvals (such as an environmental clearance) concerning the coal mine. Earlier, the Ministry of Environment, Forests and Climate Change and the government of India (Environment Ministry) mandated that standalone coal-fired thermal power plants of all capacities are required to be supplied with, and are required to use, raw, blended or beneficiated coal with an ash content not exceeding 34 per cent, on a quarterly average basis.

All power-generating stations are also required to comply with technical standards prescribed by the Central Electricity Authority (CEA), including those concerning the construction of power plants, safety requirements for construction, operation and maintenance. Hydropower projects above 25 megawatts have an additional requirement to obtain a techno-economic clearance from the CEA before the commencement of construction works. In August 2022, the CEA issued revised guidelines for formulation of detailed project reports (DPR) for hydroelectric schemes. A DPR of hydroelectric schemes is required to be submitted to the CEA for techno-economic concurrence. Similarly, a clearance is required from the Atomic Energy Regulatory Board for atomic energy-based power plants.

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Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

Under the Electricity Act 2003 (Electricity Act), each transmission licensee is required to provide non-discriminatory use of transmission lines, distribution systems or associated facilities to a licensee, consumer or a person engaged in generation. An applicant is first required to obtain connectivity to the transmission network and then obtain long, medium or short-term open access, as the case may be, depending on the period for which it requires the transmission capacity. On obtaining these approvals, an applicant can interchange power with the transmission grid.

Grant of connectivity and long, medium or short-term open access is governed by regulations issued by the Central Electricity Regulatory Commission (CERC) and the respective state electricity regulatory commissions (SERC). In January 2019, the CERC issued amendments to regulations dealing with the interstate transmission system with the aim of planning and developing an efficient, coordinated, reliable and economical system for the smooth flow of electricity from generating stations to the load centres. These amendments specifically include renewable energy developers and operators of solar and wind power parks. The amendments provide an enabling framework for the transfer of connectivity (in limited circumstances such as transfer to the parent company) granted for renewable energy projects. In March 2019, the government of India recognised hydro power projects as a renewable source of power. However, the waiver of interstate transmission system (ISTS) charges, which was granted to solar and wind projects did not apply to hydro power projects. To address this disparity the Power Ministry has decided to extend the waiver of ISTS charges on the transmission of electricity generated from new hydro power projects. This waiver will apply only to projects for which construction work is awarded and a power purchase agreement is signed on or before 30 June 2025. Under the amendments made to the CERC connectivity regulations in 2019, the CERC on 20 February 2021 issued revised detailed procedures for grant of connectivity to projects based on renewable sources to interstate transmission systems. This provides much-needed clarity on procedures to be followed by solar and wind park developers.

The CERC (Connectivity and General Network Access to the inter-state Transmission System) Regulations 2022 have been issued in line with the concept of 'one nation, one grid' and facilitates non-discriminatory open access to the ISTS to generating companies through general network access (GNA). These regulations were recently amended to introduce GNARE (general network access-renewable energy) and T-GNARE (temporary general network access-renewable energy) with a view to enable long term and temporary open access exclusively for drawal of renewable energy.

The Power Ministry has mandated that all conventional grid-connected electricity units (coal, gas, liquid fuel, hydro), nuclear-generating stations, captive power plants, renewable energy generators, off-grid generating units of more than 0.5 megawatt capacity, and all generating units supplying power to neighbouring countries, irrespective of whether they have connected to the Indian Electricity Grid, must obtain a unique registration number from the CEA.

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Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

The regulatory environment increasingly seeks to incentivise renewable energy, with favourable tariff regimes established by SERCs. The Electricity Act, the National Electricity Policy 2005 and the Tariff Policy 2016 encourage private-sector participation in renewable energy through measures such as fixing renewable purchase obligations for obliged entities. A new draft National Electricity Policy is also being formulated in the backdrop of the government's energy transition plans to achieve an installed renewable energy capacity of 500 gigawatts by 2030 and net zero carbon neutrality by 2070. The objective of the policy includes, inter alia, decarbonisation and energy transition.

In 2017, tariff-based competitive bidding guidelines for the procurement of power were introduced for solar and wind power projects where the procurer sets a benchmark tariff above which a bid cannot be made and the bidder with the lowest tariff bid discovered through a reverse auction is selected to enter into a power purchase agreement with the procurer. These bidding guidelines have introduced several provisions to enhance the attractiveness of the solar and wind bids through measures such as:

- generation compensation by the procurer to the developer in the case of power evacuation constraints;
- the payment security mechanism for tariff payments; and
- termination compensation in the event of procurer default.

In 2021, the Ministry of New and Renewable Energy (MNRE) issued an amendment to the guidelines for setting up 12,000 megawatts grid-connected solar projects where:

- the amount of viability gap funding available on a per megawatt basis has been decreased;
- the usage charges have been decreased; and
- the timeline for project commissioning from the date of the letter of award has been increased.

Other than the above monetary incentives provided for solar and wind bids, the feed-in tariff regime continues to be applicable for solar and wind plants with capacities under 5 megawatts and 25 megawatts respectively. Benefits such as the continued availability of accelerated depreciation for wind power projects and exemptions from payment of electricity duty (which are state-specific but are typically granted by a majority of the states) are also provided to renewable power generators.

Nonetheless, unlike conventional power generation, renewable power projects are primarily based on state-specific policies that provide incentives and policies that are not always consistent, leading to developers choosing states based on their financial model and operational expertise. This is why some states have witnessed tremendous growth in the renewable energy sector compared to others.

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The MNRE has also made amendments to the implementation guidelines of the Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyaan Scheme on 13 November 2020. The new amendments allow solar plants to be installed on pastures and marshland owned by farmers. The size of the solar plant that can be implemented has also been reduced; this will allow the participation of small farmers. The period for completion has also been increased from nine to 12 months, coupled with the abolition of the penalty for a shortfall in generation.

The renewable energy sector has experienced exponential growth in the past few years and various government incentives (both fiscal and non-fiscal) have played critical roles in this. However, as the renewable energy sector has come of age and achieved grid parity, the government aims to gradually roll back the incentives. For instance, renewable energy project developers (along with other power project developers) had the benefit of a 10-year corporate tax holiday that has expired. Even so, the rolling back of incentives by the government has not deterred private-sector developers from developing renewable energy projects in the country.

The solar sector in particular has led the way in India's clean-energy growth transition. Solar plants can be set up under state policies or the government-of-India-launched National Solar Mission (NSM), which has been at the forefront of the government's renewable energy policy. Solar projects, under either the NSM or state-specific policies, are envisaged to be developed in a phased manner with a target of achieving 100 gigawatts (increased from the original target of 20 gigawatts) of installed solar capacity by 2022 (out of which a capacity of 61.97 gigawatts has already been installed by November 2022). The government of India intends to develop 40 gigawatts (of the 100 gigawatts) through rooftop solar projects and the remainder through ground-mounted solar projects.

To encourage setting up of rooftop projects on residential premises, the MNRE has developed a national portal that enables any residential consumer to apply for setting up a rooftop solar power project without needing distribution companies (DISCOMs) to finalise a tender and empanel vendors. Projects registered with this portal are eligible for a subsidy of 14,588 Indian rupees per kilowatt for capacity up to 3 kilowatts which will be credited directly to residential consumer's bank account by the Power Ministry. Since its inception in July 2022, the national portal has received applications for projects with an aggregate capacity of about 117 megawatts solar capacity, of which projects with aggregate capacity of about 18 megawatts has been granted.

Further, the government of India is developing large solar parks in collaboration with the state governments and has also issued detailed guidelines for their development. MNRE has modified its guidelines for the development of solar parks and ultra-mega solar power projects to introduce another model called Ultra-Mega Renewable Energy Power Parks. The intention is to provide ring-fenced, shovel-ready land to the power developer along with providing the associated power evacuation facilities. The government of India has doubled the capacity target from 20 gigawatts to 40 gigawatts for solar projects to be set up in a solar park, to be achieved by 2023–2024. In May 2021, the Solar Energy Corporation of India (SECI) floated a tender for the procurement of 1,200 megawatts of power from wind-based sources.

While onshore wind power projects account for a substantial portion of the installed renewable capacity in India, the government of India issued the National Offshore Wind Energy Policy in September 2015 intending to promote the country's offshore wind energy potential

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and had invited expressions of interest in 2018 from suitable and experienced bidders for the development of 1 gigawatt of offshore wind energy anywhere within India's exclusive economic zone. The MNRE annual report 2022–2023 states that the initial offshore wind energy potential off the coast of Gujarat and Tamil Nadu is estimated to be about 70 gigawatts. The principal agency charged with the development of the sector is the National Institute of Wind Energy (NIWE). Under this policy, blocks are to be allocated through a competitive bidding route and developers are required to enter into seabed lease agreements with NIWE. As a part of the planned off-take arrangement, NIWE or the respective state distribution utilities will sign power purchase agreements. Transmission utilities owned by the government will provide the onshore infrastructure required to evacuate power generated from these projects. Offshore power evacuation infrastructure up to the first onshore substation will have to be constructed by developers at their own cost. While the government has put in place a policy and institutional framework to support the development of offshore wind energy in the country, there has not been any project development activity yet. In a notification dated 29 May 2023, the Power Ministry mandated that offshore wind power projects commissioned on or before 31 December 2032 are exempted from the payment of ISTS charges for a period of 25 years, commencing from the date of commissioning of the project.

In May 2020, Oil and Natural Gas Corporation Ltd and NTPC Ltd entered into a memorandum of understanding to set up a joint venture to explore and set up renewable power assets, which includes offshore wind projects, in India. The government of India plans to develop 5 gigawatts and 30 gigawatts of offshore wind energy by 2022 and 2030, respectively.

Additionally, in May 2018, the MNRE issued a National Wind-Solar Hybrid Policy that seeks to optimise the utilisation of infrastructures such as land and the transmission system, as there are regions in India where wind and solar energy have moderate to high potential. A wind-solar plant will be considered hybrid if the rated power capacity of either source is at least 25 per cent of the rated power capacity of the other source. The policy not only aims at the development of new wind-solar hybrid plants but at the hybridisation of existing wind and solar plants. In facilitating this, in May 2018, the MNRE issued a scheme for setting up 2,500 megawatts of interstate transmission connected wind-solar hybrid power projects that initially provided only for battery storage but was later expanded to include all forms of storage, such as, pumped hydro, compressed air and flywheel, etc. In April 2023, SECI announced four allottees for the development of a 1.2 gigawatts solar-wind hybrid power project under Tranche VI of the interstate transmission programme at a tariff ranging from 4.64 to 4.73 Indian rupees per kilowatt hour.

In the context of municipal waste-to-energy projects, while Indian cities present significant scope for growth, the industry has faced intense opposition on account of environmental and health concerns. The government of India is undertaking measures to promote waste-to-energy projects. In this context, the National Biofuels Policy was approved by the Union Cabinet in May 2018, which, among other things, promotes research and development into technology using biofuels for the generation of power.

Further, the MNRE has notified the National Bioenergy Programme comprising of the following sub-schemes:

- a waste to energy programme to assist in the establishment of large-scale biogas and bio-compressed natural gas based power plants;

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- a biomass programme to assist in the setting up of pellets- and briquettes-based power generation projects as well as to support non-bagasse-based power generation projects; and
- a biogas programme to assist in establishment of small to medium-sized biogas plants in rural areas.

On 14 February 2022, the MNRE introduced a framework for promotion of decentralised renewable energy (DRE) livelihood with the aim to establish a conducive regulatory environment to enhance accessibility to DRE and to encourage the advancement of sustainable livelihoods across the country including in rural and remote areas.

The government of India also recently issued Electricity (Rights of Consumers) Rules, notified on 31 December 2020, that allow prosumers (according to the rules, these are consumers that while consuming electricity from the grid can also inject electricity into the grid using the same point of supply), to set up net metering for rooftop solar projects of capacity 500 kilowatts or the sanctioned limit (whichever is lower) and gross metering for rooftop project with capacity above 500 kilowatts.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

India has ratified the United Nations Framework Convention on Climate Change and the Kyoto Protocol (but with no binding obligations) to reduce its greenhouse gas emissions. Consequently, the government of India launched the National Action Plan on Climate Change (NAPCC), under which major initiatives such as the NSM and Waste to Energy Programme have been introduced. Additionally, sharing of Clean Development Mechanism benefits (between the developer and the consumer, usually a state-owned distribution utility) is present across most states. India has also ratified the Paris agreement. The Paris agreement requires its signatories to devise a national plan to limit global temperature rise, and as part of its plan, India has set a goal of producing 40 per cent of its electricity with non-fossil fuel sources by 2030.

The government of India, under the NAPCC, formulated a National Mission for Enhanced Energy Efficiency (NMEEE), among other such policy measures. The NMEE comprises four initiatives, namely:

- Perform Achieve Trade (PAT);
- the Energy Efficiency Financing Platform;
- Market Transformation for Energy Efficiency; and
- the Framework for Energy Efficient Economic Development.

PAT aims to reduce specific energy consumption (ie, energy use per unit of production for Designated Consumers (DCs)) in specific energy intensive industries with the issuance of tradable energy savings certificates to those participants who achieved their saving targets. In PAT cycle I, which ended in 2015, 3.825 million energy savings certificates were issued. PAT cycle VII commenced on 1 April 2022 and has 509 DCs from nine sectors.

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Another measure taken by the government of India was the Street Lighting National Programme, which started in 2015 and is aimed at replacing India's 14 million conventional streetlamps with smart light-emitting diode (LED) variants by 2019. By May 2022, the programme had installed 12.7 million smart LED streetlights that resulted in energy savings of more than 8.587 billion units of electricity per annum and 5.92 million tonnes of CO2 emission reduction annually. The government of India also launched the Unnat Jyoti by Affordable LEDs for All scheme, intending to distribute 770 million LEDs across India by March 2019. To date, roughly 360 million such LEDs have been distributed. Both these policies are examples of the government of India's initiatives to make India energy efficient.

To reduce the carbon footprint of thermal power generation, the Power Ministry has recently decided to set up a National Mission on the use of Biomass in coal-based thermal power plants. One of the objectives of the mission is to increase the level of co-firing from the present 5 per cent to higher levels to have a larger share of carbon-neutral power generation from thermal power plants.

However, owing to the effects of the covid-19 pandemic, and to mitigate it, the government has leaned towards supporting economic development. The Environment Ministry has allowed companies operating in several industries (other than renewable energy generation projects that are categorised as white category and do not require the prior consent of the pollution board), to expand capacities based on a self-certification that such an expansion will not 'increase the pollution load'. However, this may result in wrongful declarations being made by companies.

While the government of India has been promoting the development of India's renewable energy capacity and capability through various policy measures, the decision by the Directorate General of Trade Remedies in July 2018 to impose a safeguard duty on the importation of solar cells and modules from Malaysia and China and the MNRE's decision to increase the basic customs duty on imported solar modules or cells is likely to adversely impact solar tariffs. A recent review investigation has extended the safeguard duty. A 14.9 per cent duty will be imposed from 30 July 2020 to 29 January 2021, followed by a 14.5 per cent duty from 30 January 2021 to 29 July 2021. The imposition of the safeguard duty has, however, been met with a legal challenge. In 2018, the Supreme Court stayed the ban on the imposition of the safeguard duty on solar panels (in the context of proceedings where high courts had stayed the implementation of the safeguard duty). Recently, the MNRE announced the imposition of a basic customs duty on imported solar modules and cells at a rate of 40 per cent and 25 per cent respectively, with effect from April 2022.

Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

Currently, there is no regulatory framework governing electricity storage in India. The MNRE constituted an expert committee to propose a draft policy to establish a National Energy Storage Mission (NESM) for India and the committee submitted the draft policy to the MNRE. The NESM aims to establish a regulatory framework that promotes the manufacturing and deployment of battery storage systems. Before this, in January 2017, the CERC issued a consultation paper setting out a broad framework for the introduction of battery energy

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storage systems (BESS). The consultation paper discusses models of tariff determination for multiple users of BESS, the commercial viability of BESS and policy changes that may be required to deploy bulk storage facilities in the country. Further, media reports indicate that the government is also working on a policy framework to introduce on-site storage integration for wind and solar power projects, but this yet to be announced.

While the government of India has previously floated tenders for renewable energy capacity with storage systems, most of these systems have been suspended or withdrawn for various reasons. There have been several tenders for storage-linked renewable generation capacity in various parts of the country, such as Andhra Pradesh and Karnataka, which are currently underway. SECI has issued tender documents for setting up 500 megawatt/1,000 megawatt hour standalone BESS in India. This initiative is a component of the initial phase of the government of India's immediate target of setting up 4,000 megawatt hours of battery storage capacity in order to enhance the integration and penetration of renewable energy in the national grid. The Power Ministry's report on optimal generation capacity mix for 2029–2030 envisages a battery energy storage capacity of 27,000 megawatt/108,000 megawatt hour (4-hour storage) to be part of the installed capacity by 2029–30. The government had also launched the National Smart Grid Mission (NSGM), through which it introduced incentives such as a 30 per cent capital grant towards a project's cost, and a 100 per cent grant for select components such as training and capacity building. The NSGM has now entered Phase 3, which proposes:

- completion of sanctioned and ongoing NSGM smart grid projects;
- handholding of DISCOMs on their smart grid preparedness;
- developing smart grid roadmaps; and
- establishing new processes for distribution system efficiency and effectiveness improvement, reliability improvements and data analysis, etc.

To encourage the development of energy storage projects in India, the Power Ministry has waived ISTS charges for storage-based projects that are commissioned before 30 June 2025 for a period of 12 years, provided that at least 51 per cent of the annual energy requirement for such storage based projects is procured from solar and wind based power projects.

Energy storage also plays an important part in combating one of the biggest concerns with renewable energy, which is the lack of round-the-clock supply. In May 2020, India issued its first round-the-clock supply contract aimed at supplying power with a combination of solar, wind power and energy storage systems. Later in 2020, the Power Ministry introduced the guidelines for a tariff-based competitive bidding process for the procurement of round-the-clock power from grid-connected renewable energy power projects, complemented with power from coal-based thermal power projects to enable such procurement.

The regulatory framework also aims to support the research and development of storage solutions. On 12 May 2021, the proposal for a Production Linked Incentive Scheme 'National Programme on Advanced Chemistry Cell Battery Storage' was approved by the cabinet. Advanced chemistry cells are the new generation of advanced storage technologies that can store electric energy either as electrochemical or as chemical energy and convert it back to electric energy as and when required.

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Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

While the government is positive about setting up power stations based on nuclear energy (it has already installed 6,780 megawatts of capacity from 22 operational nuclear reactors and projects with an aggregate capacity of approximately 15,700 megawatts are currently under construction), currently only a government of India entity or a government company can own and operate a nuclear power plant. Private ownership of nuclear power generation assets is not allowed.

A major issue that hampered private investment in other areas of nuclear power generation was the interpretation of a provision of the Civil Liability for Nuclear Damage Act 2010 (CLND Act) as mandating a civil nuclear liability clause in supply contracts, therefore dissuading foreign equipment suppliers from supplying Indian nuclear power projects. However, the government of India has clarified that while the legislation would not be amended, it is not mandatory to include a civil liability clause in the contractual arrangements between the foreign supplier and the Indian operator. This clarification has been provided as a part of responses to certain 'frequently asked questions' issued by the government of India and has therefore led to concerns that such a stance may not be legally binding. While it is highly unlikely, it remains to be seen whether the Nuclear Power Corporation of India (a government company and operator of nuclear power plants) will agree to undertake such liability. India has also ratified the Convention on Supplementary Compensation for Nuclear Damage (CSC), which has been hailed as an important step towards creating a global nuclear liability regime. It is important to note that ratification of the treaty requires national law to comply with article 10 of the CSC, which states that national law may provide that an operator may have a right of recourse to the supplier only if this is expressly provided for in writing or if the nuclear incident results from an act or incident done with an intent to cause damage. However, section 17(b) of the CLND Act in India adds another instance where an operator may have recourse to the supplier and that is if the nuclear incident occurred owing to an act of the supplier, which includes supplying parts with a latent or patent defect. The government of India has also issued a clarificatory response concerning section 17 (b) of the CLND Act stating that while the language of section 17(b) is in addition to the provisions of article 10 of the CSC, it relates to actions and matters such as conditions of service and contract. The government of India is of the view that these are in any case ordinarily a part of the contract and are not a new method of tracing liability back to the supplier. India is also a part of the limited group of countries with a Nuclear Insurance Pool, which provides insurance cover to operators of nuclear power plants and suppliers. India's nuclear insurance pool has a corpus of 15 billion Indian rupees.

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REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

Owning and operating transmission assets requires a licence from the Central Electricity Regulatory Commission (CERC) for interstate transmission facilities and the relevant state electricity regulatory commissions (SERC) for intra-state transmission facilities. The Electricity Act 2003 (Electricity Act) allows the appropriate electricity regulatory commission to specify any general or specific conditions that a licensee must comply with. The appropriate electricity regulatory commission may, on the recommendation of the government and in the public interest, even permit any local authority, cooperative society, government institution, etc to transmit (and distribute) electricity, subject to certain terms and conditions, without a licence.

Transmission licensees also require right of way from landowners for construction of transmission lines, approvals under the Electricity Act for installation of overhead lines and installation of transmission towers, apart from other applicable clearances such as those from the Environment Ministry. Alternatively, the Electricity Act also enables a transmission licensee to place and maintain a transmission line on any immovable property, upon being authorised by the government. The government authorisation entitles the transmission licensee to enter any privately owned or occupied land without the notice or consent of the owner or occupier to carry out the works required for setting up the transmission project. On 16 July 2020, the Power Ministry issued the Guidelines for Payment of Compensation concerning Right of Way for Transmission Lines in Urban Areas. These guidelines provide for compensation to landowners for obtaining the right of way for the construction of transmission lines of a voltage of 66 kilovolts and above. The guidelines state that compensation of an amount equal to 85 per cent of the market value of the land should be paid to landowners for the land required for the construction of the tower base area. Further, these guidelines also state that compensation of up to 15 per cent of the land value should be paid to landowners for the diminution in the width of a right of way corridor owing to the construction of transmission lines. In addition to the above, the licensee also needs to comply with regulations issued by the Central Electricity Authority (CEA) and the CERC concerning grid and technical standards upon grant of the transmission licence.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

The open-access regulations issued by the relevant electricity regulatory commissions permit usage of transmission lines by any generating company, distribution licensee, any consumer with a requirement of over 1 megawatt of electricity and electricity traders, provided they comply with the requirements of obtaining connectivity and open access to the transmission system. The regulations also cast an obligation on the transmission licensees to provide non-discriminatory access to their transmission lines upon application for such access. The applicant is required to pay transmission charges and other charges as

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applicable, which may include a cross-subsidy surcharge, wheeling charges and open-access charges.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

The government is looking to increase private participation to strengthen transmission networks and has introduced a string of measures such as the introduction of electronic competitive bidding for transmission projects and a viability gap funding model on a public-private partnership (PPP) structure for setting up intra-state transmission networks. The interstate transmission system is mainly owned and operated by Power Grid Corporation of India Ltd (PGCIL), a state-owned company, which has become the first public sector company in the country to launch its infrastructure investment trust. PGCIL is monetising transmission assets such as high voltage transmission lines and substations to utilise the funds for new and under-construction projects. The intra-state transmission system is owned and maintained by state transmission utilities. The government is increasingly preferring the PPP structure for setting up the interstate and intra-state transmission networks.

The Power Ministry has waived interstate transmission system charges (but not transmission losses) for solar and wind generation projects commissioned before 30 June 2025. Projects that have been awarded through a competitive bidding process before 15 January 2021 are eligible for waiver of transmission losses as well.

It is generally seen that impetus is specifically being given to the transmission sector through various measures including:

- the introduction of the National Smart Grid Mission to implement a smart electrical grid based on technology for automation, communication and IT systems, to monitor and control power flows from points of generation to points of consumption;
- the setting up of a National Transmission Asset Management Centre;
- the creation of the Power System Development Fund drawing from congestion charges, deviation settlement charges and reactive energy charges, for primarily relieving congestion in government transmission systems of strategic importance; and
- the renovation and modernisation of government transmission systems for relieving congestion.

Various state governments have begun to implement feeder separation systems to augment power supply to rural areas and for strengthening sub-transmission and distribution systems.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

The rates and terms for the provision of transmission services are determined by the appropriate electricity regulatory commission (the CERC in the case of interstate transmission and the relevant SERC in the case of intra-state transmission). For transmission

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schemes implemented through the negotiated route, transmission charges are determined by the relevant electricity regulatory commission in line with tariff regulations issued by it, which consider factors such as return on equity, interest on loan capital and working capital, depreciation, operation and maintenance expenses and allowance for any renovation and modernisation. Under the competitive bidding route, transmission charges discovered through a competitive bidding process are required to be adopted by the relevant electricity regulatory commission.

Once the charges for a transmission network are determined or discovered, the CERC adopts a point-of-connection method for calculating charges payable by each user in the transmission system based on its actual usage and develops a transmission charge-sharing mechanism among grid constituents. The point-of-connection method is, however, not adopted for intra-state transmission for entities not connected to the interstate transmission system. The CERC has amended its regulations governing sharing of transmission charges and losses, making them applicable to intra-state entities with medium-term open access or long-term access to the interstate transmission network and introducing a reliability service charge, charge for using high-voltage direct current transmission lines and provisions for misdeclaration. Further, through another amendment, the CERC has waived the payment of transmission charges and transmission losses for incremental gas-based generation from the re-gasified liquefied natural gas e-bid auctions.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

Recently, the CERC (Indian Electricity Grid Code) Regulations 2023 were introduced but are yet to be notified. The 2023 regulation sets out extensive provisions regarding reliability and adequacy of resources, integration of renewable sources, technical and design standards for grid connectivity, outlining operational requirements and technical capabilities to ensure reliable grid operation including maintaining load generation balance. Until the 2023 Regulations are notified, the CERC (Indian Electricity Grid Code) Regulations 2010 (Grid Code) remains in force. The Grid Code brings together a single set of technical and commercial rules that facilitate planning and development of reliable national and state grids, encompassing all the utilities connected to or using the interstate transmission system. One of the key aspects of the Grid Code is to facilitate the planning and development of economic and reliable national and regional grids. Further, states have also issued their respective grid code regulations, for regulating the intra-state transmission grid network.

The key entities responsible for ensuring the reliability of the transmission grid include the National Load Despatch Centre (NLDC), the Regional Load Despatch Centre (RLDC) (established for five regions in India), and State Load Despatch Centres (SLDC) (established for each state). They ensure optimum scheduling and despatch and integrated operation of the power system in their respective jurisdiction. Additionally, the central transmission utility (CTU) and various state transmission utilities are responsible for planning and coordination of interstate and intra-state transmission systems respectively. Under the Electricity (Amendment) Bill 2022, the functions of the NLDCs and SLDCs have been proposed to be included in the Electricity Act instead of being prescribed by the governments. Directions issued by the NLDC would have to necessarily be followed by every RLDC, SLDC, licensee,

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generating company, generating station, sub-station and any other person connected with the operation of the power system.

On 9 March 2021, the government of India notified the establishment of an independent CTU called the Central Transmission Utility of India Ltd, to undertake and discharge all functions of CTU. The PGCIL that was declared as the CTU in 2003, shall continue to be a deemed transmission licensee and discharge functions incidental and connected therewith.

The CERC has recently enacted the CERC (Ancillary Services) Regulations 2022 to be provided by power generators to improve the reliability of the grid. Ancillary services are the services that are necessary to support the grid operation in maintaining power quality, reliability and security of the grid. These regulations aim to provide mechanisms for procurement, through administered as well as market-based mechanisms, deployment and payment of ancillary services for maintaining the grid frequency close to 50 hertz and restoring the grid frequency within the allowable band as specified in the Grid Code. The provisions of the regulations would also be useful in relieving congestion in the transmission network, to ensure smooth operation of the power system and the safety and security of the grid.

Additionally, the CERC amended the Grid Code in December 2019, to provide a procedure and mechanism for declaration of commercial operation of interstate generating stations. Under this procedure, generators are required to make such a declaration after demonstrating the unit capacity after a trial run and after obtaining the relevant clearance from NLDC, RLDC or SLDC. Through the amendment, the CERC has clarified the procedure for such declaration of the commercial operations date for thermal and hydro-generating stations and interstate transmission systems. The procedure involves successful completion of all tests that are required under the Grid Code, issuing notice to power procurers, if any, and successful completion of trial runs for the equipment or generating units to be commissioned.

Concerning renewable sources of energy, several states in India have, over the years, adopted norms for computation of deviations in actual injections of power as against scheduled injections to the state and national grids. These regulations also set out the charges payable towards deviations in quantum and frequency of power injected.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

The Electricity (Amendment) Bill 2022 proposes delicensing of distribution activities and introduces registration provisions as an alternative. This bill proposes to delicense distribution activities and replace the requirement of a licence with registration provisions. However, until the same is approved by the parliament, a licence is required to construct and operate a distribution network. Electricity distribution activities (except for distribution of electricity in rural areas notified by the relevant state government and distribution by notified exempted entities such as local authorities and non-governmental organisations) require a licence from the relevant state electricity regulatory commission (SERC).

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For obtaining a distribution licence, the entity is required to make an application to the SERC as prescribed in the Electricity Act 2003 (Electricity Act) along with the requisite fees. Additional clearances may be required from relevant authorities. To promote open access and competition in distribution activities, the Electricity Act permits two or more distribution licensees to operate within the same area of supply through their own distribution network and also permits applicants to file petitions for obtaining a distribution licence in the same area and for the same purpose, as previously granted to another distribution licensee, so long as they comply with additional requirements concerning capital adequacy, creditworthiness and code of conduct as may be prescribed by the government of India. The Electricity (Amendment) Bill 2022 stipulates that a distribution company (DISCOM) must offer non-discriminatory open access to its network to all other DISCOMs operating in the same region, subject to payment of certain wheeling charges and in accordance with the regulations as specified by the appropriate government authority. In case of non-compliance by the DISCOM, the appropriate commission, on an application made to it, may issue directions and levy penalties as outlined in the Electricity Act.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Distribution licensees are obliged to provide a non-discriminatory supply of electricity to any person situated in the licensee's area, under the regulations made by the relevant electricity regulatory commission.

Every person whose premises are situated within the distribution licensee's area and who has given notice for wheeling electricity is eligible to receive electricity from:

- the distribution licensee: or
- from any other supplier through the distribution licensee's network, by seeking open access.

Under the first option, the distribution licensee operating in a particular area is required to lay down its network, if required, to supply electricity itself to a consumer seeking supply. Under the second option, ie, through open access, a consumer has the right to require a distribution licensee to make its network available for wheeling electricity to such consumer from a third-party supplier upon payment of wheeling charges and an additional surcharge (eg, a cross-subsidy surcharge) as determined by the SERC to meet such distribution licensee's fixed costs arising out of its obligation to supply. The cross-subsidy charge is payable irrespective of whether the distribution licensee's network is used, in the case of third-party supply.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

Electricity distribution has largely been controlled by government distribution utilities, with minimal privatisation on account of significant historic liabilities of the state distribution

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companies. However, few examples of privatisation in certain areas (eg, Delhi, Odisha, Ahmedabad, Mumbai and Jamshedpur) have met with success. The government of India has commenced the privatisation of the distribution networks situated in union territories. The Power Ministry issued draft standard bidding documents to select bidders that can acquire a majority stake in distribution licensees. The government of India proposes to privatise distribution networks in union territories under the Atmanirbhar Bharat Abhiyan. The privatisation of DISCOMs in the union territories is expected to act as a model for privatisation of DISCOMs throughout India. So far, Torrent Power has emerged as the highest bidder for a 51 per cent equity stake in the distribution company for the union territory of Dadra Nagar Haveli and Daman and Diu. The Bombay High Court suspended the tender process in a public interest litigation case; however, this was stayed by the Supreme Court and the matter is currently listed for hearing before the Supreme Court. The Supreme Court has also stayed an order of the Punjab and Haryana High Court, which intended to prevent the privatisation of Chandigarh's Electricity Distribution Company. Thus, it is clear that the Supreme Court is inclining towards the removal of obstacles for the privatisation of distribution companies. The distribution networks of other union territories like Puducherry, Lakshadweep, Jammu and Kashmir, are also in different stages of the privatisation process.

A tariff for electricity distribution, comprising wheeling charges and cost of supply, is levelled and determined on a cost-plus basis by the relevant SERC. The proposed amendments to the Tariff Policy 2016 (Tariff Policy) address distribution as well. To ensure the burden of distribution licensees' inefficiencies are not passed on to the consumers, the SERCs and joint commissions (constituted solely for tariff setting) are required to not consider aggregate technical and commercial (AT and C) losses exceeding 15 per cent for determination of tariff after 31 March 2019.

In recent years, the government has taken many measures to encourage and improve the distribution network and infrastructure in the country. An additional fund of 3 trillion Indian rupees over five years was allocated to the power distribution companies to make them more efficient and reduce the widening financial losses. However, one of the major problems plaguing the distribution sector is the abysmal credit ratings of the state distribution utilities and their persistent or extensive delays in making payments to generators under power purchase agreements. Distribution utilities had borrowed heavily to finance losses in their businesses and were facing major hurdles in repaying their debt. The Power Ministry had released data that at the end of June 2021, distribution companies owed 121.91 billion Indian rupees to renewable energy generators in overdue payments. The Electricity (Late Payment Surcharge and Related Matters) Rules 2022 (LPS Rules) were notified to strengthen the regulatory provisions for recovery of outstanding dues of generating companies, inter-state transmission licensees and DISCOMs. The LPS Rules have introduced an instalment-based mechanism for payment of outstanding amounts. The Power Ministry year-end review 2022 reports that, since August 2022, all current dues are being paid within 75 days, and the total overdue of 265.46 million Indian rupees was settled between August 2022 and September 2022. This is a positive development, and the long-standing issue of overly delayed payments seem to have reduced.

The government launched the Ujwal Discom Assurance Yojana Scheme (UDAY Scheme) intending to improve the operational and financial efficiency of state-owned distribution utilities. Some 27 states and five union territories had signed up for the UDAY Scheme. One of the major features of the UDAY Scheme involved requiring participating states to take over

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75 per cent of the debt of distribution licensees by way of a grant over two years. Such states may then issue non-statutory liquidity ratio bonds, including state development loan bonds for subscription by pension funds, insurance companies and other institutional investors. Under the UDAY Scheme, lenders and financial institutions were to not levy prepayment charges on distribution licensee's debt and waive unpaid overdue interest, including penal interest. For financing losses and working capital of distribution utilities, state governments took over and funded losses in a graded manner until the financial year 2020–2021. One of the much-praised aspects of the UDAY Scheme was its greater acceptability by the respective state governments as the debt proposed to be absorbed would not have affected their fiscal deficit and in turn, would not have affected their budgetary allocation from the central government. This aimed to distribute utilities, significantly increasing their procurement of power that was constrained on account of their financial distress. However, the UDAY scheme has been criticised in some quarters for a perceived lack of explicit central government support as part of the transitional financing mechanisms and a lack of operational control measures in terms of automatic fuel and power purchase price adjustments.

It has become apparent, however, based on data supplied by various states, that the UDAY Scheme has not achieved the intended results. Many states have failed to reduce their AT and C losses and to narrow the gap between their distribution licensees' cost of power supply and revenue realised to the earmarked levels for the year (average cost of supply-average revenue realised gap (ACS-ARR)).

On 20 July 2021, the Power Ministry issued detailed guidelines for a 'Revamped Distribution Sector Scheme: A Reforms-Based and Results-Linked Scheme' (Revamped Distribution Scheme) that will be applied over the next five years. The programme's scope is in two parts: the first covers the financial support for the upgrade of distribution infrastructure, prepaid smart metering and system metering; the second covers training, capacity building, and other enabling and supporting activities. Every eligible distribution company, if it meets the pre-qualifying criteria, will prepare an action plan to avail funding under the programme and would be evaluated based on the result evaluation matrix. The plan is to reduce AT and C losses across India to 12 to 15 per cent and eliminate the ACS-ARR gap by 2024–2025. The outlay for the programme is 3.03 trillion Indian rupees, over five years (ie, financial year 2021–2022 to financial year 2025–2026), with budgetary support of 976.31 billion Indian rupees from the government of India. So far, under the Revamped Distribution Sector Scheme, 173 million prepaid smart meters, 4.9 million DT meters and 168,085 feeder meters have been sanctioned across 23 States and 40 DISCOMs with a total sanctioned cost of 1.15 trillion Indian rupees. Artificial intelligence, machine learning and blockchain technology will be used to help distribution companies to make decisions on loss reduction, demand forecasting, asset management, time of day tariff, renewable energy integration, and other predictive analysis. To reap the benefits of the programme, the states and the distribution companies would have to sign a tripartite agreement with the government of India.

Rates and terms for distribution services

17 Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

The tariff for electricity distribution, comprising wheeling charges and cost of supply, is levelled and determined on a cost-plus basis by the relevant SERC. In this regard, SERCs

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are also competent to formulate regulations that set out the terms and conditions for the distribution of electricity. While determining the rates and terms, the SERCs are guided by factors mentioned in the Electricity Act, which include promotion of competition, safeguarding of consumers' interest and, at the same time, recovery of the cost of electricity. The rates so determined are usually notified by the relevant SERCs by passing tariff orders. The SERCs have an obligation under the Electricity Act for timely issuance of tariff orders and in May 2021, the Power Ministry had issued a notice to various SERCs, to ensure that distribution tariff is revised on regular and timely bases and orders in this regard are issued promptly. If tariff has been determined through a transparent process of bidding, then the same would have to be adopted by the appropriate electricity regulatory commission (ie, the Central Electricity Regulatory Commission (CERC) in the case of inter-state transmission and the respective SERC in the case of intra-state transmission). The Electricity (Amendment) Bill 2022 also proposes a time limit within which the tariff must be adopted and requires the appropriate commission (the CERC/SERCs) to issue the adoption order within 90 days from the date of application or pass an interim tariff within the 90 days' period. The interim tariff is to remain in force till issue of final tariff order which is required to be issued within 150 days of receipt of the application.

Concerning cross-subsidies, the Tariff Policy provides that the cross-subsidy charge shall be an aggregate of weighted average cost of power; transmission and distribution losses, transmission, distribution and wheeling charges and per-unit cost of carrying regulatory assets, if applicable. However, the Tariff Policy recognises that the methodology for calculating cross-subsidy may not be suitable to all distribution licensees and therefore has given the SERCs the power to review and vary the same taking into consideration different circumstances prevailing in the area of relevant distribution licensees. The proposed amendments to the Tariff Policy provide for the deployment of smart pre-paid meters, as it is felt that the shift to such a pre-paid system will remove problems such as meter reading, billing, collection and disconnection in the case of non-payment of bills by consumers. Additionally, proposed amendments to the Tariff Policy require all subsidies to be extended in the form of a direct benefit transfer and the gradual reduction of cross-subsidies by the appropriate electricity regulatory commission. Finally, the amendments propose a framework for the simplification and rationalisation of tariffs, as well as, ensuring a consistent system across all states.

SERCs may also consider distribution and supply margins while arriving at returns for the distribution business, and the possibility of capping prices. Additionally, flexibility in the adoption of a surcharge formula and capping of surcharge at 20 per cent of tariff applicable to a consumer has been introduced.

The Power Ministry has recently issued Electricity (Late Payment Surcharge) Rules 2021, concerning the late payment surcharge payable in respect of the outstanding payment to be made by the distribution company beyond the relevant due dates. According to the new rules, all payments from a distribution company to a generating company for power procurement or by a user of a transmission system to a transmission licensee should be first adjusted towards late payment surcharge due and payable and thereafter, towards monthly charges, starting from the longest overdue bill.

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REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

Sale and distribution of power are bundled activities and hence, if a developer has obtained a distribution licence for the distribution of electricity for a certain area, it has the approval to sell power as well to both commercial and domestic consumers, and no specific authorisations are required.

Further, generating companies can also sell power directly to a bulk consumer using open access or through dedicated transmission lines. The consumer, however, is not allowed to further sell the power to other consumers. Licensed traders are also authorised to supply and trade in power.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

The state electricity regulatory commissions (SERC) issue multi-year tariff regulations to regulate the procedure for determination of a power sales tariff (comprising fixed charges and energy charges, which are usage-based) of distribution licensees for various classes of consumers, the categorisation of which depends on the type of entities that require the electricity and the voltage levels at which the electricity is to be distributed. For instance, a separate tariff is determined for low-tension (LT) consumers (which includes domestic, residential and commercial units) and high-tension (HT) consumers (which includes industries and railways). The HT and LT classes of consumers are further subdivided depending on the type of entity to which electricity is to be supplied (for instance, HT 1A consumers include all manufacturing, industrial establishments and registered factories, while HT 1B tariff is determined for railways). The components and factors to be considered while determining a tariff are similar to the components of a generation tariff and include return on equity capital, interest on debt, interest on working capital, depreciation, power purchase cost and operation and maintenance expenses, albeit concerning the distribution business. The proposed amendments to the Tariff Policy 2016 envision a two-part tariff with capital costs being reflected in the fixed charges and the energy charges reflecting the average purchase price of power with administrative margins.

On 15 February 2021, the Central Electricity Regulation Commission (CERC) approved the CERC (Power Market) Regulations, 2021 to regulate power sales through power exchanges, market participants other than power exchange, and over the counter markets. The regulations apply to delivery-based electricity contracts, contracts relating to renewable energy certificates, contracts relating to energy saving certificates, and any other contracts, as may be approved by the appropriate electricity regulatory commission.

The government of India has introduced a time of day (ToD) tariff through the Electricity (Rights of Consumers) Amendment Rules 2023. Under the amended ToD tariff system, the ToD tariff is 10 to 20 per cent less than the normal tariff during solar hours (ie, eight hours

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of the day prescribed by the SERC), while the ToD tariff during peak hours will be 10 to 20 per cent higher than the normal tariff. Commercial and industrial consumers that have a maximum demand of 10 kilowatts and above are eligible for the ToD tariff from 1 April 2024.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

In furtherance of the multi-year tariff orders issued by each SERC for distribution tariffs for various types of HT and LT consumers, distribution licensees file their respective petitions before the SERC for their area of supply. Such tariff petitions typically include true-up of the tariff based on the previous year (ie, the specific adjustment required on a case-by-case basis concerning units sold, aggregate technical and commercial losses, etc), review of the current year's performance and approval of the aggregate revenue requirement of the distribution licensee for the upcoming year. In reviewing the aggregate revenue requirement, the SERC takes into consideration factors such as cost of procurement of electricity (through long-term contracts or short-term procurement from the open market, in the case of shortage) and, based on such review, the commission may alter the tariff mentioned in the multi-year tariff order for the distribution licensee.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The Electricity Act 2003 (Electricity Act) sets out various obligations and duties of a distribution licensee, which include the obligation to provide open access to any applicant (subject to system constraints), the duty to develop and maintain a distribution system and commence supply within one month of request in the distribution licensee's area of supply. The Supreme Court has stated in various judgments that there is no exemption from the universal service obligation of any distribution licensee under the Electricity Act and the licensee has a statutory duty to supply electricity upon application to any premises located in the distribution licensee's area. One of the key reasons for the government's decision to reform debt-ridden distribution licensees under the Ujwal Discom Assurance Yojana Scheme and now through the Revamped Distribution Scheme is to ensure that the distribution licensees can fulfil and perform their roles and functions under the Electricity Act effectively.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The power sector is governed by the government of India primarily through the Power Ministry and the Ministry of New and Renewable Energy (MNRE). The Department of Atomic Energy of the government of India governs the development of nuclear energy.

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Other regulatory policies and technical and performance standards are determined by the Central Electricity Regulatory Commission (CERC), the state electricity regulatory commissions (SERC), NITI Aayog and the Central Electricity Authority (CEA).

Scope of authority

23 | What is the scope of each regulator's authority?

The CERC and the SERCs exercise jurisdiction over all interstate and intra-state electricity regulatory issues respectively (except issues relating to nuclear energy, which are regulated by the Atomic Energy Regulatory Board) and are entrusted with the function of notifying regulations and acting as the independent regulators for their respective jurisdictions. Some of their key functions and responsibilities include preparing their respective grid codes, issuance of licences, determination of tariffs, adjudicating disputes, and aiding and advising the government on any matter referred to them.

The Power Ministry and the MNRE act as the legislating bodies and are mainly responsible for evolving general policies (including the National Electricity Policy 2005 (NEP), the Tariff Policy 2016 (Tariff Policy) and the Rural Electrification Policy) for the development of the electricity sector, in consultation with the state governments and the CEA.

The CEA, not a regulator in the electricity sector, primarily serves as the technical advisory body to the government of India, advising on all technical matters related to transmission, generation and distribution (including specifying technical standards for construction, and prescribing grid standards for operation and maintenance of transmission lines and safety requirements).

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The CERC and SERCs are statutory bodies under the Electricity Act 2003 (Electricity Act), which also sets out their powers and functions. The CERC was established by the central government under the Electricity Act and the Electricity Regulatory Commissions Act 1998 where members of the CERC are appointed by a committee that is appointed by the central government. Similarly, SERCs are also established by the respective state governments under the Electricity Act and the Electricity Regulatory Commissions Act 1998. As autonomous bodies, they independently perform their functions without any government interference. However, regulatory authorities are required to be guided by policy directions of the government of India issued under the Electricity Act. That said, the Electricity (Amendment) Bill 2022 require the SERCs and the CERC to mandatorily comply with the provisions of the Tariff Policy (as opposed to being merely guided). The amendments also provide that if the SERC is unable to perform its function on account of vacancies, then the government of India may, in consultation with the concerned state government, entrust the functions of said SERC to another SERC or a Joint Commission.

The CEA was established by the central government under the Electricity Act. The CEA's functions include advising the central and state governments on matters relating to NEP,

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and all technical matters relating to generation, transmission and distribution of electricity, specify the technical and safety standards for construction of electrical plants, connectivity to the grid, etc.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

Under the Electricity Act, the CERC and SERCs (and adjudicating officers of such commissions) have the power to hold inquiries and adjudicate disputes relating to interstate matters for the CERC and intra-state matters for the respective SERCs. Under section 79 of the Electricity Act, the CERC is empowered to adjudicate upon disputes involving generating companies, either owned or controlled by the central government or generating companies who have entered into a composite scheme for generation and sale of electricity in one or more states, or transmission licensees concerning the interstate transmission of electricity and regulation of tariff. The Electricity (Amendment) Bill 2022 proposes to add a clarification that disputes dealt with by the CERC would be regarding the performance of obligations under a contract of sale, purchase or transmission of electricity. It also proposes that the CERC would adjudicate upon disputes involving National Load Despatch Centre and Regional Load Despatch Centres regarding the quality of electricity or safe, secure and integrated operation of the grid.

Section 86 of the Electricity Act authorises the respective SERCs to adjudicate disputes between licensees and generating companies. Both the CERC and the SERCs also reserve the power to refer any dispute to arbitration. In this regard, the Electricity (Amendment) Bill, 2022 also include that any order of the CERC or SERC will be executable as a decree of a civil court and the commissions have all the powers of a civil court including but not limited to powers of attachment and sale of property, arrest and detention in prison and appointment of a receiver.

The Electricity (Amendment) Rules 2022 provides that the appropriate commission (the CERC/SERCs), must issue a final order within 120 days from the date of receipt of petition, which can be extended by 30 days. If a final order cannot be issued within the prescribed timeline of 150 days, then an interim order must be issued. If the commission does not issue the relevant orders within the 150 days timeline, then the petitioner may approach the Appellate Tribunal for Electricity (APTEL) for relief.

The APTEL has the power to entertain appeals arising out of decisions of the CERC, the SERCs or adjudicating officers if filed within 45 days from the date of receipt of the impugned order. APTEL is also conferred with suo motu jurisdiction to examine the validity of any order made by an adjudicating officer, CERC or SERC, concerning any proceeding. Additionally, any person aggrieved by the order of any electricity regulatory commission may approach the relevant high court of the state for adjudicating on any question of law.

APTEL is required to decide appeals as expeditiously as possible and endeavour to dispose of the appeal within 180 days of the filing of the appeal. Further, appeals against the decisions of APTEL may be filed before the Supreme Court within 60 days of receipt of such decision. Recently, the Supreme Court has stated in its order that if there is any matter

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pending before the appropriate commission, the APTEL under section 121 is not allowed to hear such cases.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

Under the Electricity Act 2003 (Electricity Act), every transmission and distribution licensee must seek the prior approval of the relevant electricity regulatory commission, without which it cannot undertake any transaction to acquire, or merge its utility with, the utility of another licensee; or assign its licence or transfer the whole or a part of its utility.

Additionally, the Competition Commission of India (CCI), established under the Competition Act 2002 (Competition Act) has, under the merger control provisions, the authority to block a combination (a merger or acquisition beyond specified assets or turnover thresholds) in the electricity sector if it believes that such merger or acquisition will have an appreciable adverse effect on competition (AAEC) on the relevant market, such as the electricity sector in India.

Earlier, the regulations relating to connectivity issued by the Central Electricity Regulatory Commission (CERC) allowed for the transfer of connectivity only in limited circumstances, between the parent company and a wholly owned subsidiary. This provision becomes a bottleneck for change in shareholdings allowed under most power purchase agreements, where companies are allowed to transfer shares of the special purpose vehicle, as long as the parent company maintains 51 per cent of the shareholdings up until one year after the date of commissioning of a project. In 2018, the Power Ministry had directed the CERC to allow transfer of connectivity from a parent company to a subsidiary that is not wholly owned, with a condition that the shareholding of the parent company in such subsidiary or affiliate company should not fall below 51 per cent at any time before one year from the date of commissioning of the relevant project. The recent CERC (Connectivity and General Network Access to the inter-state Transmission System) Regulations 2022 provide that the connectivity granted to a parent company may be utilised by its subsidiary companies and vice-versa. This has removed any restrictions on transfer of connectivity between parent and subsidiary companies.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

The Competition Act prohibits any enterprise or person from entering into a combination that causes or is likely to cause an AAEC within the relevant market in India. The Competition Act also mandates that any person or enterprise proposing to enter into a combination obtains prior approval of the CCI before executing the transaction. If the CCI believes that

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the proposed combination will not have an AAEC on the relevant market in India, it approves the transaction, and if it subsequently finds that the combination may have an AAEC within the relevant market in India, it may prohibit the proposed combination or allow it subject to certain conditions meant to neutralise the adverse effects of such combination. The Competition (Amendment) Act 2023 requires that if the value of any combination transaction exceeds 20 billion Indian rupees and has substantial business operations in India, it must be reported to the CCI. While the Competition (Amendment) Act 2023 received the President of India's approval in May of 2023, certain provisions, including the 20 billion Indian rupees threshold for the deal value, will come into effect as and when the CCI issues relevant regulations and recommendations. Till then, combination deals will need to be reported to the CCI based on the value of the asset or turnover.

For determining the AAEC of any combination, the Competition Act sets out specific factors (such as the extent of entry barriers, degree of countervailing power in the market, the extent of effective competition likely to sustain in a market, nature and extent of vertical integration in the market, the possibility of a failing business, etc) and requires the CCI to decide within 210 days from a notice of combination being filed. If no order is passed by the CCI on the proposed combination within the prescribed period, it is deemed that the proposed combination has been approved by the CCI. By way of its regulations, the CCI has committed to endeavour to pass an order within 180 days from a notice of combination being filed. In practice, the CCI usually gives its prima facie opinion approving the transaction within 60 working days in cases without any competition concerns. In case of competition concerns, the CCI can take up to six months to pass its final order.

While the Electricity Act does not set out any specific thresholds, the bidding documents entered into by entities in the power sector typically prescribe provisions for equity lock-in and change in control for a specified period (except for wind power procurement), which effectively block a merger or acquisition.

Other than competition law and sector-specific restrictions, provisions of the Companies Act 2013 and the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations 2011 (applicable to listed companies) will also apply concerning change in shareholding through mergers and acquisitions.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The CERC and state electricity regulatory commissions (SERC) are empowered to issue appropriate directions to a licensee or an electricity generating company if such licensee or generating company enters into any agreement or abuses its dominant position or enters into a combination that is likely to cause or causes an AAEC in the electricity sector. The CCI has the authority to initiate an inquiry into alleged anticompetitive conduct, either suo motu based on information that it has or based on complaints received or on a reference made by the government or statutory authorities (eg, the CERC and the SERCs). Further, the CCI can also make a reference to other statutory authorities (eg, the CERC and SERC) for their non-binding opinion on issues on the sectors under their jurisdiction. Similarly, other statutory authorities can also make a reference to the CCI for issues on competition

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law. This enables electricity regulatory authorities to make their own assessment and also consult the CCI concerning alleged anticompetitive conduct.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

Section 3 of the Competition Act prohibits agreements that cause or are likely to cause an AAEC in India. 'Agreement' includes an arrangement, understanding or actions in concert. Such agreements can be oral or written, formal contracts or informal arrangements, and need not be enforceable by law. While determining AAEC the CCI considers the following factors:

- the creation of barriers to new entrants in the market;
- driving existing competitors out of the market;
- the foreclosure of competition by hindering entry into the market;
- the accrual of benefits to consumers;
- improvements in production or distribution of goods or provision of services; and
- the promotion of technical, scientific and economic development through production or distribution of goods or provision of services.

Section 4 of the Competition Act prohibits abuse of dominant position. In the case of a section 4 investigation, the CCI must:

- define the relevant market;
- demonstrate dominance in such market; and
- establish abuse of dominance by the concerned enterprise.

Abuse of dominance is of two kinds: exploitative and exclusionary conduct. These cover predatory pricing, imposition of unfair terms and prices in one-sided contracts, leveraging, denial of market access, etc.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The CERC and SERCs are empowered to issue appropriate directions to a licensee or an electricity-generating company. Further, the CCI also has the authority to initiate an inquiry into alleged anticompetitive conduct and make a reference to other statutory authorities (eg, the CERC and SERC) for their non-binding opinion on issues in the sectors under their jurisdiction. Similarly, other statutory authorities can also make a reference to the CCI for issues on competition law. This enables electricity regulatory authorities to make their own assessment and also consult the CCI concerning alleged anticompetitive conduct.

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INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

It is permissible to have 100 per cent foreign direct investment (FDI) in generation (except nuclear power), transmission, distribution of electricity and power trading sectors. Up to 49 per cent foreign investment (26 per cent through FDI and 23 per cent through foreign institutional investment or foreign portfolio investment) is permissible in power exchanges without prior regulatory approval in the primary and secondary markets.

Recently, the government of India amended the FDI policy to curb the opportunistic takeovers or acquisitions of Indian companies owing to the current covid-19 pandemic. An entity of a country, which shares its land borders with India or where the beneficial owner of investment into India is situated in or is a citizen of any such country, then the investment can only be done under the government-approved route.

Further, while there are no special requirements or limitations on acquisitions of interest in the electricity sector by foreign companies, for competitively bid projects the standard bidding documents issued by the Power Ministry may specifically provide each distribution utility (that is procuring power) to evaluate the association of a foreign entity (with the bidder) from a national security or public interest perspective. To the extent such association is found to be detrimental to the national interest, the distribution utility can reject the associated bid.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

Transmission licensees are required to abide by the regulations framed by the Central Electricity Regulatory Commission (CERC) and the Central Electricity Authority (CEA) concerning the construction and operation of transmission systems and connectivity to the grid. Under the Electricity Act 2003 (Electricity Act) and associated Rules, the Chief Electrical Inspector is required to certify that any apparatus that is used for a transmission system meets the safety regulations and guidelines prescribed. Further, according to the CEA's regulations, any electrical installations and apparatus that are of a voltage exceeding 650 volts are required to be inspected and approved by the Chief Electrical Inspector before commissioning. Therefore, the construction and operation of an interconnector, or any other similar apparatus, will be governed by the regulations that have been issued by the CERC and the CEA and where required, approval must be obtained from the Chief Electrical Inspector.

CEA initiated the National Level Data Registry System in early 2018 to register all generating units with a capacity above 0.5 megawatt to create a national-level data set. To implement the aggregation of the data, the CEA notified an amendment on 6 February 2019 to the CEA (Technical Standard for Connectivity to the Grid) Regulations. Through a recent notification, the Power Ministry has specified that all generating units of the country that have an installed capacity of 0.5 megawatt or above have to register on the e-portal effective

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from November 2020. The requirement of obtaining a unique registration number is mandatory, as for existing grid-connected electricity generating units and units that have already obtained grid connectivity, the number is required for injection of power in the grid and for under construction electricity generating units, the number is required while applying for grid connectivity.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Until December 2016, there was no legal framework for governing and regulating cross-border electricity supply. In the absence of a regulatory framework governing cross-border electricity supply, Indian power trading companies have supplied and procured electricity to and from neighbouring countries including Bhutan, Bangladesh, Myanmar and Nepal by way of bilateral agreements that are generally government-to-government contracts. However, the past few years have seen significant regulatory developments in the area. Although the Electricity Act as it stands today is silent on cross-border electricity supply, the Electricity (Amendment) Bill 2022 allows the central government to prescribe rules and issue guidelines for allowing and facilitating cross border trade of electricity.

The Power Ministry has issued Guidelines for Import/Export (Cross-Border) of Electricity. According to these guidelines, in the case of cross-border transaction of electricity through arrangements other than government-to-government negotiations, any entity proposing to import or export electricity may do so only after taking the approval of the designated authority (the Power Ministry has notified the appointment of a Member (Power System) in the CEA, who will be the designated authority for functions prescribed under these guidelines), who in turn will have to take concurrence from the government of India. Coal-based generating plants may only be allowed to export electricity in cases where they utilise imported coal or spot e-auction coal or coal obtained from commercial mining. The tariff for the import of electricity by Indian entities from generating stations located outside India may be determined through a process of competitive bidding. On the other hand, the tariff for export of electricity to entities of neighbouring countries by Indian entities (through long-, medium- or short-term agreements) may be as mutually agreed or through competitive bidding, subject to payment of applicable transmission or wheeling charges. Transmission interconnection between India and a neighbouring country is envisaged to be planned jointly by transmission planning agencies of the two countries.

In February 2017, the CERC issued draft regulations covering the cross-border trade of electricity for public consultation. The final version of these regulations was notified by the CERC in March 2019. The regulations address key aspects of the cross-border trade of electricity such as connectivity, open access and system safety and set out the institutional framework for cross-border trade of electricity, such as the designated authorities and agencies for facilitating the approval process and procedures for import and export of electricity. They also envisage that a settlement nodal agency will be responsible for the settling of charges on grid operation (including deviation charges) concerning a particular neighbouring country and the National Load Despatch Centre will act as the system operator for cross-border trade. The Central Transmission Utility is responsible for grid access-related requirements of cross-border trade. On 26 April 2018, the CEA issued Designated Authority (Conduct of

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Business Rules), 2018 to frame its own rules for the conduct of business for facilitating the process of approval and laying down the procedure for cross-border trade of electricity between India and neighbouring countries and other related matters.

In February 2021, the CEA issued 'Procedure for Approval and Facilitating Import/Export (Cross Border) of Electricity'. The procedure aims to facilitate coordination with nodal agencies or authorities of neighbouring countries for transmission system planning, joint system studies, surveys, preparation of feasibility study reports, system development, construction, erection, monitoring, testing, commissioning, operation and maintenance of transmission system for import or export (cross border) of electricity in a transparent manner. It also lays down provisions for grant of approval to eligible entities to participate in cross-border exchange of electricity and the procedure for grant of approval to an Indian generating station supplying electricity exclusively to neighbouring countries for building a dedicated transmission line for connecting to the transmission system of a neighbouring country.

India, along with other members of the South Asian Association for Regional Cooperation (SAARC), has also signed the SAARC Framework Agreement for Energy Cooperation (Electricity) to enable cross-border trade of electricity, which provides a broad framework for data updating and sharing, planning of cross-border interconnections, transmission access, etc. Additionally, media reports suggest that steps for establishing a SAARC power grid have been initiated by SAARC member countries.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

Restrictions on transactions with affiliates are typically provided in licence conditions and regulations formulated by the relevant electricity regulatory commissions. Typically, such transactions should be undertaken on an arms-length basis and at a value that is fair and reasonable. Additionally, the Electricity Act also allows transmission or distribution licensees to engage, with the prior approval of the relevant electricity regulatory commission, in other businesses for the optimum utilisation of their assets, if a specified proportion of revenues from such other business are used towards reducing wheeling charges, or wheeling and transmission, as the case may be. Further, in such a case, the transmission or distribution business of the licensee must not subsidise the other business undertaking, nor be encumbered by it.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The appropriate electricity regulatory commission is the body responsible for enforcing such restrictions. These restrictions form part of the terms of the licence, therefore the appropriate electricity regulatory commission can ensure compliance, under the powers provided

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under the Electricity Act 2003, and impose sanctions, which include the imposition of penalties and revocation of the licence.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

Payment Security and Late Payment Surcharge

On 28 June 2019, the Power Ministry issued an order regarding the opening and maintaining of a payment security mechanism (to secure tariff payments) as required under power purchase agreements between developers and distribution licensees (in the form of bank guarantees or letters of credit). The order directed that load despatch centres despatch power only from those projects for which a letter of credit had been opened under the power purchase agreements. An intimation is required to be provided to the load despatch centres in this regard with details such as the period of supply. Electricity will be despatched only up to the quantity for which payment security has been provided. To give effect to the order, the Power Ministry issued a detailed procedure for scheduling power on 17 July 2019, which was later revised on 25 February 2021. The procedure reiterates that an intimation of the opening of the letter of credit is to be provided to the load despatch centre along with details of the period of supply. The procedure also states that the payment security may be provided by the distribution company for a shorter duration of supply (eg, a week or fortnight) or advance payments may be made through direct deposits (corresponding to at least one day's purchase), irrespective of the period of the payment security opened under the power purchase agreement. The quantum of power scheduled will be limited to the quantum for which money has been deposited. The Electricity (Amendment) Bill 2022 provides that electricity will not be scheduled or despatched if a distribution company (DISCOM) does not provide adequate payment security.

In the Indian context, while payment security is typically provided for in power purchase agreements, distribution licensees (as the offtaker) did not provide such payment security as a matter of practice. DISCOMs and other users of the transmissions system are required to maintain an adequate, unconditional and irrevocable payment security mechanism under the Electricity (Late Payment Surcharge and Related Matters) Rules 2022 (LPS Rules). The LPS Rules further stipulate that the supply of electricity will only be made or facilitated if an adequate security mechanism is maintained or a proper security deposit is provided. In case adequate payment security is not provided by the relevant offtaker, generation companies will have no right to collect late payment surcharge from DISCOMs. This came as a much-needed reform in the distribution sector, particularly given the poor financial health of the state-owned distribution licensees.

National Electricity Plan

The Central Electricity Authority prepares a National Electricity Plan for five years, which serves as the regulatory roadmap for electricity sector reform in India. On 31 May 2023,

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the Central Electricity Authority notified the National Electricity Plan (Volume I: Generation) for the period between 2022–2027, which sets out a review of the capacity addition from conventional and renewable energy sources for the period between 2017–2022 as well as projections for generation capacity for the next 15 years.

Bidding Guidelines – Wind Projects

The Power Ministry has recently issued the guidelines for tariff based competitive bidding process for power procurement from grid connected wind power projects. The guidelines allow a procurer (which can be a DISCOM, a power intermediary company or other power aggregator appointed by the MNRE) to procure electricity from wind based power projects that have:

- installed capacity of 10 megawatts or more and are connected to the intra-state transmission system; or
- installed capacity of 50 megawatts or more and are connected to the interstate transmission system.

Launch of New Bid Processes

Recently, the government of India has approved the largest tranche of projects to be awarded basis tariff-based competitive bidding, including, for power transmission projects that would connect Renewable Energy Zones in Gujarat, Rajasthan and Maharashtra and hydropower projects in Himachal Pradesh, with the national grid.



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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

The [Energy Law](#) (Law No. 30 of 2007) and the [Electricity Law](#) (Law No. 30 of 2009), which have been amended most recently by Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law ([Job Creation Law](#)), are the primary laws governing Indonesia's electricity sector.

The implementation of these laws is regulated by [Government Regulation No. 14 of 2012 on Electricity Supply Business Activity](#), which was amended by Government Regulation No. 23 of 2014 (GR 14/2012).

Following the enactment of Law No. 11 of 2020, which has been revoked by the Job Creation Law, the government introduced Government Regulation No. 25 of 2021 on the Implementation of the Energy and Mineral Resources Sector ([GR 25/2021](#)), which regulates certain provisions for the electricity sector. GR 25/2021 was issued prior to the Job Creation Law, but remains applicable.

Additional regulations are enacted at the presidential, ministerial and director-general level to administer technical matters, such as the procedures to obtain licences for electricity business, sale of power and national and transnational interconnection. Through the laws and regulations on regional autonomy, provincial governments may also issue electricity regulations in line with the Electricity Law.

As a vital and strategic resources, the business of electricity is controlled by the state and held by state-owned and region-owned enterprises. The main company is PT Perusahaan Listrik Negara (Persero) (PLN).

To increase the electricity supply, the private sector is also allowed to participate in the electricity business. The government requires that electricity is:

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- provided in sufficient amounts;
- reliable in quality; and
- reasonable in price or tariff for the welfare of the people and to achieve sustainable development.

The development of the electricity supply system is provided in a national electricity blueprint endorsed by the government. The blueprint refers to the national energy policy, which is drafted by the National Energy Council and ratified by the government following consultation with parliament. The national energy policy includes policies on energy supply for national demand, a priority of energy development, utilisation of domestic energy resources, and domestic energy support reserves.

In 2014, a national energy policy was ratified under [Government Regulation No. 79 of 2014](#) on the National Energy Policy (the National Energy Policy), setting the plan for national energy management to ensure domestic energy security and support sustainable development.

The National Energy Policy was further implemented through Presidential Regulation No. 22 of 2017 on the National Energy Plan (the [National Energy Plan](#)). The National Energy Plan provides central government policies on national energy development through 2025, consisting of, among others, current energy conditions and expectations for the future.

Based on the National Energy Plan, the targets for electricity supply and utilisation are as follows:

- increase procurement of primary energy to 400 million tonnes of oil equivalent (TOE) by 2025 and 1 billion TOE by 2050;
- increase utilisation of primary energy per capita to 1.4 TOE by 2025 and 3.2 TOE by 2050;
- increase power plant capacity supply to 115 gigawatts by 2025 and 430 gigawatts by 2050; and
- increase electricity utilisation per capita to 2,500 kilowatt hours by 2025 and 7,000 kilowatt hours by 2050.

In accordance with GR 25/2021, the national energy policy will become the basis for the Minister of Energy and Mineral Resources to stipulate the National Energy Plan that shall be evaluated every year and re-enacted every five years. The National Energy Plan shall later become the basis for the stipulation of the Regional Electricity Plan by the Governor and the Electricity Supply Business Plan (RUPTL).

The Electricity Supply Business Plan is currently implemented through a decree issued by Minister of Energy and Mineral Resources No. 188.K/HK.02/MEM.L/2021 on the Ratification of the Electricity Supply Business Plan of PLN for the period 2021 through 2030 (known as the [2021 RUPTL](#)).

A RUPTL provides, among others, a general policy on the development of electricity and electricity infrastructure, an update on annual electricity grid status, development of new and renewable energy, supply of primary energy, investment needs, analysis of long-term risks and possible mitigating actions in PLN's electricity business area (the Business Area).

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Under the 2021 RUPTL, the government aims to have power generation from renewable energy make up 51.6 per cent of the total national power generation by 2030.

The 2021 RUPTL sets out two scenarios of energy mix target for power generation by 2030, with renewable energy making up 23 per cent of the total target in both scenarios starting from 2025. The optimal scenario will still consider the least cost principle. As such, coal constitutes a large percentage of the energy mix at 64 per cent, followed by natural gas at 11.5 per cent, diesel at 0.4 per cent, and potential renewable energy at 1.2 per cent.

On the other hand, the low-carbon scenario decreases the percentage of coal in the energy mix; increases the biomass co-firing and utilisation of natural gas; and maintains the renewable energy percentage in the energy mix at a minimum of 23 per cent for 2025–2030 period. By 2030, the energy mix is projected to have lower coal percentage of 59.8 per cent, natural gas with 15.6 per cent, diesel with 0.4 per cent, and renewable energy with 24.2 per cent.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Power generation, transmission, distribution and sales may be operated in an integrated manner by one business entity within a Business Area that is determined by the government. Integrated power supply business may be conducted through a combination of the following businesses:

- power generation, power transmission, power distribution and power sales;
- power generation, power transmission and power sales; or
- power generation, power distribution and power sales.

Electricity generation, transmission, distribution and sale for public use may be organised by business entities owned by the state and local government, as well as by the private sector under an Electricity Supply Business Licence for Public Use.

PLN, a state-owned enterprise, is the dominant market player and the primary contributor to the public supply of electricity.

Private companies are allowed to generate electricity for their own use, but they must obtain a licence in the form of an Electricity Supply Business Licence for Captive Use for capacity above 500 kilowatts in one electrical installation system. For electricity generation with a capacity of up to 500 kilowatts in one electrical installation system, companies only need to submit a report to the Directorate General of Electricity instead of obtaining a licence. Many companies located in Indonesian industrial zones generate electricity for their private use and sell any excess power to PLN for use on the Indonesian power grid.

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REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

After the enactment of Government Regulation No. 5 of 2021 on the Administration of Risk-Based Business Licensing ([GR 5/2021](#)), the licences required for a business entity shall be based on the risk level of its relevant business activity. Further, the licences shall be processed and issued through the Online Single Submission (OSS) System operated under the supervision of the Capital Investment Coordinating Board.

Under GR 5/2021, a power generation business is considered a high-risk business that will require a Business Identification Number or NIB, and a relevant business licence (in this case, an Electricity Supply Business Licence for Public Use (IUPTLU)).

Further, a power purchase agreement between the IUPTLU applicant and its buyer (commonly, PT Perusahaan Listrik Negara (PLN)) is a prerequisite to obtaining an IUPTLU.

An IUPTLU holder can contract the construction of power generation facilities to a qualified construction service provider through an engineering, procurement and construction contract. Previously, the construction service provider had to mainly comply with the laws and regulations governing construction services in general. However, with the enactment of the Construction Law (Law No. 2 of 2017), as amended by the Job Creation Law (Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law), and its implementing regulations, Government Regulation No. 22 of 2020, as amended by Government Regulation No. 14 of 2021, electrical installations, including power generation facilities, are now subject to electricity regulations.

As such, construction service providers for electrical installation are currently categorised under electricity supporting services governed by Law No. 30 of 2009 on Electricity and its implementing regulations – specifically, Government Regulation No. 62 of 2012 on Electricity Supporting Services, GR 25/2021 and Minister of Energy and Mineral Resources (MEMR) Regulation No. 11 of 2021 on Implementation of Electricity Business ([MEMR 11/2021](#)) – which require an Electricity Supporting Services Business Licence (IUJPTL). Prior to obtaining the IUJPTL, the business entity must first apply for Business Entity Certificate or SBU as a formal recognition of the classification and qualification of the business entity to carry out the electricity supporting services business.

Before the commencement of construction, an IUPTLU holder must secure various prerequisite licences from the regional or provincial government. Among others, a location permit, building approval (formerly known as a building permit) and environmental licence (now called an Environmental Feasibility Decree) or an Environmental Management Willingness Statement.

Compensation to any party whose assets (land, buildings, or plants) are directly or indirectly affected must be settled before commencing construction.

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In addition, according to MEMR Regulation No. 12 of 2021 on the Classification, Qualification, Accreditation and Certification of Electricity Supporting Services (MEMR 12/2021), the IUPTLU holder must obtain a commissioning certificate (or operational feasibility certificate (SLO)) from an institution accredited by the MEMR and registered with the Directorate General of Electricity (DGE) before commencing the operation of power generation facilities. The SLO is issued by the OSS Agency on behalf of the accredited institution, subject to a physical assessment by the technical team from the institution.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

The connection of generation facilities to the transmission grid are subject to a power purchase agreement or a grid lease agreement under an electricity supply business plan from the transmission business entity.

Transmission grids are owned by an integrated IUPTLU, transmission IUPTLU or transmission Electricity Supply Business Licence for Captive Use (IUPTLS) holder (the transmission business entity). The transmission business entity may lease the transmission grid to an integrated IUPTLU holder that has a certain Business Area; a holder of a generation IUPTLU; or a holder of an IUPTLS (the transmission lessee).

The transmission lessee should submit a request for lease of grid to the transmission business entity and shall submit a carbon copy of its request to the MEMR or the governor in accordance with their respective authority. The result of the negotiation on the price for the lease of grid between the transmission business entity and the transmission lessee shall be submitted by the transmission business entity to the MEMR or the governor for approval. In terms of its technicality, MEMR 11/2021 also requires the collective use of transmission grid to consider the applicable grid capacity and grid code.

Before connecting to the grid, an electricity installation must also satisfy safety and equipment standards determined by the MEMR by securing an SLO from an institution accredited by the DGE as regulated under MEMR 12/2021 and MEMR Regulation No. 10 of 2021 on Electrical Safety.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

The use of renewable energy sources is encouraged at the policy level through the endorsement of the National Energy Policy, which aims to achieve the best possible energy mix for power production in Indonesia. The National Energy Policy provides that by 2025, energy consumption from new and renewable energy (biomass, nuclear, solar, wind, etc) should reach more than 23 per cent of total energy consumed and that the use of oil should be reduced to less than 25 per cent.

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Since 2010, PLN has been provided with a fast-track programme for the development of coal-fired power plants, as well as the use of renewable energy and gas. Under MEMR Regulation No. 40 of 2014, there are 58 power plant projects and 40 transmission projects listed as fast-track private-public partnerships involving coal, geothermal, water and gas-fired power plants.

Further, Presidential Regulation No. 4 of 2016 on Development of Electrical Infrastructure, as last amended by Presidential Regulation No. 14 of 2017, provides that for the development of generation facilities using new and renewable energy, the central or regional government may give government support in the form of fiscal incentives, feed-in tariffs and outright subsidies.

Feed-in tariffs are subject to MEMR Regulation No. 50 of 2017 as last amended by MEMR Regulation No. 4 of 2020 on the Utilisation of Renewable Energy for Electricity Supply (MEMR 50/2017), which regulates the appointment method for power purchase and purchase price by PLN from renewable power plants.

MEMR 50/2017 provides that power purchase from power plants utilising renewable energy will be made through direct selection, whereas power purchase from renewable power plants that have high technology is variable and highly dependent on the weather, will be made through direct selection with capacity quota.

Direct appointment may only be made by PLN in the event that there is only one candidate for a power producer utilising renewable energy. The regulation further provides that power purchase prices by PLN from renewable power plants will be determined based on a tariff that does not include the electricity distribution price (BPP).

As regulated under MEMR Regulation No. 24 of 2017 on the Mechanism for Stipulation of BPP by the PLN, both the local BPP and the national BPP will be determined every year by the MEMR. The prevailing BPP is currently determined through MEMR Decree No. 169.K/HK.02/MEM.M/2021 of 2021 on the Amount of BPP by PLN for Year 2020.

For power plants utilising solar, wind, biomass, biogas and tidal or ocean thermal energy conversion, if the local BPP is higher than the national BPP, the maximum power purchase price by PLN is 85 per cent of the local BPP. If the local BPP is equal to or less than the national BPP, the power purchase price may be determined based on the consent of the parties.

For power plants using hydro, municipal waste or geothermal energy, if the local BPP is higher than the national BPP, the maximum power purchase price by PLN is equal to the local BPP. If the local BPP is equal to or less than the national BPP, the power purchase price may be determined based on the consent of the parties.

In 2022, the government issued Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Electricity Generation (PR 112/2022), which regulates, among others, energy transition for power generation and the electricity purchase mechanism and prices for renewable energy-based power plants. The provisions under PR 112/2022 are similar to those under MEMR 50/2017 in the sense that the procurement methods are carried out through either direct selection or direct appointment. However, PR 112/2022 further clarifies on which types of power purchases qualify for direct appointment. The electricity purchase pricing under PR 112/2022 refers to either (1) a maximum benchmark, or (2) pricing based on agreement.

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Specifically concerning rooftop solar panels, the MEMR has also issued MEMR Regulation No. 26 of 2021 on Rooftop Solar Power Plants Connected to the Grid of IUPTLU Holders, which establishes the mechanism for the installation of solar rooftop systems.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

As part of a commitment to reduce the CO₂ emissions from deforestation and forest degradation, the government has suspended the issuance of new mining licences in areas that are specified as primary natural forest and peatland (including conservation and protected forest areas) since 2010. This policy has reduced the potential amount of coal that can be produced for coal-fired power plants in Indonesia. However, given the abundance of cheap coal in Indonesia, the impact of this policy on the construction and use of coal-fired power plants is arguable.

Furthermore, PR 112/2022 mandates the MEMR to establish a roadmap for accelerating the decommissioning of coal-powered plants and incentivises the development of renewable energy-based powerplants to aid in the transition towards clean energy.

In addition, Minister of Transportation Regulation No. 8 of 2023 on Mitigation Acts for Climate Change in Transportation Sector (MOT 8/2023) incorporates the use of renewable energy as an electricity source in various types of transportation as one of many mitigation acts for climate change. Therefore, the policy in the transportation sector under MOT 8/2023 supports PR 112/2022 and encourages the use of renewable energy-based power plants to produce electricity for transportation.

Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

Battery energy storage systems are now included as one of the sub-fields of electricity supporting services for power generation under the GR 25/2021, which acknowledges the electricity supporting services of consultation, construction or installation, examination and testing, operations, maintenance, education and training specifically for battery energy storage systems under the power generation classification.

Further, MEMR Regulation No. 22 of 2021 on the Provision of Electricity Charging Stations and Electricity Transmission Equipment in Difficult-to-Access Areas (MEMR 22/2021) governs electricity transmission equipment (which relies on energy storage using batteries) as an energy source for areas in which electricity supply is limited.

In terms of research and development, the Energy and Mineral Resources Research and Development Body under the MEMR is responsible for research and development in the fields of oil and gas, electricity, minerals and coal, new and renewable energy, energy conservation

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and sea geology. The remit of the Energy and Mineral Resources Research and Development Body includes organising technical policies and implementing research and development.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

Both legislation on nuclear energy and the National Energy Policy encourage and provide the opportunity to develop nuclear power plants. However, to date, Indonesia has no commercial nuclear power plants, mainly owing to public resistance to nuclear power on health, safety and liability issues and the historical recognition of nuclear waste as a hazardous material.

So far, the development of nuclear power plants in Indonesia goes no further than research under the supervision of the national nuclear agency.

REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

Under Government Regulation No. 14 of 2012 on Electricity Supply Business Activity as amended by Government Regulation No. 23 of 2014 and Minister of Energy and Mineral Resources Regulation No. 11 of 2021 on Implementation of Electricity Business (MEMR 11/2021), an integrated Electricity Supply Business Licence for Public Use (IUPTLU), transmission IUPTLU or transmission Electricity Supply Business Licence for Captive Use (IUPTLS) is required to engage in the transmission business (ie, the holders of such licence must be a transmission business entity). The construction of transmission networks can be carried out by an Electricity Supporting Services Business Licence (IUJPTL) holder as the construction service provider appointed by the transmission business entity.

To obtain this licence, the applicant is required to submit an application supported by certain administrative and technical requirements in accordance with the procedure set out under MEMR 11/2021 and MEMR Regulation No. 5 of 2021 on Standards of Business Activities and Products on the Administration of Risk Based Licensing on the Energy and Mineral Resources Sector ([MEMR 5/2021](#)).

Under Government Regulation No. 5 of 2021 on the Administration of Risk-Based Business Licensing and the most recent Capital Investment Coordinating Board Regulation No. 4 of 2021 on Guidelines and Procedures for Risk-Based Licensing and Investment Facilities, the issuing authority of an IUPTLU is now the Online Single Submission (OSS) Agency on behalf of the relevant central or provincial government.

The OSS Agency, on behalf of the central government (MEMR), is authorised to issue IUPTLUs to the following entities:

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- those whose Business Areas are cross-province;
- state-owned enterprises;
- those who sell electricity or lease off the electricity grid to an IUPTLU holder issued by the MEMR; and
- holders of Business Areas with an integrated power business.

The OSS Agency, on behalf of the provincial government, is authorised to issue IUPTLUs to the following entities:

- those whose Business Areas are within one province;
- those who sell electricity or lease off the electricity grid to an IUPTLU holder issued by the governor; and
- holders of the Business Areas, except for power generation activities.

In addition, after the issuance of the IUPTLU, the applicant must fulfil commitments to secure a building permit (now, a building approval), a location permit and an environmental licence from the OSS on behalf of the local government and must also compensate any party whose assets (ie, land, buildings or plants) are directly or indirectly affected by the transmission network.

Before commencing operation, a transmission installation must secure an operational feasibility certificate (SLO) issued by an accredited technical inspection institution.

Private investment in power transmission and distribution in Indonesia has been rare to date, as transmission and distribution historically have been monopolised by PT Perusahaan Listrik Negara (PLN).

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

A transmission business entity may lease the transmission grid to an integrated IUPTLU holder that has a certain electricity Business Area; a holder of a generation IUPTLU; or a holder of an IUPTLS (the transmission lessee).

Specifically, for generation IUPTLU holders (independent power producers (IPPs)), access to the grid is subject to the power purchase agreement with PLN governing the terms of the IPP's electricity transfer to PLN's transmission grid.

Access to the grid may also be obtained through a lease agreement between the transmission business entity and the transmission lessee. The fee for this lease must be approved by the MEMR or governor, according to their jurisdiction.

An IUPTLU holder who produces power and owns and operates a transmission network is also eligible to access transmission and distribution networks.

The utilisation of transmission or distribution networks for telecommunications, multimedia and information purposes is permissible, subject to a licence issued by the OSS Agency

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on behalf of the MEMR, provided that such utilisation does not compromise power supply in the area.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

Since 2010, the government has assigned PLN to develop electricity infrastructures to meet the target of 35,000 megawatts of power generation and 46,000 kilometres of transmission grid across Indonesia, particularly with the issuance of MEMR Regulation No. 15 of 2010 on the List of Fast Track Projects in Renewable Energy, Coal and Gas Power Generation and the Relevant Transmissions, as amended four times, lastly by MEMR Regulation No. 40 of 2014.

Consistent with this objective, Presidential Regulation No. 4 of 2016 on the Development of Electrical Infrastructure as amended by President Regulation No. 14 of 2017 specifically provides government financial support for the development of electrical infrastructures, including transmission grids, by PLN through an independent management scheme.

Theoretically, based on MEMR 11/2021, a transmission business entity holding an integrated IUPTLU or transmission IUPLTU will not be bound by an electricity Business Area and is obliged to open the opportunity for the collective use of the transmission grid in conducting its transmission business. In other words, such transmission business entity will not be bound to a Business Area like other power supply businesses and the obligation for such operator to open as much opportunity as possible for the collective use of its grid is a way for the government to encourage the transmission development.

Despite the regulations allowing private-sector involvement in electricity transmission, the historical monopoly on transmission by PLN is expected to continue for some time. The expansion of transmission networks by the private sector may take longer to realise, considering that the government incentives to encourage the development of transmission networks for private entities were only just introduced in early 2016. They are, among others, in the form of delegation of land acquisition to government institutions on behalf of private entities, and an increase in foreign ownership permitted in mid- to high-voltage electricity.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

Transmission services may be leased through a network lease agreement between the transmission business entity and an integrated IUPTLU, an IUPTLU, an IUPTLS, an IUJPTL or cross-border electricity supply business entity.

The tariff for leasing transmission services is based on negotiation of the relevant parties; the agreed tariff shall be submitted for approval from the government (ie, MEMR or the governor), depending on the location of the transmission network.

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The parties to a network lease agreement, through the transmission business entity, may propose the price of power transmission by submitting a written application to the MEMR or governor for approval under MEMR 11/2021. The approved price or fee from the relevant authority may be in the form of a benchmark price.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

The MEMR, through the Directorate General of Electricity, is responsible for assuring the reliability of the transmission grid. An inspector from an accredited technical inspection institution will issue an SLO in connection with the installation and operation of the transmission grid.

In the event of non-compliance, the inspector may recommend suspension of the activities of the service provider, which may result in revocation of its operational licence.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

A Electricity Supply Business Licence for Public Use (IUPTLU), distribution IUPTLU or an Electricity Supply Business Licence for Captive Use (IUPTLS) for distribution is the main licence needed to construct and operate distribution networks. Similar to other electricity supply facilities, the construction of distribution networks can be carried out by an Electricity Supporting Services Business Licence (IUJPTL) as construction service provider appoint by the distribution networks business entity. The Online Single Submission (OSS) Agency, on behalf of the Minister of Energy and Mineral Resources (MEMR) or the provincial government, depending on the jurisdiction, is the relevant authority to issue an IUPTLU. An IUPTLU for distribution requires:

- stipulation of electricity Business Area through the OSS (on behalf of the MEMR);
- approval of electricity selling price or transmission lease price by the MEMR;
- approval of the applicant's electricity supply business plan; and
- a distribution network lease or joint-use agreement with the candidate user of the distribution network.

The stipulation of an electricity Business Area as a prerequisite to apply for an IUPTLU for distribution is subject to the procedures outlined in Minister of Energy and Mineral Resources Regulation No. 11 of 2021 on Implementation of Electricity Business (MEMR 11/2021). There may be only one business entity in each Business Area.

Under MEMR 11/2021, the stipulation of an electricity Business Area shall be granted by considering the fulfilment of at least one of the following aspects:

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- the existing holder of a Business Area is unable to supply electricity;
- the existing holder of a Business Area is unable to fulfil the quality and reliability standard;
- the existing holder of a Business Area relinquishes a part or all of the existing holder of the electricity Business Area to MEMR;
- a Business Area proposed by a business entity is not yet covered by the existing holder of a Business Area; or
- a Business Area proposed by a business entity is an integrated zone that manages the energy resources in an integrated manner according to the pattern of the business electricity needs.

As with transmission, despite the regulations allowing private sector involvement in the distribution business, the historical monopoly on distribution by PT Perusahaan Listrik Negara (PLN) as the holder of the most Business Areas in Indonesia is expected to continue for some time.

Like the transmission sector, the distribution applicant must also fulfil commitments stipulated in the form of a building permit (now, a building approval), a location permit and an environmental licence from the local government and settle with any party whose assets (ie, land, buildings or plants) are directly or indirectly affected by the distribution network.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Any party that provides power to the grid (including an independent power producer (IPP)) and that holds an IUPTLU may access the distribution grid to supply power to the public. Access to the grid must be evidenced by a lease between the holder of the IUPTLU for distribution and the user of the grid. The fee for such a lease must be approved by the MEMR or governor.

The utilisation of electricity distribution networks for telecommunications, multimedia and information purposes is permissible subject to an approval from the network owner, provided that such utilisation does not compromise power supply in the area. The network owner shall submit a report on the utilisation of electricity distribution networks for telecommunications, multimedia and information purposes to the MEMR.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

Similar to the transmission business, the distribution business is technically open to the private sector. Despite the above, unlike transmission business, distribution business entity is still bound to the electricity Business Area. Further, MEMR 11/2021 also provides that the distribution business entity shall open opportunities for the collective use of the distribution grid. However, in practice, even private IPPs are still relying on PLN's distribution grid to supply their power to end-users.

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In terms of regulator involvement, MEMR Regulation No. 4 of 2009 on Provisions on Electricity Distribution stipulates a code of conduct for the distribution business, including standard policies for distribution, connection, operation, planning, and settlement. Government incentives for private sector distribution businesses are not currently available.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

The tariff for the lease of distribution services shall be approved by the government (MEMR or governor) depending on the location of the distribution network.

Under MEMR 11/2021, an integrated IUPTLU, a distribution IUPTLU or a distribution IUPTLS holder (the distribution business entity) may lease the transmission grid to an integrated IUPTLU holder that has a certain Business Area; a holder of a generation IUPTLU; or a holder of an IUPTLS (the distribution lessee).

The distribution lessee should submit a request for lease of grid to the distribution business entity and shall submit a carbon copy of its request to the MEMR or the governor in accordance with their respective authority. The result of the negotiation on the price for the lease of grid between the distribution business entity and the distribution lessee shall be submitted by the distribution business entity to the MEMR or the governor for its approval.

In terms of its technicality, MEMR 11/2021 also requires the collective use of distribution grid to consider the applicable grid capacity and grid code.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

Indonesia recognises two types of power sales: from one Electricity Supply Business Licence for Public Use (IUPTLU) holder to another IUPTLU holder, and from an IUPTLU holder to end-users.

An IUPTLU is required for all entities engaging in the power sales business. Under MEMR Regulation No. 10 of 2022 on Procedures for Application for Approval of the Selling Price of Electricity and Lease of Electric Power Grids and Procedures to Request for Electricity Tariffs (MEMR 10/2022), the power sales business from one IUPTLU holder to another IUPTLU holder no longer requires a tender. The parties may negotiate the power sales price, and the IUPTLU holder shall submit the proposed sale of power enclosed with the technical and administrative requirements to the MEMR or governor for approval.

The MEMR or governor shall provide their response no later than seven days after the complete submission of the agreed price. In case of rejection, the IUPTLU holder may reapply

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for approval of the electricity sale price to the relevant authority. In the event that the electricity sale price is approved by the relevant authority, the IUPTLU holder shall enter a power purchase agreement no later than 30 days after receiving the approval letter from the relevant authority for the electricity sale price.

On the other hand, the tariffs for electricity sold from IUPTLU to consumers are determined by the MEMR and subject to approval by the national house of representatives, upon which the tariffs shall be applied by the IUPTLU to consumers in its Business Area.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

Yes. There are two types of power sales thus two types of tariffs. For on-grid power sales (from an IUPTLU to another entity that is not end-users), the tariff is developed by the seller and buyer, the agreed price of which shall be submitted for approval from the relevant authority (MEMR or governor) as stipulated under MEMR 10/2022.

The government has provided feed-in tariffs for the purchase of electricity from independent power producers for certain power generators (eg, MEMR Regulation No. 50 of 2017 on the Utilisation of Renewables for Power Generation as last amended by MEMR Regulation No. 4 of 2020 and MEMR Regulation No. 19 of 2017 on the Utilisation of Coal for Power Generation and Purchase of Excess Power).

In Indonesia, the term 'tariff' is used in connection with the price of electricity to end-users. Under [Government Regulation No. 14 of 2012 on Electricity Supply Business Activity](#) as amended by Government Regulation No. 23 of 2014, tariffs for electricity sold to consumers are determined by the MEMR and are subject to approval by the national house of representatives. For PT Perusahaan Listrik Negara (PLN), as a state-owned enterprise whose licence is granted by the central government, the tariffs are determined by the MEMR.

The prevailing tariff for PLN is stipulated from time to time and lastly under MEMR Regulation No. 28 of 2016 on the Tariff of Electricity Supplied by PLN, as last amended by MEMR Regulation No. 3 of 2020 (MEMR 28/2016). In such regulation, tariffs vary depending on the use of the electricity (eg, for household, business or industrial purposes or wholesale) and the power of electricity (eg, 450 volt-amperes).

Under MEMR 10/2022, an IUPTLU holder may charge other fees to the customer in relation to the distribution of electricity, including:

- a connection fee;
- a subscription security deposit;
- fees for late payment of electricity; and
- other costs in accordance with the needs of electricity supply in the IUPTLU holder's Business Area.

The other fee shall be determined by the MEMR based on the application submitted by an IUPTLU for the specific fee.

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Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

Wholesale power tariffs are determined by the MEMR or governor, subject to approval from the provincial or national house of representatives, depending on where the wholesale power is generated and sold. For wholesale electricity provided by PLN under MEMR 28/2016, the threshold for wholesale electricity is electricity above 200 kilovolt-amperes.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The underlying constitutional principle of Law No. 30 of 2009 on Electricity (the Electricity Law) is article 33 of the 1945 Constitution of the Republic of Indonesia, which stipulates those sectors of production that are vital to the state and affect the greater livelihood of the people shall be under the power of the state.

That article also provides that the land, waters and natural resources of the country shall be under the powers of the state and used for the greatest benefit of the people. The core of the Electricity Law and electricity supply, therefore, is to achieve social welfare.

Under the Electricity Law, electricity should be:

- supplied in sufficient amount;
- dependable in quality;
- reasonable in price and tariff;
- for the welfare of the people; and
- able to achieve sustainable development.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

At the central government level, the highest authority is the House of Representatives, which has full authority to promulgate laws on electricity. Second is the President, who has authority to determine policies, regulations, management, and implementation of the electricity supply.

The Minister of Energy and Mineral Resources (MEMR) monitors and supervises the electricity sector and implements the policies, laws and regulations, and maintenance of electricity supply, including but not limited to establishing technical regulations and issuing licences. Under the MEMR, there is the Directorate General of Electricity (DGE) that authorise to formulate and carry out policies and technical standards.

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The National Energy Council is responsible for developing the National Energy Policy for the House of Representatives' approval, most recently the National Energy Policy for the period 2014 to 2050.

The provincial government also has the authority to issue provincial government regulations in the electricity sector.

Scope of authority

23 | What is the scope of each regulator's authority?

The provincial and national houses of representatives reserve the right as consultation regulatory bodies for the central and provincial governments when drafting the national electricity master plan and giving approval of electricity tariffs. The main authorities of the central and provincial governments are as follows.

The central government (MEMR)

The role of the MEMR is to:

- stipulate:
 - national electricity policy;
 - laws and regulations in the electricity sector;
 - guidelines, standards and criteria in the electricity sector;
 - guidelines in determining electricity tariffs for consumer;
 - national electricity master plan;
 - Business Area;
 - licences relating to cross-border electricity sale and purchase;
 - licences for electricity supply;
 - electricity tariffs for consumers from Electricity Supply Business Licence for Public Use (IUPTLU) holders;
 - approval for price of electricity sale and electricity network lease from IUPTLU holders;
 - approval for the sale of excess electricity from Electricity Supply Business Licence for Captive Use (IUPTLS) holders;
 - licences for electricity supporting services business;
 - licences relating to electricity supporting services conducted by state-owned enterprises or foreign investors, or majority shares owned by foreign investors; and
 - licences relating to the use of electricity network for the purpose of telecommunication, multimedia and informatics on the network owned by electricity supply licence or operational licence holders determined by the central government; and
- guide and supervise business entities in the electricity sector;
- appoint an electricity inspector;
- guide the functional position of electricity inspector for all levels of the government; and
- impose administrative sanctions on business entities whose licences are issued by the central government.

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The provincial government

The role of the provincial government is to:

- stipulate provincial regulation on electricity;
- set the general provincial electricity plan;
- appoint a provincial electricity inspector;
- direct and supervise entities engaged in the field of electricity whose licences are issued by the provincial government; and
- impose administrative sanctions on business entities whose licences are issued by the provincial government based on norms, standards, procedures, and criteria set by the central government.

The OSS Agency on behalf of the central and provincial government

The role of the OSS Agency on behalf of the central and provincial government is to issue:

- an IUPTLU;
- an IUPTLS;
- a Determination of Electricity Business Area;
- a Cross-States Electricity Purchase Licence;
- an Electricity Supporting Services Business Licence (IUJPTL); and
- licences for the implementation of electricity networks for telecommunications, multi-media, and informatics.

The DGE has the authority to stipulate implementing regulations of MEMR regulations and to supervise and monitor the electricity sector.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The electricity sector is regulated exclusively by the central and provincial governments. There is no independent regulatory authority.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

The forum to challenge or appeal a regulation or decision of a regulatory body (provincial and national houses of representatives, the MEMR or governor and the DGE) depends on whether the decision affects public or private interests.

Permits, licences and approvals affecting private interests are challenged through the Administrative Court based on Law No. 5 of 1986 on Administrative Court, as last amended by Law No. 51 of 2009. In the event a regulatory instrument affects the public interest (ie,

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issuance of a law or regulation), judicial review can be requested in the Constitutional Court (for laws) or Supreme Court (for regulations).

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

Crucially, to engage in the electricity business in Indonesia, the investor must establish a single purpose company, which cannot engage in multiple business sectors. Therefore, a merger with or acquisition of a company in another sector is not allowed.

However, an electricity company can be acquired by a company that engages in another sector. There is no longer a requirement to obtain approval from the Capital Investment Coordinating Board for a change of shareholding composition of a target company.

Any change of shareholding composition will require only an update of the target company's data in the Online Single Submissions (OSS) System. If an acquiring company that holds a company engaging in the electricity sector intends to acquire another company engaging in the electricity sector (ie, a parent company of a transmission network company intends to acquire a distribution network company), it may be subject to review by the Commission for Supervision of Business Competition (KPPU), which has the authority to unwind mergers and acquisitions that lead to monopoly, anticompetitive business practices, or market concentration.

Under Law No. 30 of 2009 on Electricity, PT Perusahaan Listrik Negara (PLN), as a state-owned enterprise has been prioritised to conduct electricity business in Indonesia, including generating and providing electricity. As such, PLN is exempted from Law No. 5 of 1999 on Anti-Monopoly (the Anti-Monopoly Law) as amended by the Job Creation Law (Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law).

Besides the KPPU, under Indonesian investment regulations, acquisition transactions shall always refer to the Investment List based on Presidential Regulation No. 10 of 2021 on Business Fields for Investment as amended by Presidential Regulation No. 49 of 2021 (the Investment List), which regulates the foreign share ownership of specific sectors, including electricity.

Also, Minister of Energy and Mineral Resources (MEMR) Regulation No. 48 of 2017 on the Supervision of Business in the Field of Energy and Mineral Resources (MEMR 48/2017) regulates the requirement to obtain an approval or notify the MEMR for certain changes in the shareholding composition or management of a company engaging in the energy and mineral resources business, including independent power producer companies.

Based on MEMR 48/2017, an Electricity Supply Business Licence for Public Use (IUPTLU) holder that sells its electricity to the PLN is not allowed to change its shareholding composition

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before the commercial operation date. An exemption to this is made only if the transfer of shares is performed to an affiliate of the majority shareholder, of which 90 per cent of its share is owned by such majority shareholder directly. Such transfer requires approval from the PLN. The share transfer should also be notified to the MEMR through the Directorate General of Electricity (DGE) after the notification from the Minister of Law and Human Rights is obtained.

Further, under MEMR Regulation No. 5 of 2021 on Standards of Business Activities and Products on the Administration of Risk-Based Licensing on the Energy and Mineral Resources Sector (MEMR 5/2021), an IUPTLU holder must also submit a periodic report to the DGE online system every January if there are changes in the IUPTLU holder's company. These reports consist of administrative and technical data, including any change in the company's composition of shareholders, board of directors or board of commissioners.

Further, the President has passed Presidential Regulation No. 13 of 2018 on the Implementation of Know Your Beneficial Owner Principle by Corporations for the Prevention and Eradication of Criminal Acts of Money Laundering and Terrorism Financing (PR 13/2018), which came into effect on 5 March 2018. PR 13/2018 requires corporations to disclose their beneficial owners (ie, individuals) to relevant authorities.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

Under KPPU Regulation No. 3 of 2023 on Assessments of Mergers or Consolidations of Business Entities, or Acquisitions of Shares and/or Assets That May Result in Monopolistic Practices and/or Unfair Business Competition, certain mergers and acquisitions shall be notified to the KPPU no later than 30 business days after the transaction takes effect, if all of the following thresholds are met:

- the transaction results in a combined assets exceeding 2.5 trillion rupiahs or combined sales turnover exceeding 5 trillion rupiahs;
- there is a change of control;
- it is not a transaction between affiliated companies; and
- the transaction is conducted between parties that have assets or sales (or both) in Indonesia, both directly and indirectly.

The KPPU will review the completeness of the submitted documents within three business days of receiving the notification. If the KPPU deems that the transaction has met the abovementioned thresholds, the KPPU will assess the transaction within 90 business days, consisting of initial and comprehensive assesment.

Based on Government Regulation No. 57 of 2010 on Merger or Consolidation of Business Entities, delay in notifying the KPPU can result in fines of 1 billion rupiahs per day, up to 25 billion rupiahs.

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Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The KPPU has the authority to investigate, review and sanction anti-competitive behaviour by companies. Because the only significant player in the electricity sector to date is PLN and electricity tariffs are stipulated or approved by the government, anticompetition concerns have not arisen in Indonesia.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

Under Law No. 5 of 1999 on Anti-Monopoly (the Anti-Monopoly Law), there are three prohibited categories. First, the law prohibits contracts that have elements of:

- oligopoly;
- price-fixing;
- dividing territory;
- boycotting;
- cartels;
- trusts;
- oligopsony;
- vertical integration;
- exclusive dealing; or
- a contract with a foreign party that's terms and conditions may result in monopoly and unfair competition or both.

Second, the law prohibits activities that lead to monopoly, monopsony, market dominance and conspiracy. The difference between the prohibition of contracts and activities is the scope of the prohibition. The prohibition of contracts applies only to arrangements between two or more business entities, while the prohibition of activities could apply to a single business entity.

The third category involves the prohibition of the abuse of a market-dominant position. The provisions of the Anti-Monopoly Law that relate to abuse of market dominance focus on regulating interlocking directorates, share ownership and mergers, acquisitions and dissolutions.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The KPPU has the authority to preclude or remedy anticompetitive or manipulative practices by:

- appraising contracts and activities that may cause anticompetitive practices;
- giving suggestions and recommendations related to anticompetitive practices;
- investigating cases that may cause anticompetitive practices; and

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- imposing administrative sanctions on business entities that violate the Anti-Monopoly Law, including:
 - cancelling an agreement that causes anticompetitive practices;
 - ordering the entrepreneur to stop the anticompetitive activities;
 - cancelling a merger, acquisition or dissolution;
 - setting the compensation payment; and
 - issuing fines with a minimum of one billion rupiahs.

INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

As opposed to the previous Presidential Regulation No. 44 of 2016 on Business Fields Closed and Business Fields Open with Condition for Investment (the Negative Investment List), the current Investment List states that all business fields are open for investment unless it is declared closed for investment or may only be conducted by the central government. Also, there are business fields that are open with certain conditions such as a limitation on foreign ownership, reservation for local investors, or fulfilment of certain licences.

Concerning the power business, the current Investment List only provides limitations to power generation business under 1 megawatt by stating that it shall be reserved for cooperatives and micro, small and medium enterprises.

Previously, under the former Negative Investment List, power generation from 1 megawatt to 10 megawatts could be conducted through a partnership with local entities in which foreign investors are limited to 49 per cent share ownership (or 67 per cent for geothermal energy). For electricity generation above 10 megawatts, electricity transmission and distribution, the foreign investor may hold up to 95 per cent, or 100 per cent in the context of public-private partnership during the concession period. Given that the current Investment List is silent on the above, it is currently assumed that such business is open for foreign investment without a specific restriction.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

Law No. 30 of 2009 on Electricity recognises transmission and distribution grids as the only form of interconnectors.

The operation of transmission and distribution businesses are subject to the Electricity Supply Business Licence for Public Use (IUPTLU) as the main operating licence. Further, transmission of electricity through interconnector to other country requires an Interconnectors Electricity Permit, which may only be applied by an integrated IUPTLU as regulated under

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Minister of Energy and Mineral Resources Regulation No. 11 of 2021 on Implementation of Electricity Business.

The construction of transmission or distribution grids shall be carried out by an Electricity Supporting Services Business Licence holder (IUJPTL) for construction and installation of transmission or distribution grids that are appointed by the IUPTLU holder.

An electricity Business Area must be secured before the IUPTLU application. There may be only one business entity in a Business Area. However, if the business of generation, transmission, distribution and sale of electricity is carried out in an integrated manner, then the generation or transmission (or both) can be carried out outside the Business Area.

In addition to securing the Business Area, the applicant must also fulfil commitments to secure a building approval, location permit and environmental approval from the Online Single Submission Agency on behalf of the local government and must compensate any party whose assets (ie, land, buildings or plants) are directly or indirectly affected by the transmission or distribution network. Further, under MEMR 12/ 2021, a transmission or distribution installation must secure an operational feasibility certificate before starting its operation. This certificate for transmission or distribution is valid for five years and may be extended.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Cross-border electricity supply through sale and purchase may be conducted by an integrated IUPTLU holder with an additional permit, namely, cross-border electricity sale and purchase permit and Interconnectors Electricity Permit. These additional permits are valid for 5 years and may be extended.

Cross-border electricity sales may be conducted on the condition that:

- the domestic electricity demand has been fulfilled;
- the sale price of the electricity is not subsidised; and
- the cross-border electricity sale must not interfere with the quality and reliability of domestic supply.

Cross-border electricity purchases may be conducted if:

- domestic electricity demand has not yet been fulfilled; and
- the purchase:
 - only as supports of the fulfilment of domestic demand;
 - does not harm the interest of the state;
 - improves the quality and reliability of the domestic supply;
 - does not create dependency on foreign sources; and
 - does not neglect the development of domestic electricity supply capacity.

The purchase price of cross-border electricity must be related to the economic value of the electricity and must be approved by the MEMR.

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Cross-border electricity sale and purchase activities are also subject to customs regulations. There is no tariff for cross-border electricity interconnection in Indonesia.

Indonesia is open to the cross-border electricity supply that is reflected in Presidential Regulation No. 77 of 2008 on Ratification of Memorandum of Understanding on the Association of South East Asian Nations (ASEAN) Power Grid. In 2022, Indonesia and Singapore signed a Memorandum of Understanding for cooperation in energy sector, which includes the plan of electricity sale from renewable energy-based power plants to Singapore.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

To date, there are no rules that restrict transactions between an entity carrying out electricity supply business and its affiliates. However, in general, affiliated transactions are required to follow the arm's-length principle, and arm's-length pricing documentation should be maintained.

State-owned enterprises can directly appoint their affiliates for goods and services procurement under certain conditions if the arm's-length principle is also met.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

Affiliated transactions are subject to scrutiny by the Directorate General of Taxation, which has an aggressive transfer pricing unit. Sanctions for improper transfer pricing involve stiff penalties.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

The Job Creation Law (Law No. 6 of 2023 on Stipulation of Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation into Law) has changed the business landscape of Indonesia as a whole, especially with its introduction to the Risk-based Licensing system under Government Regulation No. 5 of 2021 on the Administration of Risk-Based Business Licensing. Concerning power sector in particular, the Job Creation Law has removed the authority of the provincial government to issue business licences in the electricity sector. Since the enactment of the Job Creation Law, certain terminological changes have been introduced to the Electricity Law.

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Aside from the above, there have also been several developments within the power sector, namely Mineral Resources Regulation No. 26 of 2021 concerning Rooftop Solar Power Plants Connected to the Electric Power Network Holders of Electricity Business Licenses for the Public Interest (MEMR 26/2021), which establishes the framework and requirements of a solar rooftop system business; and Presidential Regulation No. 112 of 2022 on the Acceleration of Renewable Energy Development for Power Supply, which sets out the framework of the national transition into renewable energy sources.

In addition, the government of Indonesia's commitment to contribute to controlling greenhouse gas emissions has been realised through the issuance of Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Pricing to Achieve Nationally Determined Contribution Targets and Control over Greenhouse Gas Emissions in Relation in National Development (PR 98/2021). The purpose of PR 98/2021 is to regulate greenhouse gas emission reduction and increase climate resilience and carbon economic value to achieve the Nationally Determined Contribution (NDC) as a national commitment to achieve the purpose of the Paris Agreement.

The implementation to achieve the NDC target is carried out through climate change mitigation by way of (1) planning; (2) implementation; and (3) supervision and evaluation of climate change mitigation actions. Under PR 98/2021, the electricity sector and power plant sub-sector are included to be part of the sectors to implement the climate change mitigation.

Accordingly, the government has introduced MEMR Regulation No. 16 of 2022 on the Procedures for Implementing Carbon Economic Value in the Power Plant Sub-sector (MEMR 16/2022) as the implementing regulation of PR 98/2021 in the power plant sub-sector. Under MEMR 16/2022, the MEMR will determine a Technical Approval of Power Plant Greenhouse Gas Emission Limits (PTBAE) for a limit of greenhouse gas emission within a certain period.

The PTBAE for each type of power plant will be carried out in three phases: namely, phase one for the period of 2023–2024; phase two for the period of 2025–2027; and phase three for the period of 2028–2030. Specifically, phase one will only apply to the coal-fired power plant. The implementation of carbon economic value in the electricity sector is done via carbon trading both domestically and overseas, with the mechanism of emission trade and greenhouse gas emission offset. The emission trade and offset are carried out through carbon market mechanism with carbon exchanges or direct trading (or both) between the seller and buyer that need carbon units.

The PTBAE for a limit of greenhouse gas emission of phase one is set out under MEMR Decree No. 14.K/TL.04/MEM.L/2023 of 2023 on Emissions Cap for Coal-Fired Power Plants Connected to PLN's Network in Phase One, which regulate the PTBAE for mine-mouth and non-mine-mouth Coal-Fired Power Plant.

To support lowering greenhouse gas emissions, MEMR 26/2021 provides that solar rooftop customers and IUPTLU holders may carry out carbon trading, which is further regulated under MEMR 16/2022.

* *The information in this chapter was accurate as at May 2023.*

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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

The electricity sector in Japan is governed by the Electricity Business Act (EBA).

Before 1995, the EBA allowed 10 general electricity utilities to dominate the generation, transmission, distribution and sale of power. Although the industry, especially the generation and sale of power to high-voltage consumers, had been partially liberalised since 1995, it was not until the Fukushima nuclear disaster in March 2011 that the Japanese government began to seriously reform the electricity market.

The regulations on the electricity business created by the EBA were amended in three steps: the first in April 2015, the second in April 2016 and the third in April 2020.

The Organisation for Cross-regional Coordination of Transmission Operators (OCCTO) was established by the first amendment. This organisation is expected to facilitate nationwide efficient grid establishment and operations.

The second amendment liberalised the sale of power to low-voltage consumers (those with contracts for electricity consumption of less than 50 kilowatts (eg, ordinary households), which has been dominated by general electricity utilities, and all electricity retail companies registered with the Minister of Economy, Trade and Industry (METI) (the METI Minister) are generally able to provide electricity to any consumers at discretionary terms and conditions. Regulations on the wholesale of electricity were also fully abolished.

In the third amendment, a company that engages in general transmission business (which provides wheeling services through its grids) is no longer permitted to engage in retail or power generation, and the general transmission utility has to be a separate legal entity from the generation or retail business company.

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Since then, the EBA has been amended several times. In 2022, It was amended –to reflect the growing momentum toward decarbonisation. With effect from April 2023, this amendment categorises the business of discharging electricity from large grid storage batteries as a type of power generation business, allowing it to connect to and obtain transmission services from a general transmission utility’s facilities unless there are justifiable grounds for refusal.

The EBA was also amended in 2023 to ensure a stable supply of electricity while promoting the use of decarbonised energy sources in the context of the need for Green Transformation (GX), and to respond to the turmoil in international energy markets caused by Russia’s invasion of Ukraine. These amendments, with some exceptions, will be implemented in April 2024 and are mainly composed of the following matters.

- The operating period of nuclear power plants shall be set at 40 years, and any extension of the operating period shall only be permitted with the approval of the METI Minister, from the perspective of ensuring stable supply and contribution to GX. In doing so, the current framework of limiting the operating period to a maximum of 60 years including the extension period should be maintained, and only suspension periods due to reasons unforeseeable by the nuclear power plant operator should not be counted towards the operating period.
- The METI Minister shall certify development plans for transmission lines that are particularly important from the perspective of ensuring a stable energy supply.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Generation and wholesale

With effect from 1 April 2016, all power producers are required to make certain filings with the METI Minister before engaging in the power generation business, unless the power producer satisfies certain requirements (eg, the total power-producing ability of facilities owned by a producer being lower than 10 megawatts), which are provided by rules of the METI. In April 2016, wholesale regulation was abolished, and wholesale entities are generally able to supply electricity at terms and conditions determined at their discretion.

Since July 2012, suppliers of electricity generated from certain renewable energy sources are entitled to sell the electricity to an electricity utility at a fixed price for a fixed period under a feed-in tariff (FIT) programme. With effect from April 2022, for the supply of electricity generated from certain competitive renewable sources, FIT no longer applies and the suppliers are able to receive not a fixed purchase price but certain premiums if they sell the electricity to electricity retailers through the electricity wholesale exchange or individual transactions with the retailer under a new feed-in premium (FIP) programme.

Also, a specified wholesale supply utility, whose business is to aggregate electricity that is generated or discharged from power plants or batteries and then supply it to a general transmission utility, a distribution utility or an electricity retailer, is required to make certain filings with the METI Minister before engaging in its business.

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Transmission and distribution

A utility must obtain approval from the METI Minister to operate a business providing wheeling services through its own transmission and distribution lines dominantly throughout any of 10 service areas. Only 10 general transmission utilities (the former general electricity utilities before April 2016) are allowed to engage in that business in each service area. Other companies that operate transmission lines for the connection between power plants and general transmission utilities' lines are required to obtain the approval of the METI Minister, and those that operate transmission lines to supply electricity to customers in a specific area must make a filing with the METI Minister.

Also, an entity (excluding a general transmission utility) that operates a business providing wheeling services through its own distribution lines has to obtain approval from the METI Minister.

Sale of power

Until March 2016, the retail market for low-voltage consumers had not been liberalised, and 10 local general electricity utilities had been allowed to dominate the market in their respective service areas.

In April 2016, the retail market was fully liberalised, and all entities that are registered as electricity retailers are permitted to provide electricity to low-voltage consumers as well. As of June 2023, more than 731 entities are registered as electricity retailers.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

As of 1 April 2016, all power producers are required to make certain filings with the Minister of Economy, Trade and Industry (METI) (the METI Minister) before engaging in the power generation business, unless the power producer satisfies certain requirements (eg, the total power-producing ability of facilities owned by a producer being lower than 10 megawatts), which are provided by the rules of the METI.

For the construction of a power plant, prior filing of the construction plan with the METI Minister is generally required, unless the output of the power plant is below certain thresholds. Concerning the construction and operation of nuclear plants, the Electricity Business Act requires approval of the construction plan before construction and the inspection of construction before operation by the Nuclear Regulation Authority and the METI Minister. Also, the installation of a nuclear power reactor requires the approval of the Nuclear Regulation Authority.

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Also, the construction of thermal power, hydropower, wind power or geothermal plant with a generating power exceeding certain thresholds, or a nuclear plant, requires prior environmental impact assessments.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

A general transmission utility must allow connection of generation to the grid and provide a wheeling service unless there are justifiable grounds to refuse it.

A general transmission utility must also allow power producers to connect with its transmission facilities unless there are justifiable grounds for refusal.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

In July 2012, a feed-in tariff (FIT) for electricity generated from certain renewable energy sources (renewable energy electricity) was introduced. Under FIT, transmission utilities must purchase renewable energy electricity from the producer (which obtained certification on the business plan from the METI) at a fixed price for a fixed period. Solar photovoltaic (PV), wind, small and medium-sized hydro, geothermal and biomass are the renewable energy sources eligible for FIT.

The purchase prices and periods differ depending on the type of renewable energy and the scale of the plant and are decided by a public notice issued by the METI Minister, who takes into consideration the opinion of the Calculation Committee of Purchase Price. The purchase prices and periods are renewed every year, and the set price and period apply to a project as of the date on which the certification on the business plan is issued.

With effect from April 2022, in addition to FIT, a feed-in premium (FIP) for renewable energy electricity was introduced. Under FIP, renewable energy producers sell the energy to electricity retailers through electricity wholesale exchange or individual transactions with the retailers and receive certain premiums from the Organisation for Cross-regional Coordination of Transmission Operators (OCCTO), in addition to the sales revenue. The METI Minister determines:

- the renewable energy sources eligible for FIP;
- standard prices, which are required to calculate the amounts of premiums; and
- grant periods, which are periods during which the premiums are granted, taking into consideration the opinion of the Calculation Committee of Purchase Price.

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Climate change

- 6** | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

FIT, which was introduced in July 2012, has facilitated and will facilitate a substantial number of new companies to enter the electricity generation market and is expected to increase the amount of electricity produced by solar PV, wind, small and medium-sized hydro, geothermal and biomass sources. From April 2012 to December 2020, total capacity expanded by approximately 71.5 gigawatts from new renewable power plants (approximately 63.9 gigawatts of such additional capacity come from solar power plants).

The costs of FIT will ultimately be borne by electricity consumers as a surcharge but is arranged so that the costs are spread equally throughout Japan by the Surcharge Adjustment Organisation. From April 2022, the OCCTO took over the position of the Surcharge Adjustment Organisation and conducts operations concerning surcharges with respect to FIT and FIP.

Storage

- 7** | Does the regulatory framework support electricity storage including research and development of storage solutions?

There are subsidy programmes to support the introduction of electricity storage batteries, some of which are for households and others for business enterprises, provided by METI, the Ministry of Environment or some local governments or both. The provider, scope and amount of subsidy programmes change year to year. Also, with effect from April 2023, the business of discharging electricity from large grid storage batteries was categorised as a type of power generation business, and it will be eligible to connect with and obtain transmission services from a general transmission utility's facilities unless there are justifiable grounds for refusal.

Government policy

- 8** | Does government policy encourage or discourage development of new nuclear power plants? How?

The Japanese government continued to position nuclear power as important base-load electricity in the Fundamental Energy Plan promulgated in October 2021, and tries to develop an environment that is supportive to electricity utilities restarting existing nuclear plants, once the utilities obtain the approval of the Nuclear Regulation Authority. However, it is difficult to construct new nuclear plants after the Fukushima accident for enhanced safety regulation and political reasons (including the difficulty to obtain the prefecture governor's consent).

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REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

An entity that intends to construct transmission facilities for high voltages (170 kilovolts or more) must file its plan of construction with the Minister of Economy, Trade and Industry (METI) (the METI Minister).

An entity that engages in the construction and operation of transmission networks to supply electricity for consumers must obtain a licence as a general transmission business. There are 10 general transmission utilities that dominate the ownership of the licences and transmission lines in each of their service areas. A transmission utility that provides wheeling services for general transmission utilities (J-Power and entities that operate transmission lines through which remote renewable power plants access general transmission utilities' lines) is also required to obtain a licence from the METI Minister. Other entities that provide electricity to their customers by their own transmission and distribution lines are required to make certain filings with the METI Minister.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

All electricity retail companies registered with the METI Minister are eligible to obtain transmission services (ie, wheeling services) from a general transmission utility, under the tariff on which the general transmission utility has obtained approval from the METI Minister, unless there are justifiable grounds for refusal.

All power producers are also eligible to connect with and obtain transmission services from a general transmission utility's facilities unless there are justifiable grounds for refusal.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

The cost-plus-margin wheeling service fee (this will be amended to the expected-revenue-based wheeling service fee) under the Electricity Business Act, by which the costs for the expansion of the transmission grid are finally borne by consumers through these wheeling service fees paid by electricity retailers, enables general transmission utilities to expand the transmission grid. Also, bondholders of a corporation acting as a general transmission utility have priority over other creditors in the right to receive payments from claims on the corporation's property, which enables general transmission utilities to obtain the financing necessary for expanding power generation and transmission facilities at lower interest rates on corporate bonds. From 2025, it will no longer be possible to issue bonds with such preferential treatment for bondholders.

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In April 2015, the Organisation for Cross-regional Coordination of Transmission Operators (OCCTO) was established and it prepares development plans for nationwide transmission lines and strengthens the capacity to transmit electricity beyond each of the service areas of the 10 general transmission utilities.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

A general transmission utility must formulate a wheeling service tariff that sets rates and other supply conditions for the wheeling service and obtain approval on the tariff from the METI Minister.

The tariff must satisfy certain requirements including the following:

- the tariff will not harm the interests of recipients of the electricity supply;
- the recipients of the electricity supply under the wheeling service tariff will not experience any difficulty in receiving the wheeling service;
- the rates shall be calculated based on cost plus appropriate profit under the rule set by the METI (this will be amended to the requirement that the rates shall be calculated based on expected revenue under the rule set by the METI);
- the rates are clearly set as fixed rates or fixed amounts; and
- nobody will be treated in an unfair and discriminatory manner.

If the METI Minister finds that the wheeling service tariff fails to satisfy the requirements above, he or she may order the general transmission utility to revise the wheeling service tariff.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

In Japan, general transmission utilities own and operate transmission facilities, and they are responsible for assuring the reliability of the transmission grid. The OCCTO plans and monitors a nationwide transmission network beyond each regional transmission area owned and operated by a general transmission utility.

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REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

An entity that intends to construct distribution facilities for 50 kilovolts or more must file its construction plan for the distribution facilities with the Minister of Economy, Trade and Industry (METI) (the METI Minister).

Any entities that supply electricity to their customers by their own distribution lines (other than general transmission utilities and the transmission utility that have a licence from the METI Minister) are required to make certain filings with the METI Minister.

Also, an entity (excluding an entity that engages in a general transmission business) that engages in the construction and operation of distribution networks to supply electricity for consumers has to obtain a licence as a distribution utility.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Any electricity retail companies that are registered at the METI Minister have access to the distribution grid. They are required to become a member of the Organisation for Cross-regional Coordination of Transmission Operators beforehand.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

The general transmission utilities and the distribution utilities are obligated to ensure there is an electricity supply to all consumers in their service areas. To perform this obligation, general transmission utilities and distribution utilities expand the distribution network as long as it is necessary to supply electricity to consumers.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

A general transmission utility must determine a wheeling service tariff that sets rates and other supply conditions for the wheeling service (including distribution services) and must obtain approval on the tariff from the METI Minister. The requirements for the tariff are the same as the requirements for the tariff for transmission.

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Also, a distribution utility has to determine a wheeling service tariff that sets rates and other supply conditions for the wheeling service and is required to make filings on the tariff to the METI Minister. The requirements for the tariff are the same as the requirements for a general transmission utility's tariff except that the rates shall be appropriate compared to the rates of a general transmission utility whose supply area includes the distribution utility's supply area.

If the METI Minister finds that the wheeling service tariff fails to satisfy the requirements above, he or she may order the general transmission utility or the distribution utility to revise the wheeling service tariff.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

All entities are allowed to engage in the retail electricity business, including supplying electricity to low-voltage consumers, by registering as electricity retailers.

An entity without registration as an electricity retailer is allowed to supply electricity after obtaining approval on 'specified supply' from the Minister of Economy, Trade and Industry (METI) (the METI Minister) to a recipient with which it is closely associated (such as a subsidiary).

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

Yes. Even after full liberalisation of the retail market in April 2016, regarding the electricity supply to low-voltage consumers (consumers with contracts for electricity consumption of less than 50 kilowatts), electricity retail companies (which were former general electricity utilities) must provide a power sales tariff and obtain approval for it from the METI Minister, and must supply electricity to low-voltage consumers under the tariff as long as such consumers desire. In 2019, the METI Minister determined that this treatment would continue until the METI Minister decides on an area-by-area basis (area means a service area of each general transmission utility) that sufficient competition exists.

From April 2016, all retail companies are legally required to explain retail prices and other conditions in writing to their customers before entering into supply agreements.

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Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

After the wholesale regulation was abolished in April 2016, all power generators are generally able to sell electricity at their discretionary conditions, even when they engage in electricity supply to the former general electricity utilities. On the other hand, to the extent that there is still a regulation requiring the former general electricity utilities to provide electricity at regulated prices to low-voltage consumers who desire it, the validity of the costs to procure electricity will be reviewed by METI when the regulated price increases, unless such utilities hold a bidding process, when they are to construct or replace certain thermal power plants by themselves. Prohibitions against insider trading and manipulation in the electricity wholesale market and relevant rules were introduced in April 2016.

The rates and terms of supply of certain renewable energy electricity are provided under feed-in tariffs or feed-in premium.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

Ten general transmission utilities (and, for supply to low-voltage consumers, retail companies that were former general electricity utilities until the METI Minister decides that sufficient competition exists in a certain supply area) are responsible for meeting certain public service obligations (to supply electricity at regulated conditions when certain end users cannot receive such service from any retail companies).

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The Ministry of Economy, Trade and Industry (METI) (including the Agency for Natural Resources and Energy, an affiliated agency of the METI, and the Advisory Committee for Natural Resources and Energy, a part of the Agency for Natural Resources and Energy) determines regulatory policy with respect to the electricity sector.

Since September 2015, the Electricity and Gas Market Surveillance Commission monitors and supervises whether electricity companies comply with the Electricity Business Act (EBA).

The Nuclear Regulation Authority, which is an affiliated agency of the Ministry of the Environment, has the authority to supervise nuclear power plants.

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Scope of authority

23 | What is the scope of each regulator's authority?

The METI has the authority to:

- issue licences to electricity utilities;
- order general transmission utilities to improve their operations;
- require an electricity utility to supply electricity to electricity retailers, general transmission utilities or distribution utilities in the event of a disaster or other emergency; and
- order a general transmission utility to provide a wheeling service.

The Electricity and Gas Market Surveillance Commission has the authority to:

- issue a warning against electricity companies to comply with the EBA; and
- recommend that the Minister of Economy, Trade and Industry (METI) the METI Minister) issue orders against electricity companies.

The Nuclear Regulation Authority has the authority to:

- approve the installation of a nuclear power reactor; and
- inspect nuclear plants periodically.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The METI is one of the ministries of the Japanese government. Staff members of the METI are public officials who are not allowed to have another job while serving in the METI to maintain independence from the regulated business.

The Electricity and Gas Market Surveillance Commission was established in September 2015. Its role is to supervise and monitor whether electricity companies comply with the EBA. The commission is independent of the Agency for Natural Resources and Energy.

The Nuclear Regulation Authority was established in 2012 after the Fukushima accident as an affiliated agency of the Ministry of the Environment. To achieve the nuclear regulatory authority's independence from the owners and operators of nuclear plants, staff members of the Nuclear Regulatory Agency, the administrative agency of the authority, are discouraged from moving to other government departments that may promote nuclear plants and also from being hired by owners or operators of nuclear plants even after retirement from the agency.

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Challenge and appeal of decisions

- 25** | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

All decisions and orders of the METI Minister can be challenged by an administrative appeal at the METI or by a lawsuit at a judicial court. Valid grounds for a challenge include the claim that the content or the procedures of a certain decision or order violates the EBA or other laws.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

- 26** | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

Mergers and demergers involving a corporation acting as a general transmission utility that results in the takeover of an entire transmission business are not effective unless approved by the Minister of Economy, Trade and Industry (METI) (the METI Minister). Also, assignment and acceptance of the entirety of a transmission business are not effective unless approved by the METI Minister. Transfers of shares of an electricity utility and acquisitions of a part of a utility's assets are not subject to the approval of the METI Minister. Power generators and electricity retailers must make a filing without delay when they engage in mergers, demergers or business transfers that result in the transfer of the entire power generating business or electricity retail business.

For mergers, stock acquisitions and business acquisitions that meet certain thresholds, the parties involved must file a pre-merger notification or a pre-acquisition notification with the Fair Trade Commission, and the transaction cannot be completed until 30 days have passed from the date that the commission accepted the notification. If the Commission believes that the transaction will substantially restrain competition in a particular market, it can order the entity concerned to dispose of all or a part of its stock, transfer a part of its business, or take any other measure necessary to remedy the situation.

Review of transfers of control

- 27** | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

When the METI Minister examines the application for a merger or acquisition of general transmission utilities, he or she considers the same items considered when granting a licence to a new applicant, such as whether the successor has sufficient financial resources and the technical capability to operate the electricity business properly. The general consideration period for the approval is eight weeks after the application is received, although the applicant is expected to consult with the METI beforehand.

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On the other hand, the Fair Trade Commission considers whether the transaction will affect competition in the electricity market. The commission is generally expected to decide whether it approves the transaction within 30 days after it receives the filing. If the commission cannot decide within that period, it may extend the consideration period to the final date of 120 days that have passed since it received the filing and the final date of 90 days that have passed since it received any additional reports the commission ordered the applying party to submit.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The METI Minister has the authority to order a general transmission utility to provide wheeling services to electricity retail companies. If a general transmission utility takes advantage of its dominant position in the transmission and distribution market and refuses to provide wheeling services to an electricity retail company outside the utility's group, the Minister can order the general transmission utility to provide the wheeling service.

The Fair Trade Commission has the power to prevent anticompetitive or manipulative practices in the electricity sector as well. The Commission can issue a cease-and-desist order or an order for the payment of a surcharge if it decides that an electricity company is engaging in anticompetitive practices that violate provisions of the Anti-Monopoly Act.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

The METI Minister considers whether there are justifiable grounds for refusing the service when deciding whether to order a general transmission utility to provide wheeling services.

The Fair Trade Commission together with the Ministry of METI provides guidelines for what constitutes appropriate electricity sales. The latest amendments to the guidelines were made in 2022. The guidelines provide that the following behaviours engaged in by a former general electricity utility may violate the Anti-Monopoly Act:

- behaviour that hinders the business of a newcomer in the retail market, such as:
 - offering substantially lower rates to consumers who may enter into an agreement with a newcomer, or who purchase the combined sale of electricity and other goods or services from the former general electricity utility;
 - offering higher rates to consumers who intend to purchase electricity both from the general electricity utility and a newcomer; and
 - offering higher rates to consumers who have purchased electricity from a newcomer; and
- behaviour that hinders the business of a newcomer in the wholesale market (eg, an independent power producer), such as:

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- offering a purchase price much higher than the market value for an electricity generation facility that a newcomer in the wholesale market intends to purchase; and
- refusing to provide continuous backup services to a newcomer in the wholesale market.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The METI Minister has the authority to do the following:

- order a general transmission utility to stop using or providing another person with information concerning electricity suppliers and users, which the general transmission utility has obtained in the course of providing wheeling services, for purposes other than for the provision of wheeling services;
- order a general transmission utility to stop treating any particular electricity retailer in an unreasonably preferential or disadvantageous manner or giving any other benefits or causing any other hindrances to such an electricity retailer in the course of providing a wheeling service; and
- order a general transmission utility to stop transactions with a specified affiliated utility (eg, an electricity retail company, a power producer or a specified wholesale supply entity) that falls into the category of a subsidiary or a parent company of the general transmission utility) on terms that may hinder fair competition.

The Fair Trade Commission has the authority to do the following if it decides that certain behaviour of a general electricity utility violates the Anti-Monopoly Act:

- issue a cease-and-desist order;
- issue an order for the payment of a surcharge; and
- file a formal notification with the prosecutor general.

INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

When a foreign company intends to obtain a share of a non-listed company or one per cent (if certain requirements are met, 10 per cent) or more of issued shares of a listed company operating in the Japanese electricity sector, the company must report the business purpose, amount and timing, among other items, of the investment to the Minister of Finance and the Minister of Economy, Trade and Industry beforehand. When examining the report, these Ministers must take into consideration whether the investment by the foreign company may impair Japanese national security, disturb the maintenance of public order, obstruct the protection of public safety, or have a significant adverse impact on the effective

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management of the Japanese economy. Although the period for the examination of the report is generally set at 30 days, the Ministers may extend the period for up to five months.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

There are 10 divided areas of electricity transmission lines in Japan, each of which is owned and operated by a regional transmission utility. These areas are interconnected with the neighbouring areas through interconnection lines between these areas. Authorisations required to construct and operate these interconnection lines are generally the same as those required for transmission lines. General transmission utilities have constructed and operated these interconnection lines.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Regarding access to the interconnection lines between the neighbouring transmission areas in Japan, the indirect auction rule is adopted, the available interconnection capacity is generally allotted to the preceding day spot market transaction at the electricity wholesale exchange (JEPX) and therefore parties that would like to provide or procure electricity through the interconnection grid between the neighbouring transmission areas need to sell or purchase the electricity at the JEPX. Only those that succeed in completing the deal at the JEPX can use the interconnection line between neighbouring transmission areas.

Because Japan is an isolated island country, cross-border electricity supply does not exist at this stage and there are no rules relating to it.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

Under the Electricity Business Act (EBA), general transmission utilities are prohibited from giving preferential treatment or conferring other benefits to their affiliates when they provide wheeling services. General transmission utilities are also prohibited from providing affiliates with information concerning other electricity suppliers and electricity users that they have gathered in the course of providing wheeling services, for purposes other than the provision of the wheeling service. Also, general transmission utilities are prohibited from trading with the specified affiliated utilities on terms that may hinder fair competition.

If a general transmission utility gives preferential treatment to its affiliates, such as charging its affiliates rates unreasonably lower than those provided in the tariff, it will also be deemed to violate the Anti-Monopoly Act, which prohibits discriminatory consideration.

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Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The Minister of Economy, Trade and Industry (the METI Minister) may order the general transmission utility to discontinue or modify preferential treatment for its affiliates. If the utility violates the order, the utility is subject to a fine of up to ¥3 million. The METI Minister also has the authority to cancel the utility's licence, if the utility has violated the EBA or any order issued under the EBA, and he or she finds this violation to be harmful to the public interest.

If a general transmission utility company gives preferential treatment to its affiliates, the Fair Trade Commission may issue a warning, cease-and-desist order or an order for payment of a surcharge.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

The government continues its efforts to facilitate decarbonisation. The Japanese government recently announced that it would aim to achieve a 46 per cent reduction of carbon emissions by 2030 in comparison with 2013, and it also aims to achieve substantial carbon neutrality (zero carbon emissions) by 2050. To facilitate the reduction of carbon emissions, the government introduced non-fossil fuel value trade markets that enable relevant companies to trade the value of electricity generated without using fossil fuels, such as renewable energy and nuclear power. To improve access to such markets as part of its efforts to achieve decarbonisation, the government created a new market (renewable energy value trade market) where consumers can directly participate in market transactions regarding non-fossil fuel value (originating from Feed-in Tariffs (FIT)) in 2021. The government is also considering the possibility of allowing consumers to purchase non-FIT, non-fossil fuel certificates in another market (a market for trading non-FIT, non-fossil fuel value to fulfil retail companies' obligations relating to targets for non-fossil fuel power source ratios under the Act on the Advancement of Energy Supply Systems (the Energy Supply Advancement Act)), provided that certain conditions are met, for example, the certificates being for new power plants. In addition, for the purpose of securing investment in decarbonised power plants and ensuring that their capacities are available over the long term, the government is discussing the introduction of a long-term decarbonised power supply auction in 2023 as a type of special auction in the capacity market.

To promote the use of decarbonised fuel, the government amended the Energy Supply Advancement Act in 2022 and positioned hydrogen and ammonia as non-fossil fuel energy sources under the act.

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The government is considering the possibility of amending the wheeling service cost charging framework in 2024, by which the costs will be imposed not only on electricity retailers but also on power generators, and collecting the fixed costs of the wheeling system more from the base rate rather than the meter rate, to make cost collection more stable in the future in a society where distributed power generation is evolving.

In addition, in order to encourage additional investment to maximise the use of existing renewable energy and to strengthen the discipline for the introduction of renewable energy in accord with local communities, the government amended the Act on Special Measures Concerning Promotion of Utilisation of Electricity from Renewable Energy Sources in 2023. The main contents of the amendment are as follows.

- Applying a new purchase price to the portion of renewable energy generation facilities to be expanded or partially renewed, which is different from the existing portion.
- The addition of prior notification of the project to the surrounding area as a requirement for the approval of a renewable energy generation project plan.
- Grid subsidies shall be granted for development plans that are certified by the METI Minister and that contribute to the promotion of the use of renewable energy, from the stage when construction work starts .



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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

In 1998, Panama restructured its electricity sector. A year later, the state-owned electricity entity (IRHE), which controlled the generation, transmission and distribution of electricity in Panama, was privatised. As part of the restructuring process, the state invited private investment participation in the areas of generation and distribution but retained full control of the transmission infrastructure and services. The state also created a regulatory entity to supervise the operation of the sector. Policymaking authorities for the electricity sector were assigned to the National Secretariat of Energy, a quasi-executive cabinet office created in 2006.

The legal framework of the electricity sector comprises:

- [Law No. 26 of 29 January 1996](#), as amended by [Law No. 68 of 2011](#), [Law No. 24 of 2014](#) and [Law No. 2 of 2018](#), that created the regulatory entity, the National Authority of Public Services (ASEP);
- [Law No. 6 of 3 February 1997](#), as amended by [Law No. 43 of 2012](#), [Law No. 18 of 2013](#), [Law No. 67 of 2016](#) and [Law No. 2 of 2018](#), created the regulatory and institutional framework for the electricity market and the rules for generating, transmitting and distributing electricity;
- [Law No. 43 of 25 April 2011](#), as amended by [Law No. 53 of 2013](#), that created and reorganised the National Secretariat of Energy, an office under the executive branch responsible for designing and implementing the government's policies and strategies for the electricity and oil and gas sectors; and
- [Law No. 295 of 25 April 2022](#), that promotes a process of energy transition from oil combustion for land transportation to electric land transport with the implementation of measures and incentives in the public, private and academic sectors.

ASEP supervises the electricity market and primarily:

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- issues concessions, licences and other authorisations to generation companies (generators) and distribution companies;
- registers self-generators and co-generators;
- develops rules and principles for generating, transmitting, distributing and selling electricity; and
- ensures sector compliance.

The energy generation market is divided in terms of installed capacity as follows:

- 46 per cent corresponding to hydro generation plants;
- 40 per cent corresponding to thermal generation plants, including natural gas generation plants;
- 8 per cent corresponding to wind generation plants; and
- 6 per cent corresponding to solar generation plants.

The existing regulatory framework, in particular the Commercial Rules that regulate the wholesale market and the Purchasing Rules, regulate competitive auctions to purchase capacity and energy from generators (auctions) and allow special auctions:

- based on the type of technology of the generator;
- for new projects only; or
- based on other special characteristics.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Panama has organised its electricity market into three main areas: generation, distribution and transmission.

Generation

Generators must enter the market through a concession, a licence or by registering before being permitted to enter by the National Authority of Public Services (ASEP).

Hydro and geothermal generators must obtain a concession. Thermal, wind and solar generators must obtain a licence. And self-generators and co-generators must complete a registration process before ASEP. Generators that enter the market through a concession or licence can sell their power through:

- power purchase agreements (PPAs) that are subscribed with distribution companies (discos) after being awarded through auctions;
- PPAs freely negotiated with other generators or large unregulated consumers (LUCs). A LUC is a consumer that exceeds 100 kilowatts per month and can purchase its power directly from generators, discos or the large consumer basket (LCB);
- the LCB, a collection of all electricity requirements from LUCs managed by the state-owned transmission company (ETESA); or
- the spot market.

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The state retains a non-controlling participation in two hydro generators, and three thermal generators, and full control of one solar generator.

Self-generators and co-generators that enter the market through a registration process before ASEP, produce energy for their own consumption and sell their surplus in the electricity market. Moreover, self-generators and biomass co-generators can also enter PPAs and participate in auctions.

Distribution

Discos must operate under a concession granted by ASEP. Discos operate by selling power to regulated consumers and LUCs. In Panama, three discos must keep open access to their grids for all generators and LUCs, subject only to the payment of tolls and connection charges. Discos participate in the National Interconnected System (NIS). The NIS requires discos to enter into PPAs to supply 100 per cent of their estimated maximum regulated demand. After the privatisation process of 1998, the state has retained non-controlling participation in the three discos operating in Panama.

Transmission

ETESA owns all main transmission assets as well as the concession for transmission of electricity throughout Panama. ETESA is also responsible for the NIS. In 2005, ASEP granted another transmission concession to Empresa Propietaria de la Red (EPR). EPR is a company incorporated under the laws of Panama to interconnect the Central American electricity market under the tenets of the Central American Electrical Interconnection System treaty. Interconexión Eléctrica Colombia-Panamá (ICP), a company incorporated under the laws of Panama to interconnect the Panamanian and Colombian electricity markets, has also requested a transmission concession to ASEP, which has been pending the approval of ASEP since 2017. ETESA has 12.5 per cent ownership in EPR and 50 per cent ownership in ICP.

Only discos licensed by ASEP may advertise the provision of electricity to consumers. Any other intermediary is forbidden from buying and reselling electricity to consumers. The exceptions are generators that market and sell electricity to LUCs.

REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

According to Law No. 6 of 3 February 1997 (Law No. 6), generation facilities may operate under a concession, a licence or by registering before the National Authority of Public Services (ASEP).

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Concession

The National Authority of Public Services (ASEP) awards concessions after completing an auction process. When ASEP identifies a possible hydro or geothermal project or a third party requests a concession, ASEP must start an auction process to allow all interested parties to participate. After completing the auction process, ASEP awards the concession to the candidate with the highest bid and for a period that may not exceed 50 years. After expiry, the concession may be renewed once for another 50-year term.

Licence

A generator requires a licence to construct and exploit any generation plant other than those subject to a concession regime. Applicants must file a licence application with ASEP. If the licence application is approved, ASEP will issue the licence for a maximum term of 40 years. After expiry, the licence may be renewed for another 40-year term.

Registry of self-generators and co-generators

Entities that, as part of their industrial or commercial operations, own generation plants that generate electricity for their own consumption, may register such generation capacity with ASEP. Once ASEP approves the registration of these companies, these companies may sell their surplus energy into the electricity market. Self-generators may also enter into power purchase agreements (PPAs) and participate in auctions. These registers are usually granted for five-year renewable terms.

Companies competing for a concession or applying for a licence or registry must also have an environmental impact study of the project duly approved by the Ministry of Environment (MoE), a water concession issued by the MoE, for hydro projects, an interconnection approval from the state-owned transmission company (ETESA) and must also have successfully completed a test run of the plant directed by the National Dispatch Centre (CND). The CND is a division within ETESA that plans, supervises and controls the integrated operation of the National Interconnected System (NIS) and ensures the NIS's safe, integrated and reliable operation.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

Law No. 6 promotes a policy of free access to the NIS. Access to the NIS requires each generator to subscribe to a transmission contract with ETESA for direct or indirect interconnection. The transmission contract will govern the relationship between the generator and ETESA and affords the generator the right to connect to the transmission grid and facilities owned and operated by ETESA for a fee. In cases of indirect interconnection, the generator must first sign a direct interconnection contract with the agent through which it will interconnect to the NIS.

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Connection to the NIS requires the generator to accept and comply with NIS Operating Rules and the Technical Service Quality Rules, including all system fees charged by ETESA, which are set and vary according to the area.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Approximately 65.2 per cent of the electricity consumed in Panama is generated by hydroelectric plants. Some of these plants were built before 1997 when the electricity sector was still owned and operated exclusively by the government, and in the absence of any special incentives. Rather, their construction was predicated on a government policy directed at using water resources that are abundant almost year-round and that are not subject to cost surges or variations.

After 1998, when the government designed and implemented a privatisation programme for the electricity sector, private capital played a leading role in the development and construction of new thermoelectric plants. Although the electricity sector underwent significant legislative changes in 1997 and 1998, very few provisions dealt with or encouraged the development and use of renewable generation sources. Among those few was a provision of Law No. 6 that concedes a 5 per cent price differential over the price offered in auctions by generators that use a renewable and alternative energy source.

The first integrated and notable effort to promote the generation of clean and renewable energy came to life with the adoption of [Law No. 45 of 4 August 2004](#), amended by [Law No. 57 of 2009](#) [Law No. 45]. Law No. 45 and its regulations target hydro, wind, biofuel and solar energy development. Law No. 45 is primarily a tax-laden body of benefits that exempts generators from:

- import tax, custom duties, fees, contributions, encumbrances, value added tax on the importation of equipment, machinery, materials, spare parts, as well as on the tools and equipment to construct, operate and maintain a generation plant; and
- up to 25 per cent of income tax for new project developments or for increasing the generation capacity of an extant plant. The amount of income tax that may be credited will be measured by the amount of carbon dioxide emissions that are reduced annually. The income tax benefit is effective for the first 10 years, counted from the time the project commences commercial operations.

After Law No. 45, regarding renewable energy, the government enacted [Law No. 44 of 25 April 2011](#), amended by [Law No. 18 of 2013](#), as regulated, that creates special auctions for wind generators only, as well as tax exemptions for all wind generation companies, as follows:

- import tax, custom duties, fees, contributions, encumbrances, value added tax on the importation of equipment, machinery, materials, spare parts, as well as on the tools and equipment to construct, operate and maintain a wind generation plant. This exemption also applies when importing wind generation equipment to be sold in Panama; and

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- 15 years of exemption from all national taxes to companies manufacturing equipment in Panama for wind generation plants.

Owing to these incentives and government policies allowing for specific auctions for wind power PPAs, wind projects now account for 5.3 per cent of energy generation.

[Law No. 42 of 20 April 2011](#), amended by [Law No. 21 of 2013](#), [Law No. 47 of 2015](#) and [Law No. 355 of 31 January 2023](#), establishes the national biofuels policy, regulates the biomass-based energy generation, allows biomass co-generators to participate in auctions and sign PPA's, and grants tax incentives to companies that produce energy through biomass-fuelled powerplants.

[Law No. 43 of 9 August 2012](#) (Law No. 43) amends Law No. 6 and creates special auctions:

- based on the type of technology;
- for future projects only; or
- based on special characteristics that respond to the government's energy policy.

[Law No. 41 of 2 August 2012](#) (Law No. 41):

- promotes the development of generation projects using natural gas; and
- creates the following tax exemptions for projects using natural gas:
 - exemption of import tax regarding equipment and spare parts to construct, operate and maintain a power plant using natural gas; and
 - application of the accelerated depreciation method to the equipment of power plants using natural gas.

[Law No. 37 of 10 June 2013](#), amended by [Law No. 38 of 2016](#) (Law No. 37), establishes incentives for the construction, operation and maintenance of solar power generation plants. Law No. 37 creates the following tax exemptions for companies involved in the construction, operation or maintenance of solar power generation plants:

- import tax, custom duties, value added tax on importing equipment, machinery, materials, spare parts, tools and equipment to construct, operate and maintain a solar power generation plant;
- tax credit up to 5 per cent applicable to income tax in connection with the total direct investment on solar power generation plants already built or under construction; and
- application of an accelerated depreciation method to the equipment of power plants using solar energy.

Finally, through [Resolution AN-10206 of 2016](#), the National Authority of Public Services issued rules allowing distributed generation for clients to set up self-generation facilities for their own consumption, which can be connected to the distribution grid, following simple procedures, and an agreement with the distribution company. These regulations facilitate the establishment, among others, of substantial solar capacity to allow clients to significantly reduce the amount of power required from the grid.

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Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

In 2016, the Republic of Panama signed the Paris Agreement regarding climate change and set broad emissions reductions objectives for the country. In addition to the Paris Agreement, the Panamanian government:

- enacted [Law No. 69 of 12 October of 2012](#) (Law No. 69), which provides measures for the rational and efficient use of energy; and
- prepared and issued the National Energy Plan that covers until 2050.

Law No. 69 requires:

- all equipment manufactured or imported to the country to comply with energy efficiency indicators approved by the Ministry of Commerce and Industries;
- the industrial, commercial, and government infrastructures to comply with energy efficiency policies;
- public entities to review their energy consumption and to take measures to reduce energy consumption;
- the National Secretariat of Energy to create incentives for the acquisition of energy efficient equipment; and
- the creation of educational projects regarding energy efficiency. However, the Panamanian government has not issued mandatory energy efficiency requirements or terms to implement these.

Despite these initiatives, electricity sources have remained almost the same for the past five years, and electricity tariffs and consumption levels have increased.

The National Energy Plan indicates that Panama will continue generating energy with non-renewable sources until it makes a change regarding the energy matrix and consumption energy policies. More than 30 per cent of the installed capacity is represented by thermal generation plants. The fuel used by thermal generation plants to generate electricity increases the cost of the electricity tariffs. However, thermal generation plants cannot be replaced without having renewable projects able to provide firm capacity and generate the electricity that is currently generated by the thermal generation plants. One of the alternatives to comply with climate change prevention initiatives is to promote the installation of new alternative renewable energy projects (wind and solar). Even though the Energy Plan does not include specific actions to increase power generation through renewable energy projects in the country, the current administration has made this a priority, and on December 2020 issued its [Strategic Guidelines for Energy Transition 2020–2030](#) (the Transition Guidelines), in which it highlights five main issues that will guide energy policy in next decade, and several actions it proposes to undertake to meet the goals included in the [National Energy Plan 2015–2050](#).

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Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

The Panamanian government has not issued specific rules supporting electricity storage, or the research and development of storage solutions. Currently, electricity storage is considered part of the activities that a generator may perform under its concessions or licences (where applicable). From a consumer standpoint, electricity storage is always allowed provided it does not cause alterations in the grid.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

No. Panama has not implemented provisions or measures to encourage or discourage the development of nuclear power plants. There are no nuclear power plants in operation in Panama at present.

REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

In Panama, the state-owned transmission company (ETESA) has full ownership and management of the National Interconnected System (NIS). Only ETESA can operate the national transmission network.

As part of the Central American Electrical Interconnection System, the National Authority of Public Services (ASEP) granted a transmission concession to Empresa Proprietaria de la Red (EPR) to develop, operate and maintain a transmission line that will interconnect Central America. ETESA owns 12.5 per cent of the shares in EPR.

Similarly, on 1 August 2008, the Panamanian government signed a memorandum of understanding with Colombia to develop the technical and regulatory framework that will govern electrical interconnection between both countries. ETESA and the transmission company of Colombia, Interconexión Eléctrica SA, formed Interconexión Eléctrica Colombia-Panama (ICP) to develop the Panama-Colombia interconnection project. In 2012, Panama and Colombia agreed on, and approved, the operation rules and dispatch rules that will regulate the exchanges of energy between both countries. Panama and Colombia scheduled the auction to assign the economic rights of the transmission line for June 2012; however, the auction was cancelled, and a new date has not been set yet. In July 2014, the government announced that Panama was going to continue with the interconnection project with Colombia and that the interconnection project will transport up to 400 megawatts, reducing the capacity of the line from 600 megawatts as originally envisaged. In September 2015,

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Panama and Colombia commenced environmental consultations and reviews in connection with the interconnection project and set June 2016 as the deadline to decide on the options and effects of the interconnection from an environmental perspective. As the ICP did not complete the environmental analysis before the original deadline, and as further studies are required, the ICP requested on several occasions for ASEP to extend the term to analyse the environmental options and effects. ASEP authorised all extension requests and the new deadline is September 2023.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

Law No. 6 of 3 February 1997 provides for open and non-discriminatory access to the transmission grid subject only to the payment of a connection fee and a use fee to ETESA. To connect to the transmission grid, the applicant must file a request with ETESA.

The request must include:

- a technical description of the interconnection structure;
- the estimated start-up date;
- how much energy the applicant expects to use or generate for the four-year period following interconnection;
- a technical report on the effect of the new interconnection over the transmission grid; and
- the applicable environmental study.

Generators and distribution companies (discos) must comply with transmission regulations and pay a tariff that covers interconnection and transmission charges. The National Authority of Public Services formulates the criteria to set and adjust the transmission tariffs.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

The transmission grid is currently controlled by ETESA, a company wholly owned by the government; hence, the expansion of the transmission grid rests primarily on government development plans and sponsorship.

The transmission regulations adopted by the National Authority of Public Services (ASEP) in 2009 as amended, require ETESA to elaborate a plan for the expansion of the NIS. The expansion plan needs the approval of the National Secretariat of Energy. ASEP approved the last expansion plan in February 2023.

As part of the expansion plan that ASEP approved in 2023, ETESA organised and awarded an auction for constructing the new Panama III substation, and a transmission line of 230 kilovolts that will transport energy from Sabanitas (Colón) to the new Panama III substation, which was set to begin construction in August 2021. ETESA also plans to issue in the second half of 2023, the terms of reference for a new auction to construct a transmission line with

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a capacity of 500 kilovolts that will transport energy from Chiriquí Grande (northwest part of Panama) to the new Panama III substation in the Panama City area.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

ASEP is the authority that fixes the terms and rates for the provision of transmission services. Resolution No. JD-5216 of 14 April 2005 as amended, adopted the extant transmission regulations.

Transmission regulations that, among other principles, set the current transmission rates will remain in force until 2024. Rates associated with the access and use of transmission lines must cover the investment, operation and maintenance costs of the NIS and allow for a reasonable profit. ASEP has defined 'reasonable profit' as a profit that does not differ by more than two points from the annual interest rate of a US Treasury 30-year bond, plus a seven-point business-risk premium. Rates must also attend to the foreseeable growth in transmission traffic, and ensure the reliable, continuous and outstanding development of the NIS. The government has rejected a proposal to change the concept of reasonable profit and reduce it to a profit that does not differ by more than two points from the annual interest rate of a US Treasury 30-year bond, plus a five-point business-risk premium.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

ETESA is the entity that controls the transmission grid. The National Dispatch Centre (CND) is a unit of ETESA, responsible for planning, supervising and managing the NIS and for ensuring its safe, integrated and reliable operation. Generators must comply with the transmission schedules set by the CND. Generators may deviate from transmission schedules only in cases of unforeseeable maintenance or repair work to transmission lines or inter-connection units, or when there is an event of clear and conclusive force majeure. The CND may request authorisation to ASEP for the compulsory disconnection of any generator or disco that does not comply with CND guidelines.

The Planning Unit, an administrative department within ETESA, is responsible for researching, studying and forecasting the power requirements of the entire country. The Planning Unit is also responsible for recommending options and alternatives to satisfy such power requirements, including the development of alternative sources of energy and for designing and implementing programmes to conserve and optimise the use of energy.

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REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

To construct and operate a distribution network, a company must apply for a distribution concession. The National Authority of Public Services (ASEP) grants concessions to distribute electricity, and the Comptroller General must approve these concessions. ASEP can grant distribution concessions for a maximum of 15 years.

Further, companies applying for any concession, including a distribution concession, must have an environmental impact study duly approved by the Ministry of Environment.

According to Resolution AN No. 6457-Elec, the current distribution concessions will expire in October 2028.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Law No. 6 of 3 February 1997 (Law No. 6) requires distribution companies (discos) to provide open and non-discriminatory access to the distribution grid. Access to the grid is governed by the applicable laws, regulations and resolutions of ASEP and by an agreement subscribed to by the discos.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

Yes. Every four years, ASEP approves a tariff regime prepared by discos that includes the investment that discos estimate they will make to maintain and expand the distribution grid, provide public lighting services and meet energy supply needs that clients may have, including rural electrification in certain areas of the country. This provides, with efficient costs, the basis to determine the tariffs that discos charge to regulated customers.

ASEP also includes in the tariff regime certain expansion projects that must be executed by discos and included as part of its tariffs. If discos do not execute these projects, ASEP may fine them, and reduce the distribution tariffs that discos charge to their clients in the following tariff period.

And finally, Law No. 6 and concession contracts require discos to provide service and extend the grid to serve clients that are within 100 metres of existing distribution infrastructure.

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Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

[Resolution No. JD-5863 of 2006](#), as amended, sets the terms for the distribution and sale of electricity. This resolution also provides the formula used to determine distribution rates. The government issued new procedures to determine rates applicable for the distribution and commercialisation of electricity for the period 2022 to 2026.

Discos must submit to ASEP a list of rates that apply to regulated consumers and the rates charged for the use of distribution networks. ASEP must approve those rates. When approving the proposed rates, ASEP considers the real costs of the service and the area of distribution.

Discos must obtain long-term contracts to cover 100 per cent of the capacity and power requirements of their regulated consumer base.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

Generators require either a concession, a licence or a registration before or issued by the National Authority of Public Services (ASEP), to build and operate a generation facility.

Generators with a concession or licence can participate in the wholesale market in Panama by selling their output through:

- power purchase agreements (PPAs). PPAs must be awarded through auctions initiated and presided over by the state-owned transmission company (ETESA). ETESA establishes reference prices for each auction and generators compete for the long-term or short-term contract based on capacity and prices. ETESA awards the PPA to the bidders offering the lowest monomic price. Monomic price is defined as the combination of the prices for energy and capacity, expressed in terms of US dollars per megawatt. Once ETESA selects the winning bid, ASEP must approve the selection. The auction process is completed with the subscription of a PPA between the distribution company (disco) and the generator that submits the lowest conforming bid. ETESA can organise special auctions based on the type of technology;
- PPAs freely negotiated with other generators;
- PPAs freely negotiated with large unregulated consumers (LUCs). According to rules issued in 2012, generators may also sell capacity and energy to LUCs using the large consumer basket (LCB). The LCB is an auction system that promotes a basket of energy from generators to LUCs managed by ETESA; and
- the spot market, on an hourly basis. The spot market allows generators to sell to discos, LUCs, other generators and foreign markets. Rules issued in 2012 allow generators to

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sell into the spot market only if the generators have complied with their obligations to participate in all auctions called by ASEP to purchase and sell power or energy, with their available capacity. The price of energy in the spot market will be calculated based on the last generator called to dispatch energy, without considering the fuel source or any security restrictions.

Self-generators and co-generators can participate in the wholesale market in Panama by selling the energy that they do not consume in the spot market. Moreover, self-generators and biomass co-generators can also negotiate PPAs with other generators and LUCs.

Discos require a concession issued by ASEP to operate and to sell power to consumers. Additionally, discos must subscribe to long-term PPAs to cover 100 per cent of the capacity and energy requirements of regulated consumers.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

In Panama, ASEP has the authority to enact and amend the rules that govern power sales from generators to the wholesale market. The National Dispatch Centre (CND) is responsible for implementing these rules. The rules set the market criteria for the exchange and sale of power, including the criteria for setting tariffs. These rules and tariff criteria are reviewed every four years.

Tariffs charged by discos to final consumers are classified according to consumption and voltage. Discos must set tariffs based on a formula fixed by ASEP that allows for a reasonable return on investment after distribution costs are covered. Accepted distribution costs are management, operation and maintenance expenses, as well as standard losses and the depreciation that an efficient disco would incur within the respective concession area.

Tariffs to final consumers at present include a fuel differential subsidy that is paid by the government to discos to compensate for higher fuel prices.

ASEP also includes in the tariff regime certain expansion projects that must be executed by discos and included as part of its tariffs. If discos do not execute these projects, ASEP may fine them, and reduce the distribution tariffs that discos charge to their clients in the following tariff period.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

The applicable rates will be contingent on the particular option a generator chooses to sell their output through, as follows:

- competitive PPAs: the rates in PPAs are the result of the auction. ETESA formulates reference prices for each auction and generators compete for the long-term or short-term PPAs based on capacity and prices;

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- PPAs with other generators or LUCs: rates in these PPAs are freely negotiated between the parties;
- the spot market: the CND calculates the price with the marginal cost of short-term generation; and
- LCB: ETESA calculates power rates in the LCB from the average of all the power offered by generators and each generator's price. The total average will be the power rate in the LCB. After ETESA calculates the price for the LCB, the LUC can decide if they will purchase electricity from the LCB or if they prefer to purchase directly from discos or generators.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

Electricity is considered a public service obligation in Panama. Extant legislation provides that power generation, transmission, distribution and commercialisation of electricity must satisfy basic collective needs permanently. However, Panama's electricity regulatory system also considers financial viability and free competition as basic elements of the electricity market.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The National Secretariat of Energy is the authority that sets and oversees policy within the electricity sector. Similarly, the National Authority of Public Services (ASEP) develops rules and principles applicable to the electricity sector.

Scope of authority

23 | What is the scope of each regulator's authority?

The following entities have authority over the Panamanian electricity market:

- the National Secretariat of Energy is primarily responsible for setting policy and developing electricity sector strategy and planning, supervising and ensuring policy compliance, and recommending sector legislation to the legislative branch and ASEP;
- ASEP is the market regulator and enforcement agent. ASEP is primarily entrusted with issuing concessions, licences and other authorisations to generators and distribution companies (discos); developing rules and principles for the generation, transmission, distribution and sale of electricity; and ensuring sector compliance;
- the National Dispatch Centre (CND) is a department of the state-owned transmission company (ETESA), which is responsible for planning, supervising and controlling the

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- integrated operation of the National Interconnected System and managing the wholesale electricity market;
- ETESA is a government-owned entity that operates the main transmission network; publishes, prepares and oversees auctions; and evaluates and adjudicates power purchase agreements following ASEP regulations;
 - the ETESA Planning Unit is an administrative unit of ETESA, which prepares the national electricity plan and the national reference expansion plan; and
 - the Ministry of Environment (MoE) is the environmental authority that approves environmental impact studies for generators and discos, grants water concessions for certain electricity projects, and ensures compliance with environmental rules in the electricity market.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The market regulators in Panama are the following:

- The National Secretariat of Energy: Law No. 43 of 5 April 2011 reorganised the National Secretariat of Energy. It is a quasi-cabinet office connected and answerable to the executive branch. It has an indirect connection to the regulated business because the National Secretariat of Energy has the power to advise and suggest changes and regulations to ASEP and the National Assembly. The president appoints the secretary presiding over the National Secretariat of Energy.
- ASEP: Law No. 26 of 29 January 1996, as amended, created ASEP as an independent entity to regulate and oversee the electricity market, the telecommunications market and the water sector. Though the executive branch appoints the regulator, its appointment requires the approval of the legislative branch. However, from 1997, when ASEP was created, each government elected to serve a five-year term on the executive branch has enjoyed concurrent majority and control of the legislative branch, limiting the amount of independence that ASEP was intended to have from the executive branch.
- CND and ETESA: the CND is a unit of ETESA, which is the state-owned transmission company. As state-owned entities, the CND and ETESA answer to the executive branch and the National Secretariat of Energy.
- The MoE: [Law No. 41 of 1 July 1998](#) created the National Environmental Authority as an independent government entity. The MoE was amended by [Law No. 8 of 25 March 2015](#), which reorganised the National Environmental Authority into the MoE. The MoE is not under the supervision of ASEP or the Secretary of Energy. It is a ministry that is part of the executive branch, with its minister being appointed by the president.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

ASEP is presided over by its administrator. ASEP also has three directors – one for the electricity and water sector, another for the telecoms, radio and television sectors, and one for customer service – who oversee their respective areas and are answerable to the

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administrator. Any decision issued by an ASEP officer may be challenged through two administrative actions: reconsideration and appeal. Both proceedings must be filed and resolved within ASEP as follows:

- resolutions of any of ASEP's directors may be challenged by filing a reconsideration request with the specific director or an appeal with the administrator, or both; and
- resolutions issued by the administrator of ASEP may be challenged by filing a reconsideration request with the administrator.

All the foregoing reconsiderations or appeals may be challenged further by filing an extraordinary action with the Third Chamber of the Supreme Court.

ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

The Antitrust and Consumer Protection Authority (ACODECO) has the authority to approve or block mergers, changes in control, or the acquisition of assets involving the electricity sector. It may also block a merger while in progress or after it has been completed if considered against [Law No. 45 of 31 October 2007](#), as amended by [Law No. 29 of 2008](#), [Law No. 31 of 2010](#), [Law No. 34 of 2016](#) and [Law No. 14 of 2018](#) (Law No. 45), governing antitrust and consumer protection.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

In Panama, parties intending to engage in a merger or acquisition are not required to obtain an authorisation from ACODECO before or after the acquisition. However, the parties may voluntarily submit the terms of the merger or acquisition to ACODECO for prior verification, so that ACODECO can:

- confirm if the transaction would cause a negative effect in the corresponding market and therefore result in a prohibited economic concentration; and
- recommend adjustments to the transaction to avoid becoming a prohibited economic concentration. ACODECO has 60 working days to issue its opinion.

If the 60-day period has lapsed without ACODECO's decision, the proposed merger or acquisition may be completed. If ACODECO decides that the acquisition is not a prohibited economic concentration, the acquisition cannot be challenged or objected to after the closing, unless the opinion of ACODECO is issued based on false information filed by the parties to the transaction.

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Similarly, if the parties to the transaction decide not to complete a prior verification with ACODECO, ACODECO has the authority to initiate an investigation regarding the legality of the transaction within three years after the closing of the transaction. Third parties may also request ACODECO to review a transaction within the three-year period.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

ACODECO is the institution with the authority to prevent and prosecute anticompetitive practices. Antitrust cases are tried before commercial courts.

However, Law No. 6 of 3 February 1997 (Law No. 6) entitles the National Authority of Public Services (ASEP) to prevent potential anticompetitive practices within the electricity sector. Accordingly, ASEP has the discretion to issue directives and regulations to maintain fair competition within the electricity sector. Nonetheless, ASEP must seek the opinion of ACODECO before adopting or issuing any antitrust or discriminatory directives or regulations. ASEP may also commence antitrust investigations by notifying ACODECO of any violations and may assist ACODECO when investigating and verifying anticompetitive practices within the electricity sector.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

Law No. 45 forbids any act, contract or practice that may limit, diminish, damage, obstruct or harm competition and the free market in the production, processing, distribution, supply and commercialisation of goods and services.

Similarly, Law No. 6 empowers ASEP to intervene whenever it finds an abusive dominant position in the market that causes harm to regulated consumers or any agents within the electricity market.

Law No. 6 also expressly outlines four types of antitrust behaviour:

- vertical or horizontal concentrations carried out in generation or distribution activities, causing the reduction or obstruction of competition and free concurrency of electricity market agents;
- any event or transaction that diminishes, affects or obstructs competition and the free market, such as company mergers, direct or indirect acquisition of control in another company or companies, acquisition of assets from any company carrying out activities in the electricity sector, or any other legal mechanism used to concentrate corporations, associations, shares or assets in general, between competitors, suppliers, clients, shareholders or any other economic agent;
- any event that hampers a large unregulated consumer from negotiating a power purchase agreement; and

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- any attempt at price-fixing between generators and distribution companies or among them.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

ACODECO has the authority to prevent, prosecute and penalise anticompetitive practices. ACODECO may commence independent administrative proceedings or initiate an administrative review following a third-party request. Accordingly, ACODECO has the authority to impose administrative fines of up to US\$1 million if ACODECO finds that consumer rights or antitrust laws have been breached.

ACODECO may also file claims in the courts of commerce to prevent or remedy economic concentrations, antitrust practices and violations of individual or collective consumer rights.

Consumers may also access commercial courts to seek redress for antitrust transgressions or to suspend antitrust practices. Commercial courts may in turn suspend any transaction or practice that may violate the rights of consumers and antitrust laws, impose precautionary measures, or award financial compensation and remedies to affected consumers.

Consumers may also seek retribution in criminal court, by filing a criminal complaint. The Attorney General's Office can also independently start criminal inquiries. Successful criminal actions for anticompetitive and manipulative practices may result in imprisonment for one to six years in the case of antitrust violations; and imprisonment for up to 18 months for unfair violations of competition laws.

INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

There is no special requirement or limitation in the electricity sector for foreign companies in Panama. Law No. 6 of 3 February 1997 establishes that local or foreign private companies, or companies of combined public and private capital, may participate in the electricity sector.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

The transmission grid is currently controlled by the state-owned transmission company (ETESA), and its obligations include the construction and operation of interconnectors. However, market participants, such as generators and distribution companies (discos), can construct and operate interconnection assets to the national grid. According to Resolution

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1244 of 10 February 1999 (Resolution 1244), market participants interested in constructing and operating local interconnectors require a transmission concession issued by the National Authority of Public Services (ASEP). ASEP requires the following to issue a transmission concession: a request document with a map showing the location and technical characteristics of the project; a National Interconnected System (NIS) diagram; a list of generators in the market with their main characteristics; a copy of power purchase agreements (PPAs) subscribed by the electricity market participants; a description of constituted and required easements for the project and the certification issued by the Ministry of Environment approving the project.

Once ASEP receives the transmission concession request, ASEP will prepare an auction and publish the terms of reference of the auction in two national newspapers for 30 calendar days. Interested bidders can file their proposals only during the publication period. If ASEP does not receive an offer from another bidder, ASEP will grant the transmission concession to the company that initially filed the transmission concession request. However, if ASEP receives an offer from one or more bidders, ASEP will grant the transmission concession to the bidder that filed the best offer.

The auction process does not only apply to transmission companies operating before the issuance of Resolution 1244, or construction companies that are in charge of constructing the transmission line or substations on behalf of ETESA.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Cross-border electricity can be supplied via the NIS or any cross-border transmission networks through PPAs with foreign generators or discos, subject to ASEP's rules and regulations, or through short-term transfers undertaken by ETESA.

Any generator may export capacity, energy or both if it has available capacity or energy that has not been committed to other agents and if the National Dispatch Centre does not require its capacity, energy or both for the local market.

International electricity transfers are exempted from all import and export taxes or fees.

The electricity system in Panama is interconnected with Central America, through the Central American Electrical Interconnection System (SIEPAC). SIEPAC became fully operative in September 2015. Panama and Colombia are planning and developing an interconnection line between both countries.

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TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

Law No. 6 of 3 February 1997 (Law No. 6) imposes certain limits on vertical and horizontal ownership within the electricity sector. These limitations are as follows.

- Generators and their shareholders cannot participate, directly or indirectly, in the control of distribution companies (discos) and cannot request new concessions if, by obtaining such concessions, they would account, directly or indirectly, for more than 25 per cent of the electric power consumption in the national market. The executive branch, with the prior favourable opinion of the National Authority of Public Services (ASEP), may increase this percentage when it considers that such an increase is necessary based on market conditions.
- Discos and their shareholders cannot directly or indirectly control generators when the aggregate generation capacity of the respective disco exceeds 15 per cent of total demand within its respective concession area and cannot request new concessions if, on doing so, they would serve, directly or indirectly, more than 50 per cent of the total number of customers in the national market. The executive branch, with the prior favourable opinion of ASEP, may increase this percentage if it considers it necessary to allow the expansion of the zone of influence or the expansion of the electricity system as a whole.

However, the following exceptions apply:

- if the same company can generate, transmit and distribute and if the company operates within an independent system (Law No. 6 defines independent systems as those that have a demand that does not exceed 50 megawatts and, in the case of discos, a generation capacity that does not exceed 15 per cent of total generation within the distribution concession area);
- for co-generators and auto-generators that sell within the National Interconnected System; and
- for generators that sell their power directly to any large unregulated consumers.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

ASEP has oversight and the Antitrust and Consumer Protection Authority (ACODECO) has enforcement authority over generators or discos that fail to comply with the vertical and horizontal ownership restrictions.

Whenever a transaction or a company oversteps antitrust or consumer protection laws, ACODECO has sole enforcement authority either through administrative court proceedings or commercial and criminal court proceedings.

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UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

The National Secretariat of Energy published its [National Strategy for Innovation of the National Interconnected System](#) (the Innovation Strategy), which sets the goal of maintaining the security and reliability of the operation of the national grid, considering the integration of new renewable energy sources, smart grid control systems, energy storage systems and the increase in the use of energy for transportation. In the Innovation Strategy, the National Secretariat of Energy included several lines of action with the objective of:

- promoting flexibility and storage technology in the national market;
- introducing smart grids into the national grid;
- improving quality of service;
- adjusting the energy market to increase participation and improve pricing; and
- diversifying and decarbonising the energy matrix.

The National Secretariat of Energy also issued the [Electrical Mobility Strategy](#) with several lines of action with the objective of:

- promoting the use of electrical vehicles;
- reducing emissions from the use of fuels for transportation;
- benefiting end customers with the reduction of costs; and
- increasing the reliability and quality of electrical energy for electrical mobility.

The government enacted [Law No. 355 of 31 January 2023](#), which amends [Law No. 42 of 20 April 2011](#), regarding biofuels and biomass energy. Law 355 of 2023:

- sets forth the obligation for all vehicular gasolines to be sold in Panama to contain a minimum percentage of bioethanol;
- sets forth the obligation for suppliers to provide consumers with gasoline for vehicular use mixed with locally produced bioethanol starting on 1 April 2024;
- allows the importation of foreign produced bioethanol for mix with vehicular gasolines in case locally produced bioethanol is not sufficient to meet the mix goals set forth in Law 355; and
- allows the National Secretary of Energy to amend the implementation dates and percentages of the bioethanol mix in certain cases.

The law also includes fiscal incentives for bioethanol producers, and, more importantly, for electricity producers that use biomass as main fuel source. Among other incentives, biomass-fuelled energy powerplants will be exempt from income taxes for 10 years from the date of enactment of Law 355 of 2023 (for existing biomass-fuelled energy powerplants) or from the date in which they commence operations (for new biomass-fuelled energy powerplants). It also allows biomass-fuelled cogeneration powerplants to participate in public bids to sell energy through power purchase agreements with distributors or to sell electricity to large unregulated consumers through direct power purchase agreements.

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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

According to the strategic plan of the Ministry of Energy and Natural Resources for the years 2019 to 2023, government policy in the electricity sector is to maintain continuous, high-quality, cost-effective, reliable and environmentally friendly energy supplies and to have a liberal, competitive, transparent, non-discriminatory and stable market. Turkey is also taking some steps to reach its net zero emissions target. Within the framework of this goal, Turkey supports the generation of energy from renewable and clean resources, while also supporting the use of domestic resources. To achieve this goal, the most recent government strategy documents and strategy plans include the following objectives:

- promoting energy efficiency;
- promoting new technologies, a diversity of resources and the use of domestic and renewable resources in a way to decrease dependency on foreign resources;
- structuring and operating the market in a way that ensures security of supply;
- considering climate change and its environmental effects in energy sector activities; and
- protection of the environment.

Legislative framework

In 2001, the main legislative document that created the current market structure, the Electricity Market Law No. 4628 (Law No. 4628), was issued as part of harmonisation efforts with the European Union and to liberalise the market. Under Law No. 4628, the Energy Market Regulatory Authority (EMRA) was established to regulate and supervise the market as an independent body. Law No. 4628 was amended with [Electricity Market Law No. 6446](#) (EML), which entered into force on 30 March 2013. Law No. 4628 is still in force, but its name has changed to the Law on the Organisation and Duties of the Energy Market Regulatory Authority. Therefore, Law No. 4628 only regulates the duties and rights of the EMRA, while the EML regulates market activities.

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The EML and the main secondary legislation, the [Electricity Market Licence Regulation](#) of 2 November 2013 (EMLR), regulate the market activities and types of licences. Each market activity, on the other hand, is subject to other secondary legislative documents, which regulate in detail the specific activity. Different generation activities such as renewable energy, nuclear energy and energy efficiency are also subject to their specific laws and implementing regulations.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

Licensing in general

Under the EML, electricity market activities consist of generation, transmission, distribution, supply (retail and wholesale), electricity storage, market operation as well as import and export activities. To carry out any of the market activities, market participants are required to obtain licences from the EMRA. However, certain generation activities listed in article 14 of the EML, such as operating a generation facility based on renewable energy resources (not exceeding the installed capacity determined on the connection agreement) are not subject to licence. Also, electricity storage activity can be conducted with an existing licence, without being subject to a separate licence.

In the past, as a state monopoly, the Turkish Electricity Authority (TEK) was responsible for all generation, transmission and distribution activities. In 1984, following the adoption of Law No. 3096, TEK's monopoly on electricity activities was weakened and private companies were allowed to operate in the market. TEK was first unbundled in 1993 into the two following state-owned enterprises:

- the Turkish Electricity and Transmission Company (TEAS): for generation and transmission; and
- the Turkish Electricity Distribution Company (TEDAS): for distribution.

In 2001, TEAS was unbundled into three state-owned companies:

- the Turkish Electricity Generation Company (EUAS): for generation;
- the Turkish Electricity Transmission Company (TEIAS): for transmission; and
- the Turkish Electricity Wholesale Company (TETAS): for trade.

In 2004, TEDAS was included in the privatisation portfolio as part of a Privatisation High Council Decision. The privatisation process has since been completed. EUAS is also in the process of being privatised. With an amendment made to the EML on 9 July 2018, TETAS was abolished through its merger with EUAS.

Under the EML and Electricity Market Licence Regulation of 2 November 2013 (EMLR), licences may be granted for a maximum term of 49 years; however, the term for the licences regarding generation, distribution and transmission may not be less than 10 years. The licences may be renewed for a maximum period of 49 years after their expiry. On the other hand, the licence terms for the renewable energy resource areas (RERA), which are special

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areas designated for generating electricity more efficiently from renewable energy resources in state-owned lands, will be determined in the specifications for each RERA, and the generation licences granted for RERAs cannot be renewed.

Each activity is subject to a separate licence. However, the export activity can be conducted by generation licensees and supply licensees, while import activity can be conducted by supply licensees. Import and export activities of such legal entities are regulated under their respective supply or generation licences and do not require separate licences. However, as an exception, in order to carry out import or export activities in synchronous non-parallel connections, an authorisation must be obtained from the EMRA and this permission must be incorporated into the licence.

The requirements sought in licence applications are specified in article 20 of the EMLR. A minimum share capital requirement, the amount of which differs depending on the activity, is sought for electricity companies to obtain a licence under the EMLR. Licence fees and notification requirements which differ depending on the activity, also apply.

A licence cannot be transferred. However, there are certain exceptions for generation licences.

Generation

Generation licence

In principle, generation activity is subject to a generation licence. In Turkey, generation activity is carried out by state-owned and private generation companies and organised industrial zone legal entities. EUAS, the state-owned generation company, is in the process of being privatised. Generation companies can sell electricity or capacity to persons directly connected through a private direct line, suppliers and eligible consumers. They can also purchase electricity or capacity to fill the gap between their actual production and their supply requirements, and the EMRA will determine the upper limit that they can purchase. The upper limit will be a percentage of the total annual amount of generation stipulated in their generation licence.

The total amount of electricity that a real person or entity can generate through generation companies under its control should not exceed 20 percent of the electricity amount generated in Turkey in the preceding year.

A licence cannot be transferred. However, a step-in right is provided in the EMLR for banks and financial institutions, which may be exercised only concerning the generation licences. There are other exemptions under the EMLR, set forth for:

- merger and demerger transactions conducted by generation licensees;
- transfer of generation facilities provided that the transfer is conducted through sale, transfer, lease or other similar types of contracts; and
- transfer of the rights and obligations of a generation licensee to another legal entity that has the same partnership structure.

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Notwithstanding the foregoing, the EML provides that some activities, such as operating a generation facility based on renewable energy resources for self-consumption, may be conducted as being exempt from the licence requirement.

The concept of storage-based electricity generation facilities has been included within the scope of electricity market activities since November 2022.

Preliminary licence

To obtain a preliminary licence regarding generation activity, investors are required to apply with certain required documents. In the case of preliminary licence applications for wind and solar power, a contest is held when multiple applicants apply to obtain a preliminary licence for the same region. Upon obtaining the preliminary licence, investors are expected to fulfil certain requirements stated in the preliminary licences such as obtaining the necessary decisions, permits and approvals (eg, environmental impact assessment decisions for most of the application types, technical interaction permit for wind energy applications, approval of zoning plans for preliminary projects) and in some cases completing certain transactions such as property acquisition or usufruct right establishment before applying for a generation licence. Depending on the installed capacity and resource type of the generation facility concerned, preliminary licences can be given for a maximum of 36 months except for the occurrence of force majeure events. This period may be extended by a decision of the EMRA's board within the scope of force majeure provisions. The extension for RERA licences that will result in the preliminary licence period exceeding 36 months in total will be subject to the Ministry of Energy and Natural Resources' approval in addition to the EMRA's decision.

Both the EML and the EMLR restrict share transfers and acts and transactions that may result in share transfers and change in the shareholding structure of the preliminary licensee for the duration of the preliminary licence, except in cases of inheritance and bankruptcy. Acting contrary to such restriction may result in the annulment of the preliminary licence. The EMLR excludes certain changes such as changes in the shareholding structures arising from the transfer of publicly owned shares of publicly held companies. The direct and indirect share transfer restriction during the preliminary licence period does not apply to the preliminary licences granted for RERAs as well. This restriction is also not applicable to legal entities granted a preliminary licence for generation facilities anticipated to be established under international agreements.

Also, EML regulates that, legal entities that undertake to establish an electricity storage facility shall be granted with a preliminary licence for the establishment of a wind or solar energy-based generation facility up to the installed capacity of the committed storage facility.

Transmission

Electricity transmission activities are conducted solely by TEIAS. With the President's Decision published in the Official Gazette dated 3 July 2021, TEIAS was included in the scope of the privatisation process.

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Distribution

Turkey's distribution network is divided into 21 distribution regions, 20 of which were owned by TEDAS and one by a private party, namely the Kayseri region. After the inclusion of TEDAS in the privatisation programme, a separate distribution company was established in each of the 20 distribution regions owned by TEDAS.

The privatisation process of all the distribution companies has been completed. At the time of their privatisations, distribution companies were able to perform retail sales activities. However, distribution companies unbundled their distribution and retail activities into separate legal entities as of 1 January 2013. The retail companies established as a result of such unbundling are defined as 'authorised suppliers'.

The EML provides that a distribution company cannot engage in any activity other than distribution or be a direct shareholder of a legal entity engaged in any other market activity. However, the EMLR allows distribution companies to provide out-of-market activities that the EMRA will consider to be of a nature that will increase efficiency in the electricity distribution activity.

As per the EMLR, distribution companies are obliged to act independently in their businesses and transactions without the interference of any real or legal persons controlling the relevant distribution company. Members of the board of directors and executives at a level of deputy general manager or higher and who hold signatory authority in an electricity distribution company, and those from generation and authorised supply companies under the same control as the electricity distribution company must be different individuals. Such managers cannot hold offices on the board of directors or similar organs of the controlling companies or other companies that are under the control of the controlling companies, formed for the supervision, coordination, management or auditing of the electricity distribution and retail sale or generation activities of such controlling companies.

Organised industrial zones are also entitled to carry out distribution activities within the organised industrial zone limits if they obtained an organised industrial zone distribution licence.

Also, distribution companies are entitled to establish and operate electricity storage units.

Market operation

Market operation activity is defined as the operation of organised wholesale power markets and the financial settlements of the transactions made in these markets.

Organised wholesale markets are defined as:

- day-ahead and intraday markets and futures electricity market where electricity, capacity and retail sale activities are conducted and operated by an intermediary legal entity holding a market operation licence – namely, the Energy Markets Operation Company;
- markets where standardised electricity contracts (ie, capital market instruments) and the derivative markets where derivatives based on the electricity or capacity are traded and are operated by Exchange Istanbul (Borsa Istanbul); and

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- the Organised YEK-G market, the balancing power market and the ancillary services market, which are organised and operated by TEIAS.

The day-ahead market has been in operation since 1 December 2011; the intraday market, on the other hand, started operating on 1 July 2015. [The Principles and Procedures regarding the Power Futures Market](#), which entered into force on 6 May 2021, provide predictability of the future prices in the market and the market was opened for transactions on 1 June 2021. In the Power Futures Market, the market participants can hedge the price risk (hedging) and are able to foresee price prospects for the future (price discovery).

EMRA introduced a green energy tariff in July 2020, which was applicable from 1 August 2020. Under the EMRA's relevant decision, the customers who wish to consume solely the electricity generated from renewable energy resources can apply to the authorised supply companies, and authorised supply companies will from thereon apply the green energy tariff for that consumer which is regulated by the EMRA.

A regulation outlining the establishment of a market (Organized YEK-G Market) in which the renewable energy certificates (YEK-G Certificates), which states that the electricity produced and sold is generated from the renewable energy resources will be traded, was published by the EMRA and entered into force on 1 June 2021 (YEK-G Regulation). The Organized YEK-G Market, which was established within this scope, was opened for transactions on 21 June 2021. The Organized YEK-G Market is the market organised and operated by EPIAS where YEK-G certificates are traded among market participants.

As per the YEK-G Regulation, the YEK-G Certificate must certify that the electricity supplied to the consumer is generated from renewable energy resources. With the regulation, electricity supply companies shall be able to verify that they have renewable energy in their portfolio.

Supply

The EML merged the wholesale and retail sale activities into one licence type – the 'supply licence'. According to the EML, supply activities may be conducted by generation companies and public and private sector supply companies.

Retail and distribution activities had previously been provided under one legal entity. Since the separation of the retail side from the distribution arm of distribution companies on 1 January 2013, retail companies have been established. These retail companies are now defined as 'authorised suppliers' under the EML. Authorised suppliers are entitled to sell electricity to eligible customers across Turkey, non-eligible consumers in their region and customers of last resort (ie, the eligible consumers whose power demands cannot be met by other suppliers or who have not selected their suppliers despite being eligible to do so), as a 'last-resort supplier', again in the relevant distribution region. Suppliers that previously held a wholesale licence or obtained a supply licence under the EML are entitled to sell electricity to eligible consumers only. The eligible consumer limit has been determined to be 1,000 kilowatt-hours per annum for 2023. Also, supply companies including authorised suppliers may import from and export to countries with which the interconnection condition is satisfied.

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The EML obliges the authorised supply companies to supply power to customers of last resort. According to the EML, tariffs of the last-resort suppliers are regulated. The EML further stipulates that some part of the power to be supplied by the last-resort supplier must be provided by EUAS. The percentage that would be provided by EUAS is annually determined by the EMRA.

Import and export

Export activity can be conducted by generation and supply licensees, while import activity can be conducted by supply licensees. Import and export activities of such legal entities are regulated under their respective supply or generation licences and do not require separate licences. Provisions regarding the country, company, amount and period of import or export, if any, are included in the relevant licence.

Additionally, EUAS is entitled to sign electricity sale agreements within the scope of electricity energy exchange, import and export agreements and existing concession and implementation agreements, and conduct import and export activities under such agreements.

Aggregation

With the Official Gazette No. 32057 dated 28 December 2022, aggregation activity was included under the scope of the EML. Although the licence obligations and general procedures and principles within the scope of aggregation will be determined later, the regulation so far briefly explains what this activity is. According to the EML, aggregation is defined as the market activity carried out by the aggregator within the scope of operation by combining the consumption or generation (or both) of one or more users on the network, whereas the aggregator is defined as a legal person holding an aggregation licence or a supply licence. The aggregator must have signed an agreement with one or more users on the network to carry out aggregation activities in the electricity market on behalf of the network users.

License for the Charging Network of the Electric Vehicles

The [Charging Service Regulation](#) published in the Official Gazette dated 2 April 2022 regulates the procedures and principles regarding the installation and operation of charging stations for electric vehicles. A Charging Network Operator Licence must be obtained with an application to EMRA. Legal entities that apply for the said licence must be established as a joint stock company or limited liability company in accordance with the provisions of the Turkish Commercial Code. However, excluding applications made by state-owned enterprises, there is a minimum share capital requirement determined by EMRA. Two different actors appear under the regulation: (1) charging station operators, and (2) charging network operators. Network Operators are legal entities that may establish and operate charging networks as well as charging stations by way of obtaining a license from the EMRA. Such licences may be obtained either for the whole of Turkey or a specific region. Station Operators are defined as natural persons or legal entities who can only establish and operate charging stations by way of obtaining a certificate directly from Network Operators. It should be also mentioned that Network Operators are not obliged to issue certificates to Station Operators. In order to meet the electricity needs of charging stations, electricity generation facilities based on renewable energy sources can be established within the scope of the Unlicensed Electricity Generation Regulation ([Unlicensed Electricity Regulation](#)).

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REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

Market participants should obtain a generation licence from the Energy Market Regulatory Authority (EMRA) to construct and operate generation facilities (except for certain generation activities). The Electricity Market Law No. 6446 (EML) introduces a preliminary licence for generation activities. After obtaining the preliminary licence, investors are expected to fulfil certain requirements stated in the preliminary licences such as obtaining the necessary decisions, permits and approvals (eg, environmental impact assessment decisions for most of the application types, technical interaction permits for wind energy applications, approval of zoning plans for preliminary projects) or completing certain transactions such as property acquisition or establishment of usufruct right before applying for a generation licence. A preliminary licence can be given for a maximum period of 36 months.

As per the Electricity Market Licence Regulation of 2 November 2013 (EMLR), in both preliminary licence and licence applications regarding generation activity, applicants have to submit a letter of guarantee to the EMRA for the amount determined based on the resource type by the EMRA for each installed capacity in megawatts. The ceiling for letters of guarantee for preliminary licence applications is determined by the EMRA, provided that it does not exceed 5 per cent of the investment value. The letter of guarantee amounts to be submitted during the licence application will also be determined by the EMRA so as not to exceed 10 per cent of the investment value for generation licence applications.

To obtain a preliminary licence and a generation licence, an applicant must pay licence fees, the amount of which depends on the installed capacity of the generation facility, and must also pay annual licence fees depending on the generated electricity amount after obtaining the licence.

With regard to power plants based on domestic natural resources, the right to use such resources must be obtained. For instance, for hydroelectric power plants, private parties should sign an agreement on the right to use the water with the General Directorate of State Hydraulic Works (SHW) after obtaining the preliminary licence from the EMRA. For local mines and geothermal, market participants should sign a resource agreement for the use of the energy resource. Finally, for power plants based on solar and wind power, solar power plant or wind power plant contribution agreements with the Turkish Electricity Transmission Company (TEIAS) should be signed. According to the EML, for licence applications to establish a power plant based on solar or wind power, applicants should submit a measurement of a certain period duly taken within the past eight years in the area where the power plant will be established, and the EMLR regulates the processes and principles for such measurements.

If the landowner where the solar and wind power plant is to be established applies for a licence, no other licence application can be made for the relevant land. If there is more than one licence application for a solar or wind power plant for the same region or the same transformer station or both, the companies wishing to establish a solar or wind power plant

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must participate in a contest to determine which one of them will connect to the system. The principles and procedures of the contest are regulated by the Regulation on the Contest Regarding the Pre-licence Applications for Establishing Power Plants Based on Wind and Solar Power of 13 May 2017 (the Contest Regulation). As per the Contest Regulation, the applicants offer the electricity prices in a way that the highest price to be offered will be the incentivised price determined under the Law on Utilisation of Renewable Energy Resources for the Purpose of Generating Electrical Energy of 18 May 2005 (the [Renewable Energy Law](#)) for a period of 10 years. While the Contest Regulation is still in force (as it is structured taking into consideration the application of the incentives, and incentives will no longer be available for new conventional solar and wind preliminary licence applications) we understand that the provisions of the Contest Regulation will no longer be applicable, and a new regulation concerning this matter will have to be introduced.

The capacity increase is allowed if the installed capacity is not exceeded and the opinion of TEIAS or the opinion of the relevant distribution company is positive. The legal entities holding electricity generation licences based on wind or solar energy that undertake to establish an electricity storage facility from the generation facilities can increase their generation capacity up to the installed capacity of the storage facility that they undertake to establish.

The EML provides that some activities may be conducted as being exempt from the preliminary licence and licence requirements. In line with the EML, the unlicensed generation activity was introduced with the Regulation on the Generation of Unlicensed Electricity in the Electricity Market of 2 October 2013 and the Communiqué on the Generation of Unlicensed Electricity in the Electricity Market of 2 October 2013. The regulation and communiqué were abolished and replaced by a regulation bearing the same name published on 12 May 2019 (the Unlicensed Electricity Regulation).

With the amendments dated August 2022 on Unlicensed Electricity Regulation, it has been stated that unlicensed electricity generation is aimed to meet consumption needs, and the upper limit on installed capacity applied to such facilities has been removed. If there is sufficient capacity in the distribution or transmission system (or both), it is permissible to establish multiple production facilities based on renewable energy sources with the same netting and support structure as for a consumption facility. Additionally, with the amendment made, the requirement for the consumption facility to be located in the same distribution region as the generation facility has been removed.

The Unlicensed Electricity Regulation also regulates the activities that may be conducted as being exempt from the preliminary licence and licence requirements for the following categories:

- emergency groups and generation facilities not connected to transmission or distribution systems;
- generation facilities based on renewable energy sources with a maximum installed capacity decided by the President, which is 5 megawatts at the time of writing;
- municipalities' solid waste facilities and generation facilities established for the disposal of mud from treatment plants;
- micro-cogeneration facilities (defined by the EML as cogeneration facilities that have a total installed capacity of 100 kilowatts and less);

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- cogeneration facilities (defined by the EML as facilities that simultaneously generate both heat and electricity) and trigeneration facilities (defined by the EMLR as facilities where electricity generation, heating and cooling processes are carried out simultaneously) that meet the efficiency figures to be determined by the Ministry;
- renewable energy generation facilities established by municipalities and their affiliated organisations, industrial facilities and agricultural irrigation facilities up to twice the contracted capacity specified in their connection agreement. Other renewable energy generation facilities that are limited by the contractual capacity specified in their connection agreement, regardless of whether the renewable energy-based generation facilities are established at the same or different measurement points with the consumption facility;
- generation facilities owned by legal entities whose majority share capital is directly or indirectly owned by municipalities to be established on the water conveyance pipelines, sewage transport pipelines and the dams that are used for drinking water that are operated by the municipalities;
- generation facilities based on renewable energy sources established and operated by the SHW or irrigation unions to meet the electricity needs of the agricultural irrigation facilities, provided that installed capacity is limited to the contractual capacity of the agricultural irrigation facility stated in the connection agreement or the sum of the agreement capacities of the facilities stated in the connection agreement, if there are multiple agricultural irrigation facilities;
- renewable energy generation facilities to be established at the same or different measurement points with the consumption facility, for which the irrigation unions are responsible for the operation, maintenance, repair and management, on the immovable properties owned or under the disposal of the irrigation union and SHW up to the contracted capacity specified in the connection agreement; and
- the generation facilities to be established by special provincial administrations, provided that it is technically feasible, the project is approved by SHW and it serves only for irrigation purposes.

Under the Decision of the Energy Market Regulatory Board dated 16 May 2019 and numbered 8587, the information and documents required for unlicensed electricity generation applications are specified. To construct an unlicensed power plant, one should first apply to the relevant network operator (ie, TEIAS or the distribution company authorised in the region where the power plant will be located) with certain documents, such as land usage rights documents, an environmental impact assessment document or a single line diagram, depending on the energy resource.

If the relevant network deems the application sufficient, a call letter to invite the applicant to sign the connection agreement is sent. Upon the issuance of this document, the applicants have 30 days to obtain Environmental Impact Assessment documentation and 90 days to apply for project approval to the institution authorised by the Ministry of Energy and Natural Resources and have 180 days for obtaining the approval. Investors sign a connection agreement with the network operator within 30 days following the fulfilment of all requirements and submission of all the required documents. However, for an unlicensed power plant to become operational, the system usage agreement should also be signed within one month following the start of commercial activity. Under the Unlicensed Electricity Regulation, the acceptance of facilities must be made:

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- In generation facilities utilising the distribution transformer owned by the relevant grid operator, for a period of one year
- In generation facilities not utilising the distribution transformer owned by the relevant grid operator:
 - for hydro-based generation facilities, for a period of three years; and
 - for generation facilities based on other sources, for a period of two years.

Failure to obtain acceptance within these timescales will result in the termination of the technical interaction permit, connection agreement, allocated capacity, and permits regarding water usage rights, except in cases of force majeure and delays owing to reasons acceptable to the EMRA.

With the amendments on the Unlicensed Electricity Regulation, users can establish unlicensed power plants for their self-consumption without being subject to any installed capacity limit even in different distribution regions. Only limit they have now is the upper limit determined under their system usage and connection agreement.

The concept of storage-based electricity generation facility has been included within the scope of the EMLR since November 2022. According to the regulation, preliminary licences will be granted by EMRA to legal entities that commit to establishing an electricity storage facility up to the installed capacity of the committed storage facility.

In general, regardless of whether the generation facility is licensed or unlicensed, it must not exceed the limit on its connection agreement. With the new amendment to the Electricity Market Connection and System Usage Regulation of 28 January 2014 (the [Connection and System Usage Regulation](#)), if requested by the Ministry on the grounds of security of supply, electrical energy exceeding the allowed capacity limit may be supplied to the system by the generation facilities for a period to be determined by the Energy Market Regulatory Board. In this context, the energy supplied to the system above the agreement power is not considered a power overrun.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

TEIAS has a legal monopoly regarding transmission activities. No other legal entity is allowed to construct and operate transmission networks. TEIAS must ensure that connection to the transmission system, and the system-use demands of real persons or legal entities, are met in a non-discriminatory manner.

According to the Connection and System Usage Regulation, if any new transmission plant or transmission lines to connect such a plant to the system are required for the connection of the generation plants to the system and if TEIAS does not have the necessary financing for such an investment, the investment can be made or financed by the company or companies that request connection to the new plant. The ownership and operation responsibility of the facilities or lines built in this context belong to TEIAS. The investment amount regarding the transmission facility is calculated according to the methodology prepared by TEIAS and

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approved by the EMRA. The investment amount is fixed in Turkish lira and deemed as the system usage fee received in advance and it is subject to set-off with the system usage fee. The user does not pay the system usage fee (excluding value-added tax) until the investment amount is completed. If the total investment amount set off is not completed within five years, the remaining amount is paid to the relevant user in a lump sum at the end of the fifth year.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

The Renewable Energy Law provides a renewable energy support mechanism that covers different incentives and benefits for renewable energy projects including feed-in tariffs.

Feed-in tariffs (fixed minimum electricity sale prices) for the legal entities holding generation licences that started operations in the period between 18 May 2005 and 30 June 2021 depending on the type of renewable energy projects are as follows:

- Turkish lira equivalent of US\$0.073 per kilowatt-hour for hydroelectric power plants;
- Turkish lira equivalent of US\$0.073 per kilowatt-hour for wind power plants;
- Turkish lira equivalent of US\$0.105 per kilowatt-hour for geothermal power plants;
- Turkish lira equivalent of US\$0.133 per kilowatt-hour for biomass power plants; and
- Turkish lira equivalent of US\$0.133 per kilowatt-hour for solar power plants.

The above-mentioned feed-in tariffs are applicable for 10 years from the operation date of the first installed capacity inserted in the generation licence if the whole facility entered into operation, and from the date the facility entered into the renewable energy support mechanism (RES mechanism) if it entered into operation partially.

According to Presidential Decree No. 3453, feed-in tariffs for the legal entities holding generation licences that start operations between 1 July 2021 and 31 December 2025 are in Turkish Lira depending on the type of renewable energy projects. The feed-in tariffs were also said to be escalated in January, April, July and October each year according to a formula published in the Presidential Decree (subject to certain thresholds).

However, by the Presidential Decree dated 1 May 2023 and numbered 7189, feed-in tariff has been updated and concepts of YEK Support Mechanism Base Price (YEKDEM Base) and YEK Support Mechanism Ceiling Price (YEKDEM Ceiling) were introduced. Facilities that enter into operation between 1 July 2021 and 31 December 2030 will be able to benefit from the new feed-in tariff from 1 May 2023. The feed-in tariff will be updated monthly within the specified range between YEKDEM Base and YEKDEM Ceiling, indexed to the US dollar. The feed-in tariffs determined with the Presidential Decree are as follows:

- 0.144 Turkish lira per kilowatt-hour for hydroelectric power plants with reservoir;
- 0.135 Turkish lira per kilowatt-hour for river typed hydroelectric power plants;
- 0.106 Turkish lira per kilowatt-hour for wind power plants on land;
- 0.144 Turkish lira per kilowatt-hour for offshore wind power plants;

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- 0.144 Turkish lira per kilowatt-hour for geothermal power plants;
- 0.106 Turkish lira per kilowatt-hour for biomass plants based on by-products from waste tyre disposal and landfill gas;
- 0.173 Turkish lira per kilowatt-hour for biomass power plants based on bio-methanation;
- 0.134 Turkish lira per kilowatt-hour for biomass power plants based on thermal disposal; and
- 0.106 Turkish lira per kilowatt-hour for solar power plants.

To benefit from the RES mechanism, legal entities holding renewable energy generation licences and the renewable energy support certificate should apply to the EMRA by 30 November of the year before they wish to benefit. YEKDEM is operated by the market operator on a calendar year locked-in basis.

Generators included in the RES mechanism remain in the concerned mechanism for the whole year. After the above-mentioned 10-year period provided to renewable energy generation facilities expires, facilities generating renewable energy will not be able to participate in the RES mechanism and will only be able to sell their electricity in the market at the market price or through bilateral agreements just like the other market participants at negotiated prices without benefiting from the incentives. The Renewable Energy Law also features further incentives as bonus tariffs for licence holders that use locally produced mechanical or electromechanical equipment or both, or components of this kind in renewable energy facility for a five- or 10-year term depending on the type of source.

The Renewable Energy Law authorises the president to determine these bonus tariffs (in terms of tariff amount, terms and the eligible energy sources) that will apply for facilities that commence generation after such date. It is also stated that after the mentioned 10-year period, procedures and principles regarding the operation of these power plants will be determined by the president. With the Presidential Decision of 18 September 2020, renewable energy generation facilities that started their operations between 1 January 2021 and 30 June 2021 will also be able to benefit from the bonus tariffs provided in the Renewable Energy Law for locally manufactured components used in these generation facilities for five years. Such bonus tariffs differ according to the type of renewable energy and the component manufactured from US\$0.004 to US\$0.035 per kilowatt-hour. The Regulation on the Support of the Local Components of 28 May 2021 (the [Local Manufacture Regulation](#)) stipulates the principles, standards and certification processes regarding locally manufactured mechanical and electromechanical components. The components used in the construction of the power plant and the parts that constitute these components and the percentage of each part in these components are outlined in the Local Manufacture Regulation. The Local Manufacture Regulation provides that the bonus tariffs shall apply in proportion to the percentage of each locally manufactured part in the components, provided that the locally manufactured parts constitute at least 55 percent of the relevant components. According to Presidential Decree No. 3453 dated 30 January 2021, the bonus tariffs for the renewable energy facilities that will start their operations between 1 July 2021 and 31 December 2025 would benefit from a bonus tariff of 0.8 Turkish lira per kilowatt-hour regardless of the type of renewable energy project.

However, changes have been made to the bonus tariff for locally manufactured components and their application periods by the Presidential Decree dated 1 May 2023 and numbered 7189. Bonus tariffs that will be applicable for renewable energy generation facilities that

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started their operations between 1 July 2021 and 31 December 2030 have been differentiated according to their sources, both in terms of price levels and duration as of 1 May 2023. The application period for bonus tariffs for locally manufactured components has been updated to 10 years for wind and solar power plants integrated with electrical storage facilities, pumped hydroelectric power plants and wave or tidal energy-based power plants. The application period for bonus tariffs remains five years for other types of facilities. The tariff has also been updated to 38.45 Turkish lira per kilowatt-hour for storage system integrated to the wind or solar power plants, pumped hydroelectric power plants, wave or tidal energy-based power plants and offshore wind power plants, as 21.58 Turkish lira per kilowatt-hour for biomass power plants based on thermal disposal and as 28.80 Turkish lira per kilowatt-hour for the rest of the sources.

With the decision numbered 11098, EMRA made an amendment to the Unlicensed Electricity Regulation aiming to balance the generation and the consumption amount concerning the surplus energy from the generated electricity from the unlicensed facilities. With the developments in the electricity market, the amount of generated electricity exceeding the consumption will be considered a free contribution made by the unlicensed electricity facility to the YEKDEM system.

The EML permits capacity increases, modernisation, renewal investments and modifications under certain circumstances. On the other hand, if generation facilities based on renewable sources obtain approval for a capacity increase from the EMRA after 28 February 2019, the increased capacity will not be able to benefit from the incentives. Accordingly, the formula to calculate the RES Mechanism fee to apply has also been amended to reflect this change (by applying the ratio of the old installed capacity to the new install capacity to the generation amount).

The Regulation on Renewable Energy Resource Areas (the [RERA Regulation](#)) dated 9 October 2016 designates special renewable energy resources areas (RERAs). The RERA Regulation enables the use of state-owned lands by private parties for electricity generation from renewable resources. Currently, apart from larger-scale RERAs, RERA contests for small-scale areas are being held as well.

As opposed to the small capacities allocated for each generator in a conventional licence-obtaining process, under the RERA Regulation, high installed capacities can be allocated to one generator by granting a right of usage of the RERA (the RERA Usage Right). While the RERA Regulation sets forth two different methods for the designation of the RERAs, in both methods, the RERA Usage Right is granted through a contest, the procedures of which are regulated in the RERA Regulation. Different from the conventional licence-obtaining process, the RERA Regulation requires the use of locally manufactured components in the generation facility to be established in the RERA. The applicants of such contests will either be required to manufacture the components themselves in Turkey, in their own factory, or undertake to use components locally manufactured by third parties or both, depending on the specific requirements outlined in the specifications regarding the relevant RERA Usage Right. In cases where the RERA Usage Right-holder will be required to locally produce the components, it will also be required to perform research and development activities under the requirements to be stipulated under the specifications. As applicable to both methods, as per the RERA Regulation, the highest electricity purchase price that may be offered during the contest will be outlined in the specifications of each contest, taking into

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consideration the feed-in tariffs set forth for the generators subject to the RES mechanism in the renewable energy legislation. The winner and the purchase price of the electricity will be determined during the contest as the bidder offering the lowest price.

Unlicensed electricity generation facilities are subject to a price guarantee different than the feed-in tariffs. It is the retail single-time active energy price for the specific subscriber group of their consumption facility, as announced by EMRA in Turkish lira per kilowatt-hour. In the context of unlicensed electricity generation, there is a system known as the 'net metering mechanism'. It allows the unlicensed electricity generator to offset the excess electricity they generate against their consumption from the grid monthly. The surplus electricity generated by the producer is fed into the grid, and the energy supplier deducts this amount from the electricity consumed by the producer during the monthly billing period. The generator is billed only for the net electricity consumed after deducting the surplus generation. This mechanism enables the unlicensed electricity producer to reduce their electricity costs by effectively utilizing their own renewable energy generation and contributing to the grid.

The surplus electricity will be purchased by the relevant authorised supply companies from the tariffs for 10 years from the start of electricity generation in such facility. However, while the licence holders may continue selling their electricity freely after the expiry of this 10 year period, an unlicensed generator will not be able to sell the electricity it generates through the system and only continues to use it for its own consumption. With the Local Manufacture Regulation and the amendment to the Unlicensed Electricity Regulation in line, unlicensed facilities cannot benefit from bonus tariffs applied to the use of locally manufactured components.

Under the regime set forth with the RERA Regulation, on the other hand, the electricity that will be generated by the generation facility will be subject to a purchase guarantee under the RES mechanism at the price stated in the RERA Usage Right agreement (that will be signed by the Ministry and the winner), which is determined as per the contest results. The company obtaining the RERA Usage Right under a contest will not have an option to opt in or opt out of the RES mechanism. The purchase period will start from the date of execution of the RERA Usage Right agreement (not from the date of the licence issuance) and after the expiry of this period, the licensee may sell its electricity in the market with its generation licence.

Another incentive was granted for the renewable energy facilities regarding the use of state properties. If any state property is used for generating electricity from renewable resources or mines and minerals, the Ministry of Environment and Forestry or the Ministry of Finance shall permit the use of such properties concerning the facility and access ways and energy transmission grids up to the connection point of the grid in return for a fee. This permission may be in the form of permits, leases, rights of easement or rights of usage. For facilities that start operating before 31 December 2025, for access ways and energy transmission grids up to the connection point, a discount of 85 per cent shall be applied to the fees for permission, lease, right of easement and right of usage for the first 10 years starting from the date on their licence. Additionally, with Presidential Decree No: 5209, a new incentive was granted for unlicensed solar power plants providing some exemptions, such as:

- VAT exemption;
- customs Duty Exemption; and

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- if the Investment Contribution Rate is 30 per cent outside the Organised Industrial Zones (OIZ), 40 per cent is deducted from the corporate tax to be paid, and the portion exceeding 70 per cent is reduced from tax to be transferred to the following years.

Insurance Premium Employer's share support will be applied for seven years inside the OIZ and six years outside the OIZ. According to the Electricity Market Licence Regulation of 2 November 2013 (EMLR), the legal entities applying for a preliminary licence and licence for the generation facilities based on domestic natural resources and renewable energy resources shall only pay 10 percent of the total preliminary licensing and licence-obtaining fees. Generation facilities based on renewable and domestic energy resources shall not pay annual licence fees for the first eight years following the first provisional acceptance date of the power plant.

Also, TEIAS and distribution licensees must give priority to the system connection of generation facilities based on domestic natural resources and renewable resources.

Combined electricity generation facility, combined renewable electricity generation facility, supportive sourced electricity generation facility and joint-fired electricity generation facility concepts and related new provisions regulating and permitting the establishment of auxiliary generation units from another source in addition to the main generation power plant were also introduced in the Electricity Market Licence Regulation. While a 'combined electricity generation facility' is defined as a single facility established to generate electricity from multiple energy resources connected to the grid from the same connection point, a 'combined renewable electricity generation facility' is defined as a single facility established to generate electricity totally from multiple renewable energy resources connected to the grid from the same connection point. A 'supportive sourced electricity generation facility' is defined as a single electricity generation facility also benefiting from another energy resource in the thermal conversion process.

Finally, a 'joint-fired electricity generation facility' is defined as a single electricity generation facility where a renewable auxiliary resource is fired in addition to the main resource, which is not a renewable energy resource. All these facilities are together referred to as 'electricity generation facilities based on multiple resources'. As per the Licence Regulation, the auxiliary resource in the generation power plant cannot be transformed into the main source in the combined renewable electricity generation facility and combined electricity generation facility. The preliminary licence application procedures for the auxiliary source in these two facilities are conducted under the same provisions of obtaining a conventional licence, except for the contest applied in the preliminary licence application. The amount for obtaining a licence and the security amounts to be provided by the applicants of combined generation facilities are calculated by taking into consideration the sum of the installed capacities of the main source and the auxiliary source.

In line with these insertions in the Licence Regulation, certain amendments were also made in the Regulation on the Documentation and Support of the Renewable Energy Resources on the same date. Under this legislation, if generation facilities that are within the scope of the renewable energy support mechanism (RES Mechanism) are transformed into a supportive sourced electricity generation facility or combined renewable electricity generation facility using solely renewable resources, there will be no change in the period that the facility will benefit from the RES Mechanism. If all the resources used in a supportive sourced

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electricity generation facility are renewable, then this facility will be subject to the feed-in tariff applied to the main resource for the period remaining for the unit subject to the main resource. The same legislation also stipulates that the energy amount that is generated in a combined renewable electricity generation facility will be within the scope of the RES Mechanism at the lowest of the feed-in tariff prices determined for the renewable energy resources used in such a facility for the remaining period that the facility may participate to the RES Mechanism. The Regulation does not provide a new provision setting forth benefits for the RES Mechanism for a combined electricity generation facility where only the supportive resource is renewable.

Additionally, the Regulation on the Documentation and Support of the Renewable Energy Resources regulates whether the electricity generated shall be evaluated under YEKDEM or not for the facilities integrated with the storage unit. Regarding the amount of energy supplied through the integrated electricity storage unit in the storage-based power generation facility and the YEKDEM eligible power generation facility, the following provisions are accepted: First, the energy supplied to the grid after being generated and stored in the power generation facility is considered under the scope of YEKDEM. Second, if energy is withdrawn from the integrated electricity storage unit in the storage-based power generation facility to the YEKDEM-eligible power generation facility during any reconciliation period, the energy is primarily withdrawn from the grid, and the amount of energy withdrawn from the grid is supplied from the electricity storage unit without being subject to YEKDEM. Third, the energy supplied from the electricity storage unit to the grid above the amount withdrawn from the grid is considered as falling under the scope of YEKDEM.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

Government energy policy promotes renewable energy resources to tackle climate change. The government is also promoting energy efficiency to decrease the amount of power that is consumed. Turkey signed the Kyoto Protocol in February 2009; however, it is not listed in Annex B of the Protocol. Turkey signed the Paris agreement opened to the signature at the United Nations Climate Change Conference (COP 21) on 22 April 2016 and ratified the agreement on 11 October 2021. Turkey has pledged to reach net zero by 2050.

Also, after ratifying the agreement, Turkey declared that it is preparing a regulation regarding Climate Change under the terms of the Paris Agreement.

The Turkish government's policy on climate change is aimed at reducing greenhouse gas emissions and promoting sustainable energy practices. While there may be initial costs associated with the transition, the long-term benefits include a cleaner energy mix, reduced environmental impact and potentially more stable and affordable electricity prices.

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Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

Electricity storage

Electricity storage-related secondary legislation has been entered into force in May 2021. Electricity storage legislation's scope excludes pumped hydroelectricity power plants and uninterruptible power supplies. The electricity storage facility is defined in the relevant regulation as 'a facility that could store electrical energy and transmit the stored energy to the system'. The relevant regulation differentiates the storage facilities as:

- storage facilities that may be established by grid operators (transmission system operators) and distribution system operators);
- stand-alone storage facilities;
- storage-based generation facilities;
- storage facilities integrated into generation facilities; and
- storage facilities integrated into consumption facilities.

A separate licence for the storage facility is not needed, as the storage facility can be established through an existing licence by the amendment. For the amendment for a storage facility, there are not any capital requirements or guarantee obligations. On the other hand, with the recent developments on the electricity market, legal entities that commit to establishing an electricity storage facility are granted a preliminary licence by the Energy Market Regulatory Authority (EMRA) for the establishment of wind and/or solar energy-based electricity generation facilities up to the installed capacity of the committed electricity storage facility. It is stated that the electricity storage unit within the generation facility with storage facility is not subject to a separate licence or preliminary licence and should be added to the existing licence through an amendment.

Additionally, for storage-based electricity generation facilities under the scope of the Electricity Market Licence Regulation of 2 November 2013 (EMLR), the minimum capital required for the preliminary licence and a guarantee must be provided.

Furthermore, the following requirements apply:

- the maximum ratio of the electrical installed capacity of the wind or solar energy-based electricity generation facility to the committed installed capacity of the electricity storage unit should be 1;
- applications for wind energy-based projects should have a minimum installed capacity of 20 MW, and solar energy-based projects should have a minimum installed capacity of 10 MW and should not exceed 250 MW;
- the minimum ratio of the committed electricity storage capacity to the installed capacity of the electricity storage unit should be 1; and
- the committed electricity storage unit should be located within the boundaries of the applied power plant site.

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If an electricity storage facility is desired to be added to a generation facility covered by a generation licence, it must be added through an amendment. In this context, the following conditions must be met:

- not exceeding the boundaries specified in the licence;
- no change in the specified electrical or mechanical installed capacity (or both);
- no change in the existing connection method, connection point and voltage level specified in the licence; and
- obtaining a positive opinion on the connection of the electricity storage unit to the system and its system usage.

For stand-alone storage facilities, licence holders of supply licences are required to submit an amendment application to be added to their existing licences. In these licence amendment applications, the technical compliance of the facility is evaluated by seeking an opinion from TEIAS.

A positive opinion by the Ministry of Energy and Natural Sources regarding the environmental impact assessment is required. However, TEIAS's opinion on whether the storage unit complies with the technical criteria is necessary in all cases.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

To promote private sector nuclear energy investments, the Nuclear Energy Law, the first such law in Turkey, was published on 21 November 2007 as a legislative proposal and the Nuclear Energy Law was published on 8 March 2022 to try to cover the developments on the Nuclear Energy sector.

The purpose of the law is to stipulate the procedures and principles regarding the commissioning and operation of nuclear power plants for electrical energy production and energy sale under energy planning and policies.

The Turkish Atomic Energy Authority and the EMRA have published the vast majority of legislative documents and criteria regarding nuclear safety, licensing, reactor types, power plant lifetimes, proven technology, fuel technology, localisation, operational records and electrical power. In 2018, a regulatory authority, namely the Nuclear Regulatory Authority (NRA) was established and regulatory authorities of the Turkish Atomic Energy Authority have been transferred to the NRA.

The Turkish government promotes nuclear power plants. Currently, there are three nuclear power projects either in the process of realisation or being considered to be realised. One of those is the Akkuyu Power Plant, which is currently being built by one of the subsidiaries of Rosatom State Atomic Energy Corporation, Akkuyu NPP Joint Stock Company. The installed capacity of the Akkuyu Power Plant is expected to be 4,800 megawatts and it is estimated that it will meet approximately 10 per cent of Turkey's electricity demand. Akkuyu Nuclear Power Plant has achieved the classification of a 'nuclear facility' following the arrival of fuel on April 2023. After completing the necessary tests and preparations, the first unit is

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scheduled to be operational. The aim is to commence electricity generation from nuclear energy next year.

Additionally, on 8 March 2022, the Nuclear Energy Law was published in the Official Gazette. With the law, general principles regarding the activities to be carried out regarding nuclear energy and ionizing radiation are determined.

Natural or legal persons who carry out any activities related to nuclear energy and nuclear materials must apply for a licence from the Nuclear Regulatory Authority and will be obliged to comply with international agreements and conventions related to nuclear assurance to which Turkey is a party.

In addition, the export, import, transportation and transit of radioactive materials – within the scope of nuclear assurance, materials, equipment, systems, components and related technology – and nuclear dual-use materials, equipment, systems, components and materials specially designed or prepared for use in the nuclear field are the subjects of the Nuclear Energy Law. Within the scope of nuclear assurance, it will be obligatory to obtain permission for the import of substances, materials, equipment, systems, components or related technology determined by the institution, and for other activities determined by the institution, taking into account safety, security and nuclear assurance.

REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

The Turkish Electricity Transmission Company (TEIAS) has a legal monopoly on transmission activities. No other legal entity is allowed to construct and operate transmission networks. TEIAS also holds a transmission licence from the Energy Market Regulatory Authority (EMRA) to conduct transmission activities. The transmission licence can be issued for a maximum of 49 years and a minimum of 10 years at a time.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

Legal entities engaged in generation activities, distribution companies and organised industrial zone distribution licence-holding companies, electricity storage facilities, unlicensed generation facilities and the consumers meeting the certain requirements stipulated in the concerned legislation (such as owning a consumption facility with a capacity of 50 megawatts or more, or, although having a capacity less than 50 megawatts, following the distribution company's admission of its inability to meet the electricity demands of such a facility), may request access to the transmission grid.

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- connection and system usage requests of real or legal persons to the transmission and distribution system are met by TEIAS and the distribution company without any discrimination between equal parties. No negative opinion can be given about the connection of real or legal persons to the transmission or distribution systems operated by TEIAS or the distribution company, and the use of the system, except for the situations listed below. The technical features of the network at the required connection point are insufficient;
- the standards concerning system connection, the condition of the facility to be connected to the system and the technical standards indicated in the relevant regulations have not been met;
- TEIAS justifies that the intended connection would constitute an obstacle to public service obligations;
- the values, such as the voltage drop, harmonic, electromagnetic interference, or flicker level at the entrance or exit point to the network and at the transmission and distribution stages, do not meet the limits specified in the relevant regulations;
- the facility for which the connection is to be made makes the quality of the electrical energy of the system not within the standards specified in the relevant regulations; or
- a connection point, which is more economical and provides fewer losses in power compared with the connection point applied to, is available in the case of applications for connection of wind or solar power generation facilities.

If TEIAS is of a negative opinion concerning the connection to the system and system use, it should justify such an opinion and such an opinion should also be approved by the EMRA. If the reasons for such an opinion are not deemed appropriate by the EMRA, TEIAS would be obliged to sign the related connection and system usage agreements.

If multiple applicants wish to connect to the transmission system from the same connection point and it is not possible for the transmission system to meet all the applications, the following company types will have priority as set out in the following:

- for consumption facilities:
 - the distribution companies; and
 - organised industrial zone distribution licence-holding companies;
- for generation facilities:
 - companies generating electricity based on domestic coal; and
 - companies generating electricity based on renewable energy.

Transmission system users shall sign connection and use-of-system agreements with TEIAS.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

With a legal monopoly over the transmission grid, TEIAS is responsible for the grid's expansion. According to the Electricity Grid Regulation of 28 May 2014 (the [Grid Regulation](#)), TEIAS prepares the 20-year statement report regarding the transmission system (long-term report).

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Such a long-term report includes items such as investment plans regarding the transmission system and potential supply possibilities. In addition to the long-term report, TEIAS is also responsible for preparing and publishing a short-term (ie, one-year term) electricity energy supply and demand projection report for the following year with the participation of all the authorities and institutions and the cooperation of the Ministry of Energy and Natural Resources.

Enabling generation companies to finance and make investments for new transmission lines required for the connection of the generation facilities to the system when TEIAS does not have the necessary financing under the repayment plan regulated in the Electricity Market Connection and System Usage Regulation of 28 January 2014 ([Connection and System Usage Regulation](#)) may also be interpreted as an encouragement for the expansion and improvement of the transmission grid.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

The transmission service is subject to regulated tariffs consisting of fees required to be collected for the performance of the transmission system usage activity by TEIAS. The transmission tariff includes the transmission system usage price, transmission system operation price (market operation included) and other fees that may occur under the legislation. Transmission system usage and operation tariffs are prepared and proposed by TEIAS.

TEIAS prepares the transmission tariff proposal and then submits it to the EMRA for approval. The tariff becomes effective for the tariff period once approved by the EMRA. TEIAS is obliged to announce its approved tariffs.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

The EMRA is responsible for preparing regulations for the connection and reliability of the transmission grid, such as the Grid Regulation and the Connection and System Usage Regulation. These regulations outline the technical and other standards to be met for the transmission system and also for connection to the transmission network.

According to these regulations, the general responsibility for assuring transmission grid reliability lies with TEIAS. TEIAS is obliged to meet the demands of third parties for connection to the transmission network and system use on a non-discriminatory basis between equal parties. TEIAS is entitled to take necessary measures and actions in the case of any threat to the reliability and safety of the transmission grid. It is also responsible for the planning and development of the transmission system.

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REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

Electricity distribution activities are performed by private distribution companies in the regions indicated in their respective licences. There are 21 regions and all the distribution companies for each region have a monopoly in their region. There is no possibility of obtaining a new distribution licence in Turkey unless a licence regarding a distribution region is cancelled. In the case of cancellation, a privatisation method will apply for granting the relevant concession to operate a distribution licence. It is also possible to acquire shares of a distribution company.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Legal entities engaged in generation activities and eligible and non-eligible consumers can obtain access to the distribution grid. They have to sign connection and use-of-system agreements with distribution companies. If the consumers execute a connection agreement, to connect to the distribution system, these consumers have to certify that a retail sale agreement or bilateral agreement has been executed between the consumer and the supply company.

In principle, users are required to apply to the distribution companies in the region where they are located. Applications are evaluated by the distribution company and can only be rejected if:

- the technical features of the network at the required connection point are insufficient;
- the standards concerning system connection, the condition of the facility to be connected to the system and the technical standards indicated in the relevant regulations have not been met;
- the distribution company justifies that the intended connection would constitute an obstacle to public service obligations;
- due to the facility for which the connection is to be made the quality of the electrical energy of the system becomes not compliant with the standards specified in the relevant regulations; or
- a connection point, which is more economical and provides fewer losses in power compared to the connection point applied to, exists, in the case of applications as to the connection of wind power or solar power generation facilities.

A distribution company's rejection is subject to the Energy Market Regulatory Authority's (EMRA) evaluation.

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Electricity generation facilities must apply to distribution companies to be granted access to the distribution grids after obtaining a preliminary licence but before applying for a generation licence, upon verification that their connection applications are appropriate.

Similar to investments regarding the transmission system, if a new investment or an expansion investment is necessary for generation and consumption facilities to connect to the distribution system or for meeting the expansion demands of the generation and consumption facilities or such establishment cannot be timely planned, the legal or natural persons requesting this connection may be required to finance or realise the investment themselves on behalf of the distribution company. In these cases, the investment amount is repaid to such a legal or natural person at a maximum of 12 monthly equal instalments within the year following the commissioning or after the usage rights of the lands on which the relevant investment passes through have been obtained.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

There are no rate or tax benefits to encourage the expansion of the distribution network. On the other hand, the distribution companies are obliged by law to make the necessary capacity increases; prepare investment plans and submit them to the EMRA for approval; improve distribution facilities; and prepare the projects of the distribution facilities included in the investment programme under the approved investment plan.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

After revenue requirements and costs for each distribution company are determined, considering elements such as efficiency, the loss or theft ratio, and quality, the EMRA applies a tariff equalisation scheme (national tariff). The national tariff is stipulated to eliminate regional differences in non-eligible consumer tariffs by allowing cross-subsidies from low-loss regions to high-loss regions for the transition period, which was stipulated by the Electricity Market Law No. 6446 as the period until 31 December 2020 and has been extended to 31 December 2025 by decision of the Council of Ministers. The reason for the national tariff system was the high level of theft or loss in certain regions of Turkey.

There are two components of the tariff: retail sales and distribution. The retail sales tariff is subject to a gross profit margin cap and a revenue cap. The distribution tariff, on the other hand, is subject to revenue caps. It also includes loss and theft amounts, distribution, transmission and retail services. Operating expenses and investment requirements related to distribution services, retail services and transmission and other similar costs or expenses are to be reflected in the revenue cap.

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REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

A supply licence is required for the sale of power to customers. Licences are granted by the Energy Market Regulatory Authority (EMRA) for a maximum term of 49 years. Authorised suppliers are entitled to sell electricity to eligible customers across Turkey, non-eligible consumers and customers of last resort as a last-resort supplier in the relevant distribution region. Suppliers that previously held a wholesale licence and the ones granted supply licences afterwards are entitled to sell electricity to eligible consumers only. As a result, supplier companies and authorised supply companies will not have equal rights unless the eligible consumer limit is decreased to zero kilowatt-hours. Generation companies are also able to sell electricity or capacity to persons directly connected through a private direct line, suppliers and eligible consumers.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

Retail sales to non-eligible consumers, wholesales of the Turkish Electricity Generation Company (EUAS), last-resort electricity supplies and retail sales of green energy to consumers are regulated and subject to a tariff. Eligible consumers, instead of purchasing electricity at the tariff from the authorised supply companies, can make bilateral electricity purchase agreements with providers of electricity such as electricity generation companies and private wholesale companies (supply companies). At present, the eligible consumer limit is 1,000 kilowatt-hours per annum for 2023.

As per the Communiqué on the Regulation of the Last Resource Supply Tariff (the Communiqué), which entered into force on 20 January 2018, eligible consumers are divided into two groups as eligible consumers with high consumption and eligible consumers with low consumption, and are subjected to different tariffs if they do not make bilateral electricity purchase agreements. According to the Communiqué, while the tariff to be applied for eligible consumers with low consumption will be equal to the retail sales tariff approved for the non-eligible consumers, the eligible consumers with high consumption will be subject to a higher tariff (ie, the last-resort supply tariff will be determined by the EMRA to push those consumers to purchase their electricity via bilateral agreements from supply companies). As per the Communiqué, the threshold of low and high consumption will be determined by the EMRA each year considering social and economic conditions and depending on the development of the market. For 2023, the threshold is determined as 100 million kilowatt-hours per year for residential consumers, and for consumers of agricultural irrigation 1 million kilowatt-hours per year for industrial consumers and 1 million kilowatt-hours per year for other consumers.

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Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

The wholesale tariff of EUAS is prepared and proposed to the EMRA by EUAS and approved by the EMRA; however, this tariff only applies EUAS's supplies to authorised supply companies for their supply to non-eligible customers and customers of last resort, and EUAS has the liberty to negotiate the sale price for its other electricity supply activities (ie, EUAS's supplies to supply companies and eligible consumers) and determine the final sale price with its counterparties. The private wholesale companies (supply companies) and generation licence holders may sell power with bilateral agreements to eligible consumers. Also, they may sell power in the day-ahead, intraday markets, Organized YEK-G market, balancing market and Power Futures Market.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The Electricity Market Law No. 6446 obliges the authorised supply companies to supply power, as a last-resort supplier, to the eligible consumers whose power demands cannot be met by other suppliers. Authorized supply companies are also required to meet the energy and capacity demands of non-eligible consumers in their regions.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The Energy Market Regulatory Authority (EMRA), which is an independent regulatory authority, determines the regulatory policy concerning the electricity sector. It has been established as an independent regulatory authority to inspect and regulate the electricity market. Similarly, the Nuclear Regulatory Authority (NRA), which is also an independent regulatory authority, determines the regulatory policy concerning nuclear activities and has extensive regulative authorities.

Scope of authority

23 | What is the scope of each regulator's authority?

The EMRA has a very broad authority to regulate the market, including:

- establishing a legislative framework to ensure reliable, high-quality, stable and low-cost electricity services;
- granting, amending or cancelling licences;

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- approving and amending tariffs;
- establishing and enforcing standards and rules for relations among affiliates to promote competition; and
- imposing administrative fines and sanctions for non-compliance with the applicable legislation and the terms and conditions set out in the licence or the decisions of the EMRA.

The Nuclear Regulatory Authority (NRA) has similar authorities as to nuclear activities, including:

- granting, amending or cancelling licences, permits and authorisations;
- scrutinising nuclear facilities; and
- imposing administrative fines and sanctions for non-compliance with the applicable legislation and conditions set out in the licence or the decisions of the NRA.

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

The President appoints the members and chair of the board of the EMRA. The board consists of seven members, including a chair and a second chair.

The EMRA has financial and administrative autonomy to a certain extent; all financial activities and transactions of the EMRA are subject to audit by the Turkish Court of Accounts. EMRA established the Department of Energy Conversion for analysing the effects of the business models and technological developments within the scope of the EMRA's duties on the relevant markets under the framework of the energy policies associated with electricity and natural gas activities and making the necessary arrangements in this regard.

The NRA has also financial and administrative autonomy to a certain extent. The members and chair of the NRA are to be appointed by the President: the board consists of five members, including a chair and a second chair.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

The decisions of the EMRA can be challenged before the Administrative Court of First Instance by the related parties within 60 days of receipt of the EMRA's decision.

The decisions of the NRA imposing punitive fines can be challenged before the Administrative Court of First Instance by the related parties within 30 days of receipt of the relevant decision, and initiating legal action against such decisions does not prevent the decision from being implemented. Although not specifically regulated in the legislation regarding the NRA, other decisions of the NRA can also be challenged before the Administrative Court of First Instance by the related parties within 60 days of receipt of the relevant decision.

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ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 | Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

The Competition Authority (TCA), which was established under Law No. 4054 on the [Protection of Competition of 13 December 1994](#) (the Competition Law), has the authority to approve or disapprove mergers or other changes in control over businesses in a sector or acquisitions of utility assets. In addition to the TCA's authority concerning certain mergers, acquisitions or changes in control, the Energy Market Regulatory Authority's (EMRA) approval is required.

Review of transfers of control

27 | What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

Under article 7 of the Competition Law, the merger of two or more undertakings as a result of which effective competition is significantly decreased in any market for goods or services within the whole or any part of the state is prohibited. Further, acquisition, except acquisition by way of inheritance, by any undertaking or person of another undertaking, either by acquisition of its assets or all or part of its partnership shares or of other means that confer it with the power to hold a managerial right, is also prohibited.

The TCA declares, via communiqués, the types of mergers and acquisitions that have to be notified to the TCA, and for which approval must be obtained for them to become legally valid.

According to Communiqué 2010/4 regarding Mergers and Acquisitions Requiring the Approval of the Competition Board of 7 October 2010, certain turnover thresholds are set forth regarding merger and acquisition transactions to determine whether the transaction is subject to the TCA's approval. According to the Communiqué, in the case of a merger or acquisition, the TCA's approval must be obtained if the total domestic turnovers of transaction parties collectively exceed 750 million Turkish lira and the domestic turnovers of at least two transaction parties separately exceed 250 million Turkish lira; or in the case of an acquisition, the value of assets or business subject to the acquisition, or in the case of a merger the local turnover of one of the parties, exceeds 250 million Turkish lira and the worldwide turnover of one other transaction party exceeds 3 billion Turkish lira. As per the legislation, while calculating the turnover of a transaction party, the turnover of the relevant party and the companies and persons holding control of or being controlled by the equity, the management or voting rights of the relevant party is taken into consideration.

With regard to the legal entities whose tariffs are subject to regulation, in the electricity sector, in addition to the TCA's control, the approval of the EMRA's board is required for any transaction or ownership changes of 10 per cent or more shares in a closely held company and 5 per cent or more in a publicly traded company or any transaction that would result in a change in control.

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How long it takes to obtain the decision is dependent on the TCA's workload and the transactional characteristics.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The TCA can prevent or prosecute anticompetitive or manipulative practices in all sectors, including the electricity sector. The EMRA also has the authority to approve certain mergers and acquisitions in the energy sector. Additionally, as per the [Electricity Market Balancing and Settlement Regulation of 14 April 2009 \[BSR\]](#), the EMRA, directly or upon the submission of a report by the market operator (ie, the Energy Markets Operation Company) or the system operator (ie, the Turkish Electricity Transmission Company) to the EMRA, is authorised to request the TCA to initiate scrutiny of legal entities that are suspected of any anticompetitive act or transaction concerning their activities regarding organised wholesale electricity markets regulated under the BSR.

Notwithstanding the foregoing, the EMRA may take measures regarding an authorised supplier that has anticompetitive practices. The measures that the EMRA would take for the authorised suppliers may include restructuring their management and restricting the ownership or control relationship with the relevant distribution company. To avoid the anticompetitive practices, some amendments were made to the EMRL, regulating that:

- members of the board of directors, general manager and assistant general manager titles of other supply companies holding the same control relationship with the authorised supply company and the authorized supply company;
- the authorised supply company is obliged to establish and operate a separate website from other companies, including the parent company, for its activities within the scope of the licence; and
- the general manager and assistant general manager of the distribution company, even if they are employed with other titles, with the same partnership structure, cannot simultaneously take part in other companies providing services related to the electricity market.

Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

No specific criteria are provided for the electricity market. Such standards are provided in the Competition Law.

According to article 4 of the Competition Law, agreements and concerted practices between undertakings, and decisions and practices of associations of undertakings that have as their object or effect or likely effect the prevention, distortion or restriction of competition directly or indirectly in a particular market for goods or services are illegal and prohibited. Examples of such cases are as follows:

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- fixing the purchase or sale price of goods or services, elements such as cost and profit that form the price, and any other terms of purchase or sale;
- allocation of markets for goods or services, and sharing or controlling all kinds of market resources or components;
- controlling the amount of supply or demand concerning goods or services, or determining them outside the market;
- impeding or restricting the activities of competitors, excluding undertakings operating in the market by boycotts or other practices, or preventing new entrants to the market;
- apart from exclusive dealing, applying different conditions to persons with equal status for the same rights and obligations; and
- contrary to the nature of the agreement or commercial usages, obliging the purchase of other goods or services together with a good or service, or tying a good or service demanded by purchasers acting as intermediary undertakings to the condition of displaying other goods or services by the purchaser, or imposing terms as to the resupply of a good or service supplied.

According to article 5 of the Competition Law, agreements and concerted practices between undertakings, and decisions and practices of associations of undertakings, which satisfy whole conditions listed therein, are exempted from the provisions of article 4. The relevant conditions listed in article 5 are as below:

- the relevant party should provide new improvements and growth for the production or distribution of goods, or should provide economic or technological improvements;
- consumers should be benefitting from those improvements and growth;
- the competition in the relevant sector should not be eliminated significantly; and
- the competition should not be restricted more than enough to maintain the benefits mentioned earlier.

Also, the abuse of a dominant position in the market is prohibited by the Competition Law. According to article 6, the abuse, by one or more undertakings, of their dominant position in a market for goods or services within the whole or a part of the state on their own or through agreements with others or concerted practices, is prohibited.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

The TCA may impose administrative monetary fines of up to 10 percent of annual gross revenues of the undertakings generated by the end of the financial year preceding the TCA's infringement decision, or if it is not possible to calculate it, by the end of the financial year closest to the date of such a decision, and such annual gross revenues are determined by the TCA. The TCA may also order the exercise of certain actions or oblige the infringing persons to refrain from certain actions for the re-establishment of competition and reversion to the situation before the infringement.

The TCA may also impose monetary fines on real persons employed in the managerial bodies or other employees of the undertakings of up to 5 per cent of the fine imposed on the undertaking.

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The TCA is also entitled to impose a punitive fine, amounting up to a thousandth of the annual gross revenues of the undertakings generated by the end of the financial year preceding the TCA's decision, in the case of realisation of a merger or acquisition subject to TCA's approval without such approval or submission of wrongful or misleading information in the application to obtain the TCA's approval for a merger or acquisition. As of 2021, such a punitive fine cannot be less than 47,409 Turkish lira.

After the investigation starts, the TCA, ex officio or at the request of the parties, may decide to initiate a conciliation procedure. In such a case, there may be a reduction in administrative monetary fines by up to 25 per cent.

In the case of a breach, the TCA may also implement structural remedies, so that discussion may decide on actions that are required to be taken for the restoration of competition, such as the obligation to transfer an enterprise's shares or assets.

Another sanction mechanism is established for competition breaches in the organised wholesale electricity market with the BSR. If the TCA detects a competition breach by a market participant or balancing unit, or both, the EMRA may impose maximum price limits to the breaching market participant or balancing unit, or both, in the day-ahead and balancing markets for up to a year.

INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

There are no specific requirements or limitations on acquisitions of interests in the electricity sector by foreign companies.

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

As the Turkish Electricity Transmission Company (TEIAS) has a monopoly over the transmission system, it is also the only authority entitled to construct and operate interconnections. The articles of association of TEIAS set forth that TEIAS is responsible for the preparation of the Electricity Grid Regulation published in the Official Gazette, dated 28 May 2014, No. 29013, which determines the technical and operational standards for the interconnected system and the [Electricity Market Balancing and Settlement Regulation](#) of 14 April 2009, and establishing the required infrastructure and organisation for the implementation thereof, and carrying out the relevant international interconnection works under the Ministry of Energy and Natural Resources' (the Ministry) international interconnection policies. As per article 8 of the Electricity Market Law No. 6446 (EML), TEIAS may construct or operate the parts of the international interconnection lines located outside the national borders and establish an international company to that end, or become a partner to an existing international company and participate in organisations regarding the operations of regional markets

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with the approval of the Ministry. In line with the EML, the Import and Export Regulation of 17 May 2014 (the [Import and Export Regulation](#)) states that interconnection line capacity allocations, tracking of the use of interconnection lines, and congestion management are conducted by TEIAS, but TEIAS is allowed to transfer these rights and obligations to international institutions totally or partially under the international agreements, provided that the approval of the Ministry is obtained.

Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

Synchronous parallel interconnections

Pursuant to article 24, paragraph 8 of the Electricity Market Licence Regulation of 2 November 2013 (EMLR), a licence amendment is required in order to carry out import and export activities. Companies (ie, generation companies by not exceeding the total installed capacity of their facility and supply companies for export and supply companies for import) will not need to obtain special permission from the Energy Market Regulatory Authority (EMRA) to perform import and export activities using synchronous parallel interconnections. Currently, the synchronous parallel interconnection lines in Turkey are the interconnection lines established with the European Network of Transmission System Operators for Electricity's (ENTSO-E) Continental Europe Synchronous Area (ie, Bulgaria and Greece) under the integration of Turkey to the ENTSO-E system. After a long trial period, the ENTSO-E Regional Group Continental Europe's decision on permanent connection to continental Europe was publicly announced in May 2014. In line with this decision and the agreement reached in meetings in April 2014 on the commencement of permanent synchronous operation of the Turkish electricity system with the continental European system, on 15 April 2015, a long-term agreement was signed between TEIAS and ENSTO-E. By the execution of this agreement, Turkey has committed to promoting the harmonisation of its electricity regulation with the European Union's third electricity package and to complying with the technical standards of ENTSO-E. The Observer State Agreement having been executed between Turkey and ENTSO-E on 14 January 2016, Turkey has become the first observer member of ENTSO-E. The commercial electricity exchange between Turkey and ENTSO-E's Continental Europe Synchronous Area is currently carried out through three connection lines, two of which connect the Turkish system to the Bulgarian system, while the other connects the Turkish system to the Greek system. To perform electricity export or import activities through synchronous parallel interconnection lines, the companies may either participate in the tenders regarding capacity allocations announced by TEIAS or international institutions to which TEIAS is a party. A generation company cannot obtain capacity allocation for electricity export, more than its total installed power that is in operation.

Currently, to perform electricity export and import activities with Bulgaria or Greece, companies are required to have allocated capacities regarding the electricity amount that they will import or export. The capacities may be obtained either in Greece or Bulgaria from the Greek or Bulgarian transmission system operator by the company that the electricity will be imported from or exported to; or in Turkey from TEIAS by the Turkish company that will import or export electricity. The capacity allocations in Turkey for cross-border trade between Turkey and Bulgaria or Greece are made by TEIAS via an auction process.

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Accordingly, the auctions for the allocation of the capacity by TEIAS are realised on the T-CAT Platform where bids are set and the annual auction rules for commercial exchanges are also published by TEIAS. Companies wishing to participate in these auctions and those wishing to trade in energy with Greek or Bulgarian companies awarded capacity allocation in Greece or Bulgaria must be registered on the T-CAT Platform and have to adhere to the auction rules. For synchronous parallel interconnections, the general provisions of standard interconnection agreements that are approved by the Board, are used.

Non-synchronous parallel interconnections

If a cross-border trade is planned to be conducted through non-synchronous parallel interconnection lines, then the approval of the Energy Market Regulatory Authority (EMRA) shall be obtained after submitting the documents and information required for the amendment of the licence in the Import and Export Regulation. For the EMRA to grant approval, the positive opinion of the Ministry must be obtained by the EMRA. Before granting approval, the EMRA also obtains opinions from TEIAS or distribution licensees on technical matters.

For non-synchronous parallel interconnections, the general provisions of standard interconnection agreements are used. In case the standard provisions of this agreement are amended by the Board, the agreement containing the new standards shall be signed within one month following the notification to be made by the System Operator to the licence holders. Interconnection usage agreements of licence holders that do not sign the interconnection usage agreement in due time despite the System Operator's notification are terminated by the System Operator, and their interconnection capacity usage rights are terminated.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

A distribution company cannot engage in any activity other than distribution or be a direct shareholder of a legal entity engaged in any other market activity. Also, the direct and indirect shareholders of distribution companies, the entities under the control of distribution companies, and persons employed by the direct or indirect shareholders of these persons and entities controlled by these persons cannot engage in any unlicensed generation activity based on solar or wind power within their own distribution region.

The Electricity Market Law No. 6446 (EML) provides that the total amount of electricity that an entity can generate through generation companies under its control cannot exceed 20 per cent of the electricity generated in Turkey in the preceding year.

The EML further provides that the total amount of electricity to be sold by supply companies to end customers cannot exceed 20 per cent of the total electricity consumed in the market during the preceding year. Also, the EML provides that the total electricity amount that supply companies can purchase from generation companies and importer companies

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(ie, supply companies with an importation authorisation) or import cannot exceed 20 per cent of the total electricity consumed in the market during the preceding year.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

As the regulatory authority of the market, the Energy Market Regulatory Authority may enforce restrictions on utilities dealing with affiliates.

In the case of non-compliance, the licensee is given a notice period of 30 days to remedy the non-compliance. If the non-compliance continues following the notice period, a fine between 3.6 million and 7.2 million Turkish lira (for 2023) will be imposed. Where the licensee repeats the non-compliance, the fines imposed each time are doubled. It may also result in the revocation of its licence.

In other cases, such as providing false or deceptive information while making a licence application, having activities falling out of the scope of the licence, acting against the shareholding participation restrictions and so forth, certain other fines range from 3.6 million to 7.2 million Turkish lira and licence revocation sanctions are regulated under the [EML](#).

As for nuclear activities, the Nuclear Regulatory Authority (NRA) has the authority to impose punitive fines for non-compliance, such as conducting activities subject to the NRA's permission without such permission, acting against the NRA's decisions and instructions and operating a nuclear facility without having a licence, of up to 304.5 million Turkish lira.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

Aggregation

With the Official Gazette numbered 32057 and dated 28 December 2022, aggregation activity was included under the scope of the Electricity Market Law No. 6446 (EML). Although the licence obligations and general procedures and principles within the scope of aggregation will be determined later, the regulation so far briefly explains what this activity is. According to the EML, aggregation is defined as the market activity carried out by the aggregator within the scope of operation by combining the consumption or generation (or both) of one or more users on the network, whereas the aggregator is defined as a legal person holding an aggregation licence or a supply licence who has signed an agreement with one or more users on the network to carry out aggregation activities in the electricity market on behalf of the said network users.

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YEKDEM Mechanism

By the Presidential Decree dated 1 May 2023 and numbered 7189, the feed-in tariff has been updated for the facilities entering into operation between the dates 1 July 2021 and 31 December 2030. In addition, concepts of YEK Support Mechanism Base Price (YEKDEM Base) and YEK Support Mechanism Ceiling Price (YEKDEM Ceiling) have been determined. Feed-in tariffs will be updated monthly within the specified range between YEKDEM Base and YEKDEM Ceiling, indexed to the US dollar.

Storage-Based Electricity Generation Facilities

The concept of energy storage power plants has been included in the scope of the Electricity Market Licence Regulation since November 2022. According to this regulation, legal entities that undertake to establish an energy storage facility will be granted a preliminary licence for the establishment of a wind or solar energy-based (or both) electricity generation facility up to the installed capacity of the committed energy storage facility.

According to some unofficial sources, at the date of writing, energy investors have submitted applications for a total of 5,034 projects with a total installed capacity of 277,973.36 MW for energy storage-based renewable energy and solar investments. Out of these applications, 3,351 are for solar energy projects, while 1,683 are for wind energy projects. The total capacity of the solar energy projects is stated as 155,325.12 MW and the total capacity of the wind energy projects is 122,648.24 MW. Additionally, the Energy Market Regulatory Authority has granted preliminary licences for a total of 260 projects over 5,034 applications, with a total installed capacity of 17,346.99 MW. Out of these 260 projects that have been awarded preliminary licences, 144 projects are solar energy projects while 116 projects are wind energy projects.

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LEGAL FRAMEWORK

Policy and law

1 | What is the government policy and legislative framework for the electricity sector?

Broadly, the following legislation regulates the electricity sector in the United Kingdom:

- the Electricity Act 1989 (as amended by the Electricity and Gas (Internal Markets) Regulations 2017 (SI 2017/493));
- the Utilities Act 2000;
- the Energy Act 2004;
- the Energy Act 2008;
- the Energy Act 2010;
- the Energy Act 2011;
- the Energy Act 2013;
- the Energy Act 2016; and
- the Energy Prices Act 2022.

There has been a raft of new legislation in recent years introduced as a result of the United Kingdom's withdrawal from the European Union, including:

- the Electricity Trading (Development of Technical Procedures) (Day-Ahead Market Timeframe) Regulations 2021 (SI 2021/651) implementing new cross-border electricity trading arrangements at the day-ahead market time frame;
- the Climate and Energy (Revocation) (EU Exit) Regulations 2021 (SI 2021/519) revoking directly retained EU law relating to reporting obligations under the Paris agreement and Kyoto Protocol and greenhouse gas emissions reduction commitments and reporting obligations that no longer have practical implications in the United Kingdom; and
- the Electricity and Gas (Internal Markets and Network Codes) (Amendment etc) (EU Exit) Regulations 2020 (SI 2020/1006) reflecting the entry into the EU Clean Energy Package.

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This legislative activity is expected to continue as various retained EU laws are revoked and replacement legislation is enacted.

Policy

The Department of Energy and Climate Change (DECC), formed in 2008, was the ministerial department responsible for making decisions, setting policy and implementing legislation affecting the electricity sector. The corresponding government ministry in Northern Ireland is the Department of Enterprise, Trade and Investment. Following the EU Referendum held on 23 June 2016, DECC was merged together with the Department for Business and Innovation to create the Department for Business, Energy and Industrial Strategy (BEIS). In February 2023, BEIS was replaced by the Department for Business and Trade, the Department for Energy Security and Net Zero (DESNZ) and the Department for Science, Innovation and Technology.

The rationale for this split was to create new departments with more focused objectives.

DESNZ is now the relevant department that is responsible for the policy relating to the energy sector. In particular it is responsible for:

- delivering security of energy supply;
- ensuring properly functioning energy markets;
- encouraging greater energy efficiency; and
- seizing the opportunities of net zero to lead the world in new green industries.

Independent bodies

DESNZ works closely with and is supported by other agencies and public bodies, including the following.

Gas and Electricity Markets Authority and Ofgem

The Gas and Electricity Markets Authority (GEMA) has primary responsibility for the regulation of the energy sector. GEMA's powers and duties are largely provided for in statute (such as the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Acts of 2004, 2008, 2010 and 2011). Prior to the United Kingdom's exit from the European Union, GEMA also derived powers from EU legislation in respect of energy regulation which had direct effect in the United Kingdom. Some of these powers were retained at the end of the transition period under the European Union (Withdrawal Agreement) Act 2020. GEMA governs the Office of Gas and Energy Markets (Ofgem). Ofgem are responsible for working with government, industry and consumer groups to deliver a net zero economy at as low a cost as possible to consumers, stamping out sharp and bad practice to ensure fair treatment to all consumers and enable competition and innovation, which drives down prices and results in new products and services for consumers. Ofgem are also required to cap standard variable and default energy tariffs.

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Competition and Markets Authority

The Competition and Markets Authority was established in April 2014 under the Enterprise and Regulatory Reform Act 2013. It is an independent non-ministerial department that brought together the existing competition and certain consumer protection functions of the Office of Fair Trading and the responsibilities of the Competition Commission to promote competition for the benefit of consumers within and outside the United Kingdom.

The Environment Agency

The Environment Agency is responsible for protecting and improving the environment as well as promoting sustainable development. The role of the Environment Agency regarding electricity is limited to matters related to pollution and, therefore, mainly relates to conventional generation and nuclear energy.

Organisation of the market

2 | What is the organisational structure for the generation, transmission, distribution and sale of power?

GEMA has primary responsibility for the regulation of the energy sector. GEMA's principal objective is to protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems. The interests of such consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases in the security of the supply of gas and electricity to them.

GEMA is constituted of individuals who are appointed by the Secretary of State for specified terms of not less than five years. GEMA is independent and has very limited stakeholder participation (such as the Secretary of State's ability to remove members on the grounds of misbehaviour, determine the remuneration of members and give guidance).

GEMA delegates its functions to Ofgem and provides Ofgem with strategic direction and oversight. Ofgem is also a non-ministerial government department, which states that its principal objective is to protect consumers, especially vulnerable people, by ensuring they are treated fairly and benefit from a cleaner, greener economy.

A licence from GEMA is required before the generation, transmission, distribution or sale of power. This licence is issued by Ofgem following receipt of a written application together with the relevant fee. Ofgem will determine the relevant conditions to the licence and the licence-holder must comply with those conditions as well as with various industry codes and standards, such as the Balancing and Settlement Code, the Grid Code and the Distribution Code

Ofgem E-Serve, which introduces itself as the 'delivery arm of Ofgem', administers environmental schemes and consumer and social programmes on behalf of the government, including schemes related to renewable energy such as the feed-in tariff, Contracts for Difference, Boiler Upgrade Scheme, the Renewables Obligation scheme, the Smart Export Guarantee scheme and the Offtaker of Last Resort scheme.

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REGULATION OF ELECTRICITY UTILITIES – POWER GENERATION

Authorisation to construct and operate generation facilities

3 | What authorisations are required to construct and operate generation facilities?

The authorisations required to construct and operate generation facilities depend on the type and size of the facility to be constructed or operated. By way of example, certain types of energy infrastructure fall within the category of 'nationally significant infrastructure project', and as such require a Development Consent Order (DCO) under the Planning Act 2008. The thresholds for projects falling under this category are more than 50 megawatts onshore, and more than 100 megawatts offshore. Applications for a DCO are made to and publicly examined by the Planning Inspectorate, which then makes a recommendation to the Secretary of State for Energy and Climate Change. Projects with a generating capacity of 50 megawatts or less in England and Wales have consent under the Town and Country Planning Act 1990.

For offshore generating stations with a generating capacity of more than 1 megawatt but less than or equal to 100 megawatts, consent under section 36 of the Electricity Act 1989 is also required.

In Scotland, section 36 of the Electricity Act 1989 applies to all projects above 50 megawatts. Projects that are less must apply for consent to the local planning authority under the Scottish Planning Act. The Scottish Executive is responsible for dealing with applications for consent for generating projects onshore. Marine Scotland, a directorate of the Scottish Executive, is responsible for dealing with applications for consent under section 36 of the Electricity Act 1989 for offshore generating stations in Scottish waters.

Depending on the type of plant, further authorisation such as relating to health and safety, environmental or nuclear specific matters may also be required from the appropriate regulator.

Grid connection policies

4 | What are the policies with respect to connection of generation to the transmission grid?

From 1 March 2023, all generators applying directly to connect to the transmission system need a connection agreement with National Grid Electricity Systems Operation (ESO) and are required to complete a two-step connection application process, provide technical data and pay the relevant application fee. This is an interim process that will run for 12 months while a review of the GB Transmission Reinforcement Works is carried out.

The generator is required to become a party to the Connection and Use of System Code (CUSC) Framework Agreement and comply with the CUSC and the requirements of the Grid Code (which sets out rules related to the planning, operation and use of the electricity transmission network). The Grid Code, the Balancing and Settlement Code and the System Operator Transmission Owner Code are maintained by ESO under its transmission licence to govern the relationship between it and the electricity industry participants.

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There may be other requirements, such as the provision of financial security by the generator if additional work is required before a connection is available.

Alternative energy sources

5 | Does government policy or legislation encourage power generation based on alternative energy sources such as renewable energies or combined heat and power?

Ofgem E-Serve administers environmental schemes and consumer and social programmes on behalf of the government, including schemes related to renewable energy, such as:

- **Feed-in Tariff (FIT):** the scheme is a government programme designed to promote the uptake of renewable and low-carbon electricity generation technologies. Introduced on 1 April 2010, the scheme requires participating licenced electricity suppliers to make payments on both generation and export from eligible installations. The FIT scheme closed to new applicants on 1 April 2019, with some exceptions. Provided eligibility criteria are met, it remains available for people who have installed, or are looking to install, solar photovoltaic, wind, micro combined heat and power, hydro or anaerobic digestion technology types up to a capacity of 5MW, or 2kW for micro combined heat and power.
- **Contracts for difference (CfD):** the provision of CfDs is one of the key policy measures to incentivise new low-carbon electricity generation. The provision of CfDs is intended to stabilise revenues for investors in low-carbon electricity generation projects such as renewables, by helping developers secure the large upfront capital costs for low-carbon infrastructure. The CfD is a quasi-power purchase agreement; generators with a CfD will sell their electricity into the market in the normal way and remain active participants in the wholesale electricity market. The CfD then pays the difference between an estimate of the market price for electricity and an estimate of the long-term price needed to bring forward investment in a given technology (the strike price). This means that when a generator sells its power, if the market price is lower than needed to reward investment, the CfD pays a 'top-up'. However, if the market price is higher than needed to reward investment, the contract obliges the generator to pay back the difference. In this way, CfDs stabilise returns for generators at a fixed level, throughout the contract. This removes the generator's long-term exposure to electricity price volatility, substantially reducing the commercial risks faced by these projects. The Energy Act includes a provision whereby a new UK government-owned company (the Low Carbon Contracts Company (LCCC)) will act as the counterparty to eligible generators under the CfD. This mechanism was in direct response to concerns about the 'credit' behind the CfD economics. Although a CfD is a private law contract between a low-carbon electricity generator and the LCCC, the cost of CfDs will ultimately be met by consumers via a levy on electricity suppliers. The first CfD auction result published in February 2015 was a success, with a competitive allocation process, with the cost of £105 million less than the original strike prices published for the same technologies. To date, four Allocation Rounds have been completed (in 2014/15, 2016/17, 2019 and 2021/2022) and these have awarded contracts to 93 renewable electricity development projects in total. The generation capacity awarded in 2021/2022 alone will equate to 11GW by 2029, which could power more than twelve million UK homes. The latest Allocation Round is currently in progress and open to both established technologies (onshore wind, offshore wind, remote island

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- wind, solar PV, energy from waste with combined heat and power (CHP), hydro, landfill gas and sewage gas) and less established technologies (floating offshore wind, wave, tidal stream, dedicated biomass with CHP and geothermal).
- The Boiler Upgrade Scheme supports the decarbonisation of heat in buildings by providing upfront capital grants to support the installation of heat pumps and biomass boilers in homes and non-domestic buildings in England and Wales. Over three years, from 2022 to 2025, £450 million of grant funding will be made available under the scheme.
 - The Renewables Obligation (RO) scheme is one of the main support mechanisms for large-scale renewable electricity projects in the United Kingdom. Smaller-scale generation is mainly supported through the FIT scheme. The RO came into effect in 2002 in England, Wales and Scotland, followed by Northern Ireland in 2005. The scheme places an obligation on UK electricity suppliers to source an increasing proportion of the electricity they supply from renewable sources. The RO scheme closed to all new generating capacity on 31 March 2017.
 - The Smart Export Guarantee scheme launched on 1 January 2020 and is a government-backed initiative which requires some electricity suppliers to pay small-scale generators (for low-carbon electricity which they export back to the National Grid (if certain criteria are met)). Provided the installations are in Great Britain, up to a capacity of 5MW, or up to 50kW for micro-CHP, the following technology types could be eligible:
 - solar photovoltaic (solar PV);
 - wind;
 - micro combined heat and power (micro-CHP);
 - hydro; and
 - anaerobic digestion.
 - The Offtaker of Last Resort (OLR) scheme: the OLR is a government scheme that aims to promote the availability of power purchase agreements (PPAs). It is intended as a last resort to help renewable generators who cannot get a PPA through the usual commercial means. The OLR scheme is part of the government's wider programme on Electricity Market Reform.

Climate change

6 | What impact will government policy on climate change have on the types of resources that are used to meet electricity demand and on the cost and amount of power that is consumed?

On 27 June 2019, the United Kingdom set a legally binding target to reduce emissions to net zero by 2050. Since then, the government has published a number of plans, such as the Ten Point Plan for an Industrial Revolution and the Energy White Paper: Powering Our Net Zero Future published in Q4 2020; the Smart Systems and Flexibility Plan 2021, a net zero strategy to Build Back Greener by decarbonising the UK power system by 2035, also published in 2021; a British Energy Security Strategy in April 2022; and most recently, in March 2023 Powering Up Britain, all of which recognise the importance of a quick rollout of new renewables. The net-zero strategy, for example, envisages that the UK system will consist of 'abundant, cheap British renewables, cutting edge nuclear power stations, and be underpinned by flexibility including storage, gas with CCS [and] hydrogen'.

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Storage

7 | Does the regulatory framework support electricity storage including research and development of storage solutions?

Electricity storage is treated as a form of electricity generation and, as such, the applicable legal framework for electricity storage is currently the same as that applicable to electricity generation.

As of June 2023, the United Kingdom has a total pipeline of planned capacity exceeding 66GW. These storage projects consist mainly of lithium-ion battery, lead-acid battery, open-loop pumped hydro storage, closed-loop pumped hydro storage and modular compressed storage.

Recent developments include:

- Centrica and UK Infrastructure Bank announced an investment of up to £265 million in sustainable energy storage.
- over £32 million in government funding has been awarded to UK projects developing cutting-edge energy storage technologies;
- work beginning at the United Kingdom's biggest battery storage project at Clay Tye; and
- BlackRock has committed to invest up to £200 million in UK battery storage projects.

Energy storage is an integral part of the UK government's plan to achieve net-zero emissions targets, whether as standalone projects or co-location with new or retrofitted generation projects. The Infrastructure Planning (Electricity Storage Facilities) Order 2020 relaxed planning rules so that battery storage projects (except pumped hydro) above 50MW in England, and 350MW in Wales can go ahead without needing approval through the national planning regime. This was achieved by carving them out from the Nationally Significant Infrastructure Projects regime in England and Wales.

Government policy

8 | Does government policy encourage or discourage development of new nuclear power plants? How?

The Nuclear Energy (Financing) Act 2022 (NEFA 2022) came into force on 31 March 2022 with a view to making private investments in nuclear power stations more attractive. It introduced a Regulated Asset Base (RAB) model as a funding option for nuclear power projects which will allow for the sharing of certain construction and operating risks between investors and consumers to lower the cost of capital. RAB is a tried and tested model which has been used to finance large-scale infrastructure projects – most notably, the construction of Terminal 5 at Heathrow Airport and London's super sewer, the Thames Tideway Tunnel.

Under the RAB model, an economic regulator provides a project company with a licence to charge a regulated price (an Allowed Revenue) in exchange for providing the required infrastructure. In the case of nuclear energy, electricity suppliers will pass the charge onto consumers via their electricity bills.

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The model has not previously been used as a means of funding projects in the nuclear sector. Hinkley Point C, the most recent nuclear project in the United Kingdom, used a CfD approach under which the developer agreed to pay the entire cost of constructing the plant in return for a fixed price for electricity output once the plant becomes operational. However, until the plant goes online investors will not receive any return from the project and have assumed all construction risks (including delays and overruns). This is problematic for two reasons: (1) there are few non-government institutions which have sufficient capital on their balance sheets to fund projects like this; and (2) the increased risk means the cost of financing is high. These issues ultimately led to the cancellation of potential nuclear projects such as Hitachi's project at Wylfa Newydd in Wales and Toshiba's at Moorside in Cumbria.

From an investor perspective, the RAB model will allow a nuclear company to receive revenue and share the risk with the consumer from the very start of a project. This alleviates the issues with the CfD approach and it is envisaged this will encourage investment. It is also hoped that the RAB model will motivate private sector investors such as pension funds and insurers to back nuclear projects.

Such investors have large volumes of deployable capital but are sensitive to risk. The use of the RAB model should remove some of the risk making the financing of nuclear projects more attractive.

The government has stated an ambition of up to 24GW of new nuclear power stations in the United Kingdom by 2023, which will include the under-construction Hinkley Point C and the proposed Sizewell C reactors. In 2023, the government launched Great British Nuclear to drive the delivery of the new plants.

REGULATION OF ELECTRICITY UTILITIES – TRANSMISSION

Authorisations to construct and operate transmission networks

9 | What authorisations are required to construct and operate transmission networks?

The authorisations required to construct transmission or distribution networks are dependent on the type and location of the distribution or transmission assets.

Under section 37 of the Electricity Act 1989, an application to the Secretary of State is necessary to install electric lines above ground (other than in certain circumstances), the application must be in writing and include all necessary information, and depending on the location of the electric lines other consents such as from the highway authority may also be required.

A Development Consent Order (DCO) is required where the project in question is a nationally significant infrastructure project. Overhead electric lines with a nominal voltage of 132 kilovolts or more are considered to be a nationally significant infrastructure project. A DCO will include all necessary consents and ancillary planning permissions.

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A transmission licence is required for the operation of a transmission network. The National Grid has the transmission licence for England and Wales and therefore owns and operates the transmission system in England and Wales.

Where territorial waters are concerned, the relevant authorities are the Marine Management Organisation, National Assembly Wales, Marine Scotland and the Department of the Environment for Northern Ireland.

Eligibility to obtain transmission services

10 | Who is eligible to obtain transmission services and what requirements must be met to obtain access?

The National Grid connects various types of generation technology including onshore and offshore wind farms, tidal power, solar farms, battery storage, nuclear and gas-powered generators. For the purposes of transmission connection, there are two types of generation. These are dependent on size, voltage and the asset being connected:

- Directly Connected >132kV – it is likely that offshore, nuclear and interconnectors would all connect directly, as well as smaller generators such as battery storage and solar.
- Embedded Generation <132kV – this is for generators that want to connect to the distribution network. There may be instances where the generator has a contract with both the distribution network operator (DNO) and National Grid Electricity Transmission (ET). In England and Wales, if the connection voltage is less than 132kV, it is normally transmitted through the DNO, rather than National Grid Electricity.

Government transmission policy

11 | Are there any government measures to encourage or otherwise require the expansion of the transmission grid?

The Office of Gas and Energy Markets (Ofgem) published its Upgrading our Energy System, Smart Systems and Flexibility Plan in July 2017. The plan (as later updated by the 'Transitioning to net zero energy system: smart systems and flexibility plan 2021') focuses on four key areas:

- support flexibility from consumers;
- remove barriers to flexibility on the grid;
- reform markets to reward flexibility; and
- monitor flexibility across the system.

These actions are designed to reduce the costs of the energy system and help keep energy bills low for consumers, as well as promote cleaner energy. The government has calculated that changes to the flexibility of the energy system could save the United Kingdom up to £10 billion per year across the electricity system by 2050.

Following the success of the competitive offshore transmission regulatory regime, under which licences to operate offshore transmission infrastructure are granted following a competitive tender process, Ofgem plans to replicate the competitive tender for high-value

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onshore transmission assets. It is envisaged that this tender process would encourage innovation and reduce costs.

Also, as part of the Revenue = Incentives + Innovation + Outputs (RIIO) price controls, Ofgem introduced the Electricity Network Innovation Competition (NIC).

The Electricity NIC is an annual opportunity for electricity network companies to compete for funding for the development and demonstration of new technologies, operating and commercial arrangements. Funding is provided for the best innovation projects (ie, those that help all network operators understand what they need to do to provide environmental benefits, reduce costs, and maintain security). Up to £70 million per annum is available through the Electricity NIC.

In 2022/2023, the National Grid invested a record £7.7 billion in critical infrastructure to help enable the transition to a clean, fair and affordable energy future.

Rates and terms for transmission services

12 | Who determines the rates and terms for the provision of transmission services and what legal standard does that entity apply?

Connection charges, transmission network use of system charges and balancing services use of system charges are currently the three types of charges payable to the National Grid Electricity Transmission (NGET) by transmission systems users.

The charging methodologies are set out in the Connection and Use of System Code, which is prepared by NGET and confirmed by Ofgem. NGET is required under its transmission licence to ensure that the charging methodologies are up to date. The charging methodologies are set primarily to reflect the costs of operating the grid, but also to enhance the stability and predictability of the transmission charges and to encourage competition in the electricity sector.

In 2017, Ofgem embarked on a process of setting up a new price control structure to reform and update the existing RIIO-Early Decision 1 (ED1) model, and it published its decision concerning the RIIO-2 framework consultation at the end of July 2018. In summary, the consultation separated the framework into five key themes:

- a stronger voice for consumers;
- changes in how networks are used;
- driving innovation and efficiency to benefit consumers;
- simplifying price controls; and
- ensuring fair returns.

The key outcomes from the consultation were as follows:

- RIIO-ED1 has worked well, and the incentive-based RIIO framework will be used to set price controls;
- higher returns are justified where these result from genuine innovation and efficiency;

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- the price control mechanism will be tougher for network companies, but those who deliver great customer service at a lower cost will be rewarded; and
- the price control structure will continue to create an attractive environment for investors but returns should reflect the low level of risk of a stable, predictable regulatory framework.

In December 2019, Ofgem confirmed that, from April 2023, it will use RII0-ED2 to set the next price control for the United Kingdom's electricity distribution networks. This will allow these networks to continue to operate safely and efficiently, helping to achieve a net-zero economy.

Towards the end of 2020, Ofgem set out its decision on the methodology it will use to set RII0-ED2. RII0-ED2 will run from 2023–2028.

Entities responsible for grid reliability

13 | Which entities are responsible for the reliability of the transmission grid and what are their powers and responsibilities?

Transmission licence holders are under statutory obligation to develop and maintain the transmission grid, as well as facilitate competition in the generation and supply of electricity. Ofgem has the authority to regulate the activities of the transmission licence holders and to set price controls. Both Ofgem and NGET have the authority to grant exemptions from certain obligations under the National Electricity Transmission System Security and Quality of Supply Standards that the transmission licensees must comply with.

REGULATION OF ELECTRICITY UTILITIES – DISTRIBUTION

Authorisation to construct and operate distribution networks

14 | What authorisations are required to construct and operate distribution networks?

A distribution licence is required for the operation and maintenance of a distribution network.

The authorisations required to construct distribution networks are dependent on the type and location of the distribution or transmission assets.

Under section 37 of the Electricity Act 1989, an application to the Secretary of State is necessary to install electric lines above ground (other than in certain circumstances), the application must be in writing and include all necessary information, and depending on the location of the electric lines other consents such as from the highway authority may also be required.

A Development Consent Order (DCO) is required where the project in question is a nationally significant infrastructure project. Overhead electric lines with a nominal voltage of 132 kilovolts or more are considered to be a nationally significant infrastructure project. A DCO will include all necessary consents and ancillary planning permissions.

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Where territorial waters are concerned, the relevant authorities are the Marine Management Organisation, National Assembly Wales, Marine Scotland and the Department of the Environment for Northern Ireland.

Access to the distribution grid

15 | Who is eligible to obtain access to the distribution network and what requirements must be met to obtain access?

Section 16 of the Electricity Act 1989 states that an electricity distributor must make a connection between the distribution grid and any premises (including providing the electric lines as necessary to enable the connection) when requested by the owner or occupier (or an authorised supplier acting with the consent of the owner or occupier) of such premises.

Both transmission and distribution licences include conditions requiring the licence holders to provide equal access to third parties.

The Electricity (Connection Charges) Regulations 2017 (SI 2017/106), which came into force on 6 April 2017, provide for the costs of electrical connections, where a person (a 'second comer') obtains a connection to premises or a distribution system that makes use of electric lines or an electrical plant previously provided to give a connection to other premises or another distribution system. If other persons have paid for all or part of the cost of the first connection, these regulations require the relevant electricity distributor to recover an amount from the second comer and to apply that amount, less administrative expenses, to reimburse the persons who paid for the first connection.

Government distribution network policy

16 | Are there any governmental measures to encourage or otherwise require the expansion of the distribution network?

Distribution licence holders are required by statute to develop and maintain an efficient, coordinated and economical system of electricity distribution and to facilitate competition in the supply and generation of electricity. The government policy concerning the transmission network described below applies also to the distribution network.

The Office of Gas and Energy Markets (Ofgem) published its Upgrading our Energy System, Smart Systems and Flexibility Plan in July 2017. The plan (as later updated by the 'Transitioning to net zero energy system: smart systems and flexibility plan 2021') which focuses on four key areas:

- support flexibility from consumers;
- remove barriers to flexibility on the grid;
- reform markets to reward flexibility; and
- monitor flexibility across the system.

These actions are designed to reduce the costs of the energy system and help keep energy bills low for consumers, as well as promote cleaner energy. Changes to the flexibility of the

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energy system could save the United Kingdom up to £10 billion per year across the electricity system in 2050.

Following the success of the competitive offshore transmission regulatory regime, under which licences to operate offshore transmission infrastructure are granted following a competitive tender process, Ofgem plans to replicate the competitive tender for high-value onshore transmission assets. It is envisaged that this tender process would encourage innovation and reduce costs.

Rates and terms for distribution services

17 | Who determines the rates or terms for the provision of distribution services and what legal standard does that entity apply?

The current price control framework for DNOs as set up by the Office of Gas and Energy Markets is the Revenue = Incentives + Innovation + Outputs Early Decision 1 (RIIO-ED1). This is based on the RIIO price control model and limits the revenue DNOs can collect until 31 March 2023. The new RIIO-ED2 price-control framework, as it applies to electricity distribution networks, replaced the previous set of price controls for electricity distribution networks when it expired on 31 March 2023.

REGULATION OF ELECTRICITY UTILITIES – SALES OF POWER

Approval to sell power

18 | What authorisations are required for the sale of power to customers and which authorities grant such approvals?

The Office of Gas and Energy Markets (Ofgem) is the relevant authority to grant supply licences to electricity suppliers before they may sell power to consumers. As a condition of the supply licence, the electricity suppliers must also act under certain other regulations, such as the Balancing and Settlement Code and the Smart Energy Code.

Power sales tariffs

19 | Is there any tariff or other regulation regarding power sales?

Electricity suppliers set the electricity prices, but the Secretary of State has the power to impose tariff-related conditions on the electricity suppliers through the supply licences.

Following a referral of the energy market to the Competition and Markets Authority (CMA) by the Gas and Electricity Markets Authority, a detailed review of the retail energy market was undertaken. Among other things, the review found that limitations on suppliers' tariffs were preventing competition and it recommended that such conditions be removed. The CMA also suggested that electricity suppliers should be made to share details of domestic customers who have been on a default tariff for over three years to create an Ofgem-controlled database so that other suppliers would be able to contact such customers to offer cheaper rates tailored to their individual energy usage. The key area of concern was clearly the apparent

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overpayment for electricity by the customers on the poorest-value tariffs. On 19 July 2018, the Domestic Gas and Electricity (Tariff Cap) Act 2018 received royal assent and this Act put in place a requirement on the energy regulator, Ofgem, to cap standard variable and default energy tariffs.

On 1 October 2022, in response to the cost of living crisis and soaring energy prices, the government introduced an Energy Price Guarantee which provided a discount on the price cap. This kept prices at £2,500 a year for the average household. This guarantee came to an end on 1 July 2023.

Rates for wholesale of power

20 | Who determines the rates for sales of wholesale power and what standard does that entity apply?

Rates for sales of wholesale power are not determined by an entity but rather by the mechanics of supply and demand within the market.

Public service obligations

21 | To what extent are electricity utilities that sell power subject to public service obligations?

The Energy Company Obligation (ECO) is a government energy efficiency scheme in the United Kingdom to help reduce carbon emissions and tackle fuel poverty. In brief, under ECO, larger energy suppliers fund the installation of energy efficiency measures in UK households. Each obliged supplier has an overall target based on its share of the domestic energy market in the United Kingdom. The obliged energy suppliers work with installers to introduce certain efficiency measures into homes, such as loft or wall insulation, or heating measures.

The scheme began in April 2013 and has been amended over time. The last scheme, ECO3, commenced on 3 December 2018 and applied to measures completed from 1 October 2018 until 31 March 2022. It has recently been replaced by ECO4, which began on 27 July 2022, and will cover a four-year period until 31 March 2026. The ECO4 Order applies to measures installed from 1 April 2022.

REGULATORY AUTHORITIES

Policy setting

22 | Which authorities determine regulatory policy with respect to the electricity sector?

The Department for Energy Security and Net Zero (DESNZ) is the ministerial department responsible for making decisions, setting policy and implementing legislation affecting the electricity sector. DESNZ works closely with and is supported by other agencies and public bodies, including the Gas and Electricity Markets Authority (GEMA) and the Office of Gas and Energy Markets (Ofgem).

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Policy is also determined by the Competition and Markets Authority, the Office for Nuclear Regulation and the Environment Agency.

Scope of authority

23 | What is the scope of each regulator's authority?

GEMA has primary responsibility for the regulation of the energy sector. Its powers and duties are largely provided for in statute (eg, the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Acts of 2004, 2008, 2010 and 2011).

Establishment of regulators

24 | How is each regulator established and to what extent is it considered to be independent of the regulated business and of governmental officials?

DESNZ works closely with and is supported by other agencies and public bodies, including GEMA and Ofgem.

GEMA delegates its functions to Ofgem and provides Ofgem with strategic direction and oversight. Ofgem is also a non-ministerial government department and an independent National Regulatory Authority recognised by EU directives. Ofgem states that its principal objective is to protect the interests of existing and future electricity and gas consumers.

In addition to those two regulators, the Competition and Markets Authority and the Office for Nuclear Regulation are each independent, non-ministerial entities.

Challenge and appeal of decisions

25 | To what extent can decisions of the regulator be challenged or appealed, and to whom? What are the grounds and procedures for appeal?

GEMA's decisions may be challenged, in several ways, depending on the nature of the relevant decision. By way of example:

- modification of licence provisions: a licence-holder may apply to the CMA in respect of changes to licence conditions;
- GEMA decisions may be challenged by the licence-holder by application to the High Court where the licence-holder believes that GEMA had no authority to make such decision or that the relevant procedure was not followed; and
- GEMA penalties may be challenged by the licence holder by application to the High Court within the relevant time frames.

Also, the decisions of regulators or local authorities are subject to challenge by way of judicial review.

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ACQUISITION AND MERGER CONTROL – COMPETITION

Responsible bodies

26 Which bodies have the authority to approve or block mergers or other changes in control over businesses in the sector or acquisition of utility assets?

CMA and Ofgem

In April 2014, the Competition and Markets Authority (CMA) became the United Kingdom's lead competition and consumer body. The CMA brought together the existing competition and certain consumer protection functions of the Office of Fair Trading and the responsibilities of the Competition Commission (Enterprise and Regulatory Reform Act 2013). The CMA investigates merger cases in the United Kingdom that have no community dimension. If it deems necessary, the CMA has the authority to agree to voluntary measures to mitigate any anticompetitive effects.

Under section 54 of the Competition Act 1998 (CA 1998), regulators such as the Office of Gas and Energy Markets (Ofgem) have concurrent powers concerning certain anticompetitive practices.

European Commission

Under Council Regulation (EC) No. 139/2004 on the control of concentrations between undertakings (OJ 2004 L24/1) (Merger Regulation), the European Commission (the Commission) has the authority to review mergers in the electricity sector with a 'community dimension'. A concentration has a community dimension if it meets one of the two sets of thresholds related to the turnover of the undertakings contained in the Merger Regulation. Where there is a community dimension, the Commission has jurisdiction to investigate. This jurisdiction to investigate is no longer exclusive following the end of the withdrawal period, with the CMA having a parallel right to investigate going forwards.

Review of transfers of control

27 What criteria and procedures apply with respect to the review of mergers, acquisitions and other transfers of control? How long does it typically take to obtain a decision approving or blocking the transaction?

CMA

There is no obligation to notify the CMA; however, the CMA does have the power to initiate its own review without notification if it deems that there is a 'relevant merger situation'.

If the CMA is notified or decides to initiate its own investigation, it has 40 working days to conduct phase I merger investigations. The 40-working-day period may be extended in certain conditions.

The CMA may commence a further phase II merger investigation if it believes that there is a relevant merger situation that has resulted in or may be expected to result in a substantial

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lessening of competition within any UK market. Such investigation usually takes up to 24 weeks and may be extended by up to eight weeks in certain cases. If the CMA decides that the proposed merger would lead to a substantial lessening of competition, it may impose remedies that must be implemented within 12 weeks. The deadline for implementation of remedies may be extended once by up to six weeks if there are special reasons.

The CMA's role and the merger control process continue to develop following the end of the withdrawal period.

European Commission

The Commission has jurisdiction over concentrations with a community dimension: thus, these must be notified to the Commission before their implementation. The Commission has 25 working days from its notification to complete its initial review. If the Commission receives a request from an EU member state for the proposed merger to be referred back to the national competition authority, this period may increase to 35 working days. As a result of this initial investigation, the Commission may:

- find that it does not have jurisdiction, in which case consideration would be given by the relevant parties as to whether the CMA should be notified;
- permit the proposed merger, with or without additional conditions; or
- start an in-depth investigation if it considers that the proposed merger raises serious doubts as to its compatibility with the internal market (phase II investigation).

If the Commission begins a phase II investigation, it must decide within 90 working days of the date on which such investigations started. The period is automatically increased to 105 working days if the undertakings concerned offer commitments to ensure that the merger will not obstruct competition unless the parties offer such commitments within 55 working days from the start of the phase II investigation. As a result of the investigation, the Commission may permit the merger (with or without additional conditions) or state that it is not compatible.

Prevention and prosecution of anticompetitive practices

28 | Which authorities have the power to prevent or prosecute anticompetitive or manipulative practices in the electricity sector?

The CMA, deriving its power from the CA 1998, has the power to investigate and prosecute anticompetitive behaviour.

The Energy Act 2010 also authorises the Secretary of State to modify licence conditions to limit or eliminate circumstances in which a licence holder may gain excessive benefit from electricity generation.

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Determination of anticompetitive conduct

29 | What substantive standards are applied to determine whether conduct is anticompetitive or manipulative?

Although the EU withdrawal period has ended, UK companies are not free to ignore EU competition legislation as UK companies operating in the European Union will be subject to both UK and EU competition legislation.

The relevant EU legislation is set out in articles 101 and 102 of the Treaty on the Functioning of the European Union (TFEU), and the CA 1998 sets out the applicable prohibitions in UK legislation. The provisions of the CA 1998 closely follow those of the TFEU. The relevant provisions of the CA 1998 include:

- a prohibition on agreements between entities that are intended to or that have the effect of preventing, restricting or distorting competition within the United Kingdom (Chapter I Prohibition) and may affect trade within the United Kingdom. There are limited exemptions, for example, if the agreements provide benefits such as improving production or distribution or promoting technical or economic progress, but even where the agreements fulfil such criteria there are additional applicable conditions for the exemption to apply;
- a recognition of article 101 of the TFEU by stating that where an agreement is exempt under that article then it will also be exempt from the Chapter I Prohibition; and
- a prohibition on conduct that results in an abuse of a dominant position in a market if it may affect trade within the United Kingdom (Chapter II Prohibition).

Similarly to the Chapter II Prohibition, article 102 of the TFEU prohibits the abuse of a dominant position, but in this case, it is as applied to trade between EU member states.

There is a presumption of dominant position if an undertaking has over 50 per cent of the market share; however, this is a simplification and to determine whether an undertaking has the dominant position, the geographical market, the product and other factors are taken into consideration, so it is possible that an undertaking with a market share falling under 50 per cent could be found to be dominant.

Preclusion and remedy of anticompetitive practices

30 | What authority does the regulator (or regulators) have to preclude or remedy anticompetitive or manipulative practices?

Under UK law, the CMA can apply to a court to have a director of a company that is in breach of UK or EU competition law disqualified for up to 15 years. The Enterprise Act 2002 provides that persons involved in cartels may face criminal liability.

Under EU legislation, the Commission may act if there is a breach of competition rules. This can be by way of fines (eg, up to 10 per cent of the entity's worldwide group turnover), by the ordering of cessation or modification of the operation of the relevant anticompetitive practice or other remedies appropriate to the breach in question.

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INTERNATIONAL

Acquisitions by foreign companies

31 | Are there any special requirements or limitations on acquisitions of interests in the electricity sector by foreign companies?

There are no particular restrictions on foreign investment into UK energy projects. However, the introduction of the National Security and Investment Act 2021 (NSI 2021), which came into force on 4 January 2022, has established a statutory framework which allows for government scrutiny (and potentially intervention) in certain acquisitions and investments for the purpose of protecting national security. This might impact an investor if:

- it plans to invest in an entity which will hold a transmission licence, distribution licence or interconnector licence (or would require one were it not for an exemption);
- it intends to invest in a large generation project (with a total installed capacity of 100MW or greater); or
- the investor (or its group) hold a portfolio of generating assets which together have an aggregate capacity of 1GW or more within Great Britain or a Renewable Energy Zone.

The purpose of the NSI 2021 is to protect the United Kingdom's national security interests and it is not intended as a means for the government to arbitrarily interfere with investment, however, it has created a procedural hurdle for energy transactions.

Separately, Ofgem also undertakes an assessment as to whether the foreign ownership or control of a renewable power project poses a security of supply risk (Electricity and Gas (Internal Markets) Regulations 2011).

Authorisation to construct and operate interconnectors

32 | What authorisations are required to construct and operate interconnectors?

Construction

The authorisations required for the construction of interconnectors vary depending on whether the relevant works are onshore or offshore. For onshore works, planning permission under the Town and Country Planning Act 1990 is required. The process for offshore developments is a little more complex – a licence must be obtained from the Marine Management Organisation, and where relevant, harbour authority consents and consents for other submarine infrastructure must also be obtained.

Operation

A licence from the Gas and Electricity Markets Authority is required for operating interconnectors.

Where major infrastructure projects involving the cooperation of at least two EU states are concerned, Regulation (EU) No. 347/2013 (Trans-European Energy Networks) sets out guidelines for the coordinated granting of the required approvals.

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Interconnector access and cross-border electricity supply

33 | What rules apply to access to interconnectors and to cross-border electricity supply, especially interconnection issues?

All interconnection capacity is allocated to the market based on auctions and the trading arrangements on electricity interconnectors are governed by Access Rules and Charging Methodologies as noted in each interconnector's licence.

Following the agreement of the UK-EU Trade and Cooperation agreement new trading arrangements are presently being developed and are expected to be in place in the near future.

TRANSACTIONS BETWEEN AFFILIATES

Restrictions

34 | What restrictions exist on transactions between electricity utilities and their affiliates?

The Electricity Act 1989 prohibits a licensed entity and those entities with which it is in common ownership from carrying out other licensed activities, and this in effect sets out a separation of activities.

Also, the relevant licences may impose conditions on the individual licensees.

Enforcement and sanctions

35 | Who enforces the restrictions on utilities dealing with affiliates and what are the sanctions for non-compliance?

The Gas and Electricity Markets Authority (GEMA), as the regulator, has the authority to impose sanctions for non-compliance. In this instance, GEMA derives its authority from the Electricity Act 1989 to impose penalties of up to 10 per cent of the licensee's annual turnover.

UPDATE AND TRENDS

Key developments of the past year

36 | Are there any emerging trends or hot topics in electricity regulation in your jurisdiction?

At present, global energy markets are in turmoil. In 2021, internationally traded gas prices more than quadrupled, which has had a knock-on effect on the price of renewables. This is because, in wholesale electricity markets, it is the most expensive generator that sets the price. In the United Kingdom, at least 31 energy companies have ceased trading since the beginning of 2021 and the potential for further price increases could make lenders nervous about their exposure to the sector.

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At the height of the covid-19 pandemic, lockdowns precipitated a unique and sustained drop in energy demand (including electricity). As people worked from home, it manifested in many different ways including by reducing the demand for power across the transport sector. Changes in work- and home-life patterns resulted in variations of peak usage times and both residential and commercial demand curves. The International Energy Agency estimated that weekly electricity demand decreased 10 to 35 per cent across affected regions. However, this has changed markedly since restrictions have been lifted, and demand has skyrocketed.

This increase, coupled with the war in Ukraine, has contributed to a surge in global energy prices as concerns mount about supply. Consequently, governments around the globe, including the UK government, have set their attention firmly on the security of energy supply, and renewables are considered integral to achieving this.

Since 2021, inflation has risen globally. In October 2022, the inflation rate in the United Kingdom hit a new 41-year high of 11.1 per cent. As a result, the United Kingdom is currently experiencing what has been termed the 'cost of living crisis', which refers to the fall in real disposable incomes (adjusted for inflation and after taxes and benefits). To ease this crisis, the government implemented the Energy Profits Levy, an additional 25 per cent tax on North Sea oil and gas operators alongside the current 40 per cent special corporation tax rate, due to the exceptionally high profits being gained by fossil fuel traders amid soaring oil and gas prices. The purpose of this tax is so that the windfall can be used to help ease household bills, with the three-year levy partially funding a £15 billion support package for energy users. The government was also forced to put in place the Energy Price Guarantee, which capped the unit cost of electricity and gas. However, the wholesale prices of electricity and gas has started to fall, and the Energy Price Guarantee came to an end on 1 July 2023.

In October 2022, the government introduced the Energy Prices Act 2022, which enshrined the Energy Price Guarantee and Energy Bill Relief Scheme into law. Controversially, the act introduces a cap on the amount of revenue that a renewable plant, which is not subject to the contracts for difference scheme, can earn. This cap will stay in place for five years. The reason for this introduction was to remove the link between the cost of renewable energy and high energy prices. Funds generated from the scheme can then be used in Energy Relief Schemes. In March 2023, the government set out its vision for the United Kingdom's transition to net zero. Among other things, this announcement included new investment in nuclear power, both fission and fusion, as part of the government's long term energy security and decarbonisation plans. It also announced the launch of Great British Nuclear to drive the delivery of new plants. The plan also acknowledged that significant investment would be required in the renewables space and placed a large emphasis on investment in offshore wind.

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