THE ENERGY REGULATION AND MARKETS REVIEW

ELEVENTH EDITION

Editor
David L Schwartz

THE LAWREVIEWS

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PREFACE

In our 11th year of writing and publishing *The Energy Regulation and Markets Review*, the most pressing global concerns are inflation, supply chain concerns, the Ukraine war and continuing effects from the covid-19 pandemic. Accordingly, many of our contributing authors have emphasised concerns associated with the effects of these crises on infrastructure development, commodity purchases and energy demand. We have also seen industry and regional specific changes that have added uncertainties to global energy policies. For example, oil and gas prices have spiked sharply (offering a dramatic contrast to historically low prices just two years before). While pricing changes may be a boon for sellers and their exporting countries, that has created uncertainty for countries that are highly dependent upon oil and gas consumption and imports, particularly imports from Russia, which is now subject to certain embargoes following the initiation of trade sanctions earlier this year arising from Russia's invasion of Ukraine. Additionally, the United Kingdom continues to experience uncertainties resulting from its transition out of the European Union (a process known as Brexit), particularly regarding the future of its energy policies to reduce greenhouse gases and its coordination and cooperation with the European Union. The Biden administration has continued to reassure US allies and historical trading partners that it remains committed to the 2015 Paris Agreement, notwithstanding the Trump administration's previous withdrawal. And the memory of the 2011 Fukushima nuclear incident continues to affect energy policy in many countries. Finally, there are continued efforts to liberalise the energy sector globally.

I CLIMATE CHANGE DEVELOPMENTS

We continue to see significant carbon reduction efforts globally, including increased use of renewable resources and measures to improve energy efficiency and reduce demand.

In the United States, the Biden administration has continued to commit to the fight against climate change, despite the previous administration's support for fossil fuels. While coal and other aged fossil fuel plants continue to retire at an unprecedented rate (primarily because of the economics of those facilities), the Texas winter storm in February 2021 and recent dramatic increases in oil and gas prices have raised questions about whether renewable resources alone will be sufficient for long-term reliability. The US Federal Energy Regulatory Commission issued a report recommending reliability improvements to prevent rolling blackouts resulting from severe storms. Many states have continued to award procurements of thousands of megawatts of new offshore wind development projects on the east coast and, in May 2021, the US Bureau of Ocean Energy Management granted its first approval for the Vineyard Wind offshore project. The Federal Energy Regulatory Commission has continued

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to struggle with whether and how to impose regulatory restrictions on the ability of states to subsidise renewable energy projects in light of their adverse impacts on competitive market prices.

Despite Brexit, the United Kingdom's renewable energy targets have continued to meet or exceed those of the European Union. France is seeking to double its wind and solar capacity and President Macron has announced a goal to close the remaining coal plants by 2022. France has recently updated its national policy priorities with respect to climate change to include low-carbon hydrogen resources as well as power plants equipped with pumped storage, and provided a new certification process for biogas. Italy had previously targeted a 28 per cent reliance on renewable energy by 2030 but is now working to reach the 32 per cent target adopted by the European Union, and has recently created a new Ministry of Ecological Transition to assist with the fight against climate change. To reduce reliance on Russian oil and gas, Belgium seeks to triple its offshore wind capacity to 5.8GW by 2030. Portugal is retiring coal generation and replacing it with renewable and hydrogen generation resources. Greece is decommissioning some of its old lignite plants and has begun implementation of a 'just transition' plan. Poland has been struggling to meet the EU renewable energy targets but has plans to develop significant offshore wind generation.

China continues to have ambitious renewable energy goals, aiming for an emissions peak by 2030, carbon neutrality by 2060 and a goal of 15 per cent of generation supplied by non-fossil fuel generation. There remains significant debate in Australia regarding the role of gas and coal in the energy landscape, which has led to a patchwork of national and state policies that point to continued uncertainty regarding Australia's commitment to carbon reduction. Malaysia continues its efforts to encourage greater entry into the renewable energy market and has goals to reach 31 per cent renewable generation by 2025 and 40 per cent by 2035, which reflects an increase in renewables of 15 per cent over previous targets.

The United Arab Emirates aims to reduce its carbon footprint by 70 per cent by relying on 50 per cent renewable energy by 2050, and recently launched an ambitious initiative to fund and supply clean electricity to almost 100 million people in Africa by 2035. In Brazil, hydroelectric resources constitute more than half of its installed generation capacity, and efforts continue to increase wind and solar generation as the cost of renewable generation has decreased.

II INFRASTRUCTURE DEVELOPMENT

The multiple crises so far this year (inflation, the war in Ukraine, supply chain issues and the continued covid-19 pandemic) have increased prices and slowed infrastructure development for many countries, particularly those in which a reliable energy supply remains the primary concern, regardless of fuel source. Even the United States is no exception, as controversy remains over the Dakota Access Pipeline, development and approvals for which have continued to stall, and the Biden administration revoked the Keystone XL Pipeline's presidential permit in January 2021, regardless of the recent dramatic increases in oil prices. The European Union has recognised the need to secure a diverse energy supply, particularly in view of Russia's invasion of Ukraine and the desire to reduce reliance on Russian oil and gas. Belgium is expected to increase investment not only in renewable generation but also in hydrogen and geothermal energy to combat reliance upon Russian oil and gas. Portugal is also seeking to expand the development of green hydrogen as an alternative fuel source, including development of the Sines project, which is intended to replace in part the capacity

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lost following the retirement of coal generation. Furthermore, and unsurprisingly, Russia is expected to experience a significant downturn in foreign investment in its energy sector as a result of sanctions imposed by the United States, the European Union, the United Kingdom and many European states. Lebanon has developed a plan to reform its electricity sector to increase installed capacity so that electricity can be provided for up to 20 hours per day. Nigeria has only 12,000MW of installed generation capacity, which is insufficient to meet its needs, and is looking to the gas sector in the country to supply sufficient fuel to support additional generation resource development.

III NUCLEAR POWER GENERATION

Ten years after the Fukushima disaster, there is a struggle between efforts to limit reliance upon nuclear energy and the emissions reductions and fuel diversity benefits nuclear power offers. Because of the Ukraine war and the need for fuel diversity, and the importance of nuclear power for fighting climate change, Belgium has extended the economic lifetime of two nuclear power plants until 2035. France had previously sought to eliminate nuclear generation by 2025 but has extended that date. South Korea has continued its efforts to phase out nuclear power (replacing nuclear plants with new renewable facilities over time). However, the United Arab Emirates' new 5,600MW Barakah nuclear power station is almost complete and one of its units is already operational. When all units are online, Barakah will supply 25 per cent of the emirates' electrical needs. Poland still intends to explore the development of up to six new nuclear power units in the future, with a target date for the first unit in 2033. In the United States, although the early retirement of certain nuclear plants has been driven by cost and power market considerations (rather than safety concerns), some states have passed legislation to subsidise nuclear energy to allow owners to continue to operate through zero emissions credit programmes, including Illinois, New York, New Jersey and Ohio.

IV LIBERALISATION OF THE ENERGY SECTOR

We have seen significant energy sector regulatory reforms in many countries. The European Union has sought to continue efforts to centralise the regulation of the EU energy sector, albeit without the full participation of the United Kingdom. Belgium, Portugal, Greece and France (among others) have each taken significant steps towards further liberalisation of the energy sector. Australia has opened access to transmission through regulatory reforms to ensure timely transmission investment and encourage market entry, and continues to engage in significant changes in the regulation of the energy market. Brazil has recently implemented net metering regulations and is now implementing distributed generation regulations. China has reduced subsidies for renewable energy and has implemented a market-price mechanism for pricing coal-based generation. The United Kingdom has continued to implement a competitive tender process for the development of offshore transmission. In the United States, while states have continued to subsidise renewable generation (particularly significant new subsidies for offshore wind development in the Northeast), the Federal Energy Regulatory

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Commission has continued to struggle between deference to states in making procurement decisions and protections against adverse impacts on competition by implementing minimum offer price rules to combat buyer-side mitigation markets.

I would like to thank all the authors for their thoughtful consideration of the myriad interesting, yet challenging, issues that they have identified in their chapters in this 11th edition of *The Energy Regulation and Markets Review*.

David L Schwartz
Latham & Watkins LLP
Washington, DC
May 2022

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Chapter 14

PORTUGAL

Bruno Azevedo Rodrigues, Ivone Rocha and Rui Ferreira de Almeida[1]

I OVERVIEW

The Portuguese electricity mix is split into conventional generation (gas), which contributed approximately 41 per cent of electricity generation in 2020 (enabling the base load of the system), and renewables (wind, solar photovoltaic (PV), hydro and biomass), which contributed the remaining 58 per cent. Despite the covid-19 pandemic, the Portuguese electricity market has been prospering and at present is one of the markets most researched by promoters seeking to invest. Coal generation was eliminated from the Portuguese electricity mix in November 2021.

All activities in the electricity and gas markets, from production to supply (except in a very few specific cases), are subject to mandatory unbundling and must be developed by legally separate entities. Full liberalisation of these sectors in Portugal is due to happen in 2025 with the extinction of regulated end-user energy supply tariffs, shifting all consumers to liberalised markets and to natural monopolies in distribution and transmission grids for both power and natural gas systems.

Only generation, supply and trading of electricity and gas (which now includes hydrogen and other renewable and low-carbon gases) are subject to licensing procedures, although these are mostly deregulated activities in contrast with the operation, maintenance and exploitation of infrastructure, such as transmission and distribution grids, liquefied natural gas (LNG) terminals and gas storage facilities. The use of infrastructure is subject to access rates administratively set by the national regulatory authority, the Energy Services Regulatory Authority (ERSE).

In the past couple of years, in response to European Union (EU) policy and directives, legislation and the regulation of the energy sector and the energy market in Portugal have undergone remarkable changes with the aim of achieving a carbon neutral society by 2050. Moreover, EU funds, in particular those allocated through the EU Recovery and Resilience Facility, will be an important contribution towards achieving that aim.

The government's current policy for the energy sector is set out in the National Plan for Energy and Climate 2020–2030 (the PNEC 2030), which aims to establish the means to achieve both EU goals and Portugal's commitments to increase the amount of energy

1 Bruno Azevedo Rodrigues and Ivone Rocha are partners and Rui Ferreira de Almeida is an associate at TELLES Advogados.

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generated from renewable sources, improve energy efficiency and reduce energy prices for consumers, without losing sight of the economic rationale. The main objectives of the PNEC 2030 are to:

a contribute to decarbonising the Portuguese economy;
b prioritise energy efficiency;
c strengthen the commitment to renewable sources of energy and reduce the country's energy dependency;
d ensure security of supply;
e foster sustainable mobility;
f develop an innovative and competitive industry; and
g ensure a fair, democratic and cohesive transition.

In addition, following the introduction of green hydrogen and other renewable gases into the Portuguese framework in 2020, steps have been taken towards the gradual introduction of green hydrogen into the energy sector (and others). Relevant public funds are being made available for the deployment of pilot and industrial-scale green hydrogen projects, with multiple large-scale clusters appearing in the Sines region and elsewhere.

II REGULATION

i The regulators

The Portuguese energy landscape features several distinct regulatory entities with different responsibilities regarding the various aspects of the industry but all sharing a common obligation to ensure the sustainability of the sector.

The Portuguese regulatory authority for electricity, gas,[2] liquefied petroleum gas in all categories and fuel sectors is ERSE, a public entity with administrative and financial autonomy, which is also responsible for regulating the national electric mobility plan. ERSE's by-laws were enacted by Decree-Law No. 97/2002 and recently amended by Decree-Law No. 76/2019 and the entity is governed by the Framework-Law of Regulatory Bodies (Law No. 67/2013 as amended by Law No. 71/2018).

As the economic regulator for the energy sector, ERSE is tasked with ensuring adequate customer protection, promoting competition between market agents, contributing to the progressive improvement of environmental and economic conditions concerning the sector, and arbitrating in disputes.

ERSE has also the power to issue regulations required for the performance of its tasks and intended to implement legislation governing the organisation, operation and compensation in the energy sector, from generation to supply and trading. Some of the most relevant of these are the Regulation on Self-Consumption, the Regulation on Trade Relations, the Tariffs Regulation, the Regulation on Smart Grids and the Regulation on the Management of Electric Mobility Network Operations.

In addition to ERSE, the General Directorate for Energy and Geology (DGEG) is a state-administered entity whose mission is to contribute to the planning, promotion and

2 The Portuguese legislature defines gas as the homogeneous mixture of natural gas and other gases, which may be renewable gases or low-carbon gases. The references to gas in this chapter refer to the legal definition of the product.

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development of the state's policies regarding energy matters and the exploitation of natural resources. The nature of DGEG and its areas of responsibility are set out in Decree-Law No. 130/2014, amended by Decree-Law No. 69/2018.

In almost all cases, when applicable, DGEG is the competent entity for granting licences and other administrative authorisations concerning energy-related activities, such as production, establishment or exploitation.

In summary, ERSE is the independent regulatory authority, whereas DGEG is the body that represents the state in respect of energy issues, granting licences and receiving corresponding submissions.

The Portuguese Environment Agency (APA) is the Portuguese regulatory authority on hydropower resources, waste and dam safety. It also has broad powers in relation to other environmental matters, the most important being the responsibility for conducting environmental assessments for energy market-related projects. Having important powers in licensing and policy matters, APA has the authority to carry out its duties, namely to ensure the safety of public domain assets under its administration, to prevent and control infringements and to enforce sanctions for illegal activities.

Finally, in coordination with ERSE, the Competition Authority (AdC) ensures compliance with the rules regarding the promotion and protection of competition and the promotion of competition in a liberalised and free market.

ii Regulated activities

As mentioned above, the most heavily regulated activities are production, trading and operation and management of the national transmission and distribution grids. Both transmission and distribution concessions are awarded through utility concession agreements entered into with the Portuguese state, granting the concessionaires the exclusive right to exploit the grids for periods of up to 50 and 35 years, respectively. Management of distribution grids may be segregated from management of transmission grids, in which case the concession grants exclusive rights for management of the distribution grids for a period of up to 30 years.

There are also municipal concessions for low-voltage distribution grids. The right to exploit these grids is also granted through concession agreements, but these are awarded by the municipalities and are valid for 20 years.

The import, exploitation, transmission, distribution and operation of LNG terminals and of LNG storage facilities are also regulated and subject to administrative authorisations. Although Portugal does not produce LNG owing to a lack of commercial findings, prospection concessions are still on the country's agenda, to determine the extent and economic viability of existing resources on the Algarve coast.

The operation of the national transmission and distribution grids, of LNG terminals and LNG storage facilities is also granted by means of concession agreements, offering the exclusive right to develop these activities for 40 years within a certain geographical area.

Additionally, there are some local gas distribution grids with no physical connection to the national transmission or distribution grid, which may be operated by obtaining a licence, valid for 20 years.

iii Ownership and market access restrictions

Electricity generation is an activity that any company may freely engage in as a market participant, subject to having the means and meeting the conditions required to obtain a production or establishment licence. A licence may be requested by a company that holds

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a title conferring the right to deliver power into the national grid, wherever applicable. The main licensing entity is DGEG, although other entities are also involved in the procedure, such as APA. Moreover, following the issuance of a production or establishment licence and prior to commencing industrial exploitation, facility operators must also obtain an exploitation licence, which is granted after an inspection to ensure that all the technical and safety conditions required for operation have been met.

Production licences do not have a set term, unless the power is generated using public domain water resources (i.e., hydro) or the power plant is installed in a maritime zone under sovereign or national jurisdiction (i.e., offshore wind farms) or uses other assets in the public domain (e.g., floating solar PV installations), in which case the term of the production licence will correspond to the licence or concession agreement granting the right to use the public domain resources.

The transmission system operators (TSOs) for the electricity and gas sectors are subject to full private-party ownership under the unbundling regime adopted by Portugal. The current Portuguese TSO, Redes Energéticas Nacionais, SGPS, SA (REN), will hold the concession until 2057.

Within this framework, no entity may hold an equity participation greater than 25 per cent of the share capital of the TSO. Also, the TSO or the companies that control it may not, directly or indirectly, exercise control or any rights over companies dedicated to generation or supply of electricity or gas. Equally, companies dedicated to generation or supply of electricity or gas, or the entities that control them, directly or indirectly, cannot exercise control or any rights over the TSO.

The TSO is also strictly forbidden from acquiring electricity or gas for resale.

In the downstream oil sector, entities that carry out storage and pipeline transport of oil or oil products must be legally independent from entities that conduct refining, distribution by pipeline or supply of oil or oil products.

ERSE exercises its powers to supervise the obligations of the TSO relating to the full unbundling regime, in accordance with Portuguese and EU law.

Distribution activity, carried out by distribution grid operators, is also a regulated activity along similar lines to transmission activity.

iv Transfers of control and assignments

The transfer of any resources related to activities approved through concession agreements is subject to prior authorisation from the government.

Concentration operations that meet certain predetermined requisites must be notified to the AdC and are subject to its prior approval.

Following notification of a concentration operation, a decision should be issued within 30 to 90 days, depending on whether a thorough examination is required and if any additional information from the company, or an opinion from another competent entity, is required by the AdC.

Changes of control of both production licences for generation and the companies holding such licences are generally allowed, although the buyer or recipient is required to increase the relevant posted bonds. This is a significant change from the prior state of affairs, as previously it was enshrined in law that a strict principle of stability of control applied until operational status was achieved.

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III TRANSMISSION/TRANSPORTATION AND DISTRIBUTION SERVICES

i Vertical integration and unbundling

Until 1995, the electricity industry was verticalised under Energias de Portugal, SA (EDP), which owned that monopoly. Then in 1995, a whole new paradigm started with the unbundling of the different energy-related activities.

Nowadays, the operation and exploitation of the national transmission grids for both electricity and gas are carried out in accordance with that regime. In other words, the company that operates the national transmission grid (i.e., REN) may not participate in any cluster of companies dedicated to the production, distribution or supply of electricity or the distribution or supply of gas (although there is currently no natural gas production in Portugal).

In this context, EDP was required to spin off any assets relating to the transmission grid into a separate company, which is why REN was established. Similarly to EDP but with regard to natural gas, GALP Energia, SA (GALP) was also required to dispose of its transmission assets, which are now owned and operated by REN Gasodutos SA.

The distribution of electricity and gas is subject to a legal unbundling regime. This means that, from a legal, organisational and decision-making standpoint, distribution grid operators must act independently of other activities unrelated to distribution. Distribution companies that serve fewer than 100,000 clients are not subject to the legal unbundling regime, but they must still implement accounting and functioning unbundling measures.

Trading activities are also subject to the unbundling regime and therefore, implicitly, must be legally separate from other activities. The seller of last resort is also bound by this unbundling regime, even in relation to common suppliers.

ERSE exercises its powers to supervise the obligations of companies relating to the full ownership unbundling framework.

ii Transmission/transportation and distribution access

To ensure equal conditions for all market participants, the concessionaires of transmission and distribution activities in the electricity and gas sectors must comply with specific public service obligations to guarantee equal access conditions to all markets participants and to refrain from adopting any discriminatory behaviour or practices.

The safeguarding of equal conditions to all market participants for access to and use of infrastructure is envisioned to create efficient and effective market conditions, promoting healthy competition and thus enhancing consumers' experience in these markets.

iii Rates

Remuneration for the services of transmission and distribution of electricity and gas are determined by ERSE and regulated in accordance with its Tariffs Regulation.

ERSE also determines the issues that must essentially be included in the grid usage agreement. These are better defined in the Grid and Interconnections Access Regulation and include duration, interruption of service conditions, payment methods and conditions for termination, which vary depending on the contracting parties (generators, suppliers, grid operators or consumers). The general terms of the grid usage agreement are submitted to ERSE for prior approval.

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The Portuguese tariff system is set up in such a way that for each regulated activity there is an associated regulated tariff, and the tariff applicable to each consumer is the sum of the various activity-related tariffs.

Tariffs for the use of regulated infrastructure are based on the provider's cost plus a rate of return, which will determine the operator's permitted revenue. The rate of return is also established by ERSE for a certain period.

The allowed revenue and the provider's costs for the activity of transmission and distribution of electricity and gase are determined in accordance with the Tariffs Regulation.

The formula used to calculate TSOs' permitted revenue factors in efficiency costs into providers' overall costs, to reward efficient spending and investment, with allowances for the maintenance and operation of end-of-life equipment.

iv Security and technology restrictions

The concessionaires of electricity and gas transmission activities (i.e., TSOs) are also in charge of managing and monitoring the National Electricity System (SEN) and the National Gas System under the the supervision of ERSE and DGEG.

Companies responsible for transmission have the following responsibilities:

a to secure the capacity of both systems;

b to operate the transmission grid;

c to provide information to other operators to (1) maintain safety in operation, (2) estimate the level of reserves needed for safety of supply, and (3) in general, form a vital part of both systems; and

d to coordinate with all other participants to maintain the safety of the systems.

DGEG published a 'Monitoring Report on the Supply Security of the National Electricity Production System' for 2022–2040. The Report described SEN, provided future scenarios for the grid, and set out planned and installed capacity and levels of energy generation.

IV ENERGY MARKETS

i Development of energy markets

The Iberian Electricity Market (MIBEL) resulted from cooperation between the Portuguese and Spanish governments with the aim of promoting the integration of both countries' electric systems. This cooperation contributed significantly to the establishment of an electricity market not only at the Iberian level but also at the European level, and to the development of the internal energy market.

The operation of the wholesale market at any given time is determined by the mix of production structure, import capacity, the imperfect meshing of the grid, the inelasticity of demand and the system reserve margin.

One important aspect of MIBEL is the principle of reciprocal recognition of agents: if an agent is granted the status of producer or supplier by one country, it is automatically recognised by the other and therefore has equal rights and obligations.

The management of the Iberian spot electricity market is the responsibility of OMEL, the Spanish division of the Iberian Energy Market Operator.

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In the spot electricity market, transactions are executed by the participation of agents on the daily and intraday market that aggregate the Spanish and Portuguese areas of MIBEL. Trading on the daily market is based on a daily auction, with settlement of energy at every hour of the following day.

There are various intraday sessions subsequent to the daily market auction in which agents can trade electric power for the various hours of the day covered by that market. Trading is also done by auction.

OMIP is the operator of the Portuguese division of MIBEL and is responsible for the management of the derivatives trading market. On the OMIP trading platform, all features of the futures agreements are standardised. Therefore, when an agent opens a position, it only needs to choose the agreement it will trade, the relevant quantity and the price (except if it is a market offer). These contracts are marked to market each day.

The operations carried out by OMIP are registered in trading accounts and simultaneously registered in clearing accounts through which the financial settlement of the agreements is assured.

In a recent revision, system services markets were added to the Portuguese market strictly in accordance with European legislation on the matter. REN, in its capacity as system manager, is responsible for contracting these system services through competitive, open and transparent mechanisms. Under the watchful eye of ERSE, REN may be granted authorisation to enter into bilateral contracts with certain operators for system services where the specific nature of these services justifies an exception to the traditional competitive procurement mechanisms. Any market participants (including from small-scale self-consumption power plant operators down to consumer level, provided that they meet market agent requirements or are represented by a market agent though aggregation) may participate in these markets.

The Iberian natural gas market, MIBGAS, offers its users the possibility of trading within-day, day-ahead, balance-of-month and month-ahead products at the Iberian level. Yet, only recently, trading of natural gas through MIBGAS started with physical delivery in Portugal in the virtual trading point (VTP). At the end of October 2020, MIBGAS and the Portuguese TSO (REN Gasodutos, SA) published a joint schedule of activities for the implementation of the organised gas market in Portugal, which was concluded in March 2021.

MIBGAS is already a solid price reference in the Spanish market and the objective is to make it a reference at an Iberian level, providing transparency about the natural gas prices negotiated in the Iberian Peninsula by making them known to all interested parties and thus contributing to fostering competition in the natural gas sector. The Portuguese legislature took account of this and enshrined MIBGAS in legislation as a reference point for differential support schemes aimed at stimulating the delivery of renewable or low-carbon gases into the national gas system.

With the start of trading in Portugal, the Iberian dimension of MIBGAS is complete, marking a decisive step towards its consolidation as a reference hub in south-west Europe.

ii Energy market rules and regulation

The legal framework applicable to the organisation of MIBEL is based on the MIBEL Agreement between Portugal and Spain regarding the establishment of an Iberian electric energy market. It establishes the general terms and conditions for the organisation and management of MIBEL, namely the legal framework applicable to the spot and derivatives markets.

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Because of its financial nature, the MIBEL derivatives market is directly subject to Portuguese law and jurisdiction and hence to the legislation applicable to this type of market, namely:

a the Portuguese Securities Code;
b the Portuguese Securities Market Commission (CMVM) Regulations; and
c the CMVM instructions.

This market comes under the jurisdiction of the CMVM, with a direct connection to ERSE. Moreover, regulation of MIBEL takes place through market rules developed by the market operators, OMIE and OMIP, which have the duty of developing and jointly applying all the rules.

MIBGAS and trading, on the other hand, were solely governed by Spanish law. However, with the recent developments regarding MIBGAS, suppliers and companies interested in trading Portuguese products must sign an agreement to adhere to the market rules in Portugal and be cleared by the TSO. These rules were approved and published by ERSE through Directive No. 14/2020.

iii Contracts for sale of energy

Any entity (producer, supplier, consumer or other participant) registered as a market agent (as required by Portuguese law) may enter into a bilateral power purchase agreement.

As regards the applicable legal and regulatory provisions, the terms of a power purchase agreement (PPA) are agreed between the contractors. The market agents must notify the TSO (because it is the global system manager) of the completion of an agreement, indicating the term for which it is executed.

Pursuant to Decree-Law No. 15/2022, bilateral PPAs entered into in the context of self-consumption, namely for renewable energy communities (RECs), require a PPA to be defined under each REC's internal rules, and are subject to approval by ERSE.

iv Market developments

The full transition to a liberalised market is still a work in progress and the process of phasing out end-user regulated tariffs is still under way. Decree-Law No. 75/2012 approved the timetable for the gradual phasing out of these tariffs for normal low-voltage electricity consumers. Having been delayed several times, the termination of all regulated tariffs is set for the end of 2025.

During the intervening period, transitory tariffs with a gradually increasing component will be applied by ERSE.

V RENEWABLE ENERGY AND CONSERVATION

i Development of renewable energy

With the purpose of reducing energy imports and dependency and following the enactment of several European Union directives regarding a carbon neutral society by 2050, Portugal has been developing and investing significantly in renewable sources of energy.

The renewables sector finally woke up in 2019 and 2020 confirmed that trend, in spite of the covid-19 pandemic. Carbon emissions dropped by almost 7 per cent in 2020, an

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all-time record. Portugal has become known worldwide for its leading role in the promotion of renewable energy, thanks to significant developments and investments in wind and solar PV projects and more so recently following the publication of its National Hydrogen Strategy.

Portugal has since shut down its coal-fired power plants in Sines and Pego entirely, with natural gas the only remaining conventional fossil-fuel production source.

Delays in passing revised legislation on the power sector (largely due to the political turmoil that resulted in general elections in early 2022) have impeded proposed changes in the power sector. Notably, issues had been identified with the self-consumption regime, which had nonetheless garnered considerable interest from both market participants and new entrants in 2019 and 2020; these issues were subject to revision in new legislation, but, regrettably, this only came into force in 2022.

Nothwithstanding this, major steps were taken for the development of new renewable energy generation capacity. A new solar auction took place in 2021, like those in 2019 and 2020, and was devoted to floating solar PV installations in public asset dams and their artificial lakes. These developments included a specific legal framework for simultaneous attribution of concessions for the usage of public assets and for the grid connection title. The results were surprising, with the biggest lot, 70MW, being awarded with a contract for difference equivalent to a record low price of -4.13€/MWh, whereby the developer commits to sell all the power in power markets and settle with SEN all amounts required to fulfil the contract. As developers are allowed to design and build 'overpowered' production, to fully hybridise production with other renewable sources (namely wind power) and, through a new regime, install 20 per cent additional production capacity (all fully market-based and participating), the economic and financial complexity of these power plants is considerable. However, developers have indicated that they are confident the plants will yield significant returns.

Additionally, a tender designed to award the grid connection point previously occupied by the Pego coal-fired power-plant decommissioned in late 2021 was conducted in late 2021 and early 2022. On offer was an award of a grid connection of up to 600MVA in central Portugal for renewable generation or storage. The project awarded the concession requested a 224MVA grid connection for a hybrid solar and wind-powered power plant, which will generate an estimated 1315.8GWh/annum to be fed into the power grid at market prices.

The country's hydrogen strategy has been the object of renewed national and European interest and is expected to develop in three phases:

a the first, between 2020 and 2023, aims to develop the legislative and regulatory landscape for implementation of the first projects, of variable scale and across several sectors;

b the second, between 2024 and 2030, is geared towards consolidating the national framework, strengthening competence in the sector, and rolling out projects at national level; and

c the third, between 2030 and 2050, is expected to achieve full realisation of the Portuguese hydrogen market, including exports and the development of the international dimension.

Several projects with varying scales of generation capacity are being announced all across Portugal. While the industrial project at Sines is still considered an anchor project for the hydrogen sector in Portugal, given both its potential for synergies with other industrial projects in the surrounding area and the neighbouring deep-water port, many other industrial-scale ventures have looked to the EU Recovery and Resilience Facility funds for

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public capital expenditure support. There appears to be a sustained level of political support for these projects and for developing Portugal's capabilities as a renewable energy source exporter, for Europe and the world.

For situations in which grid capacity is not available, Decree-Law No. 15/2022 further developed the option to enter into an agreement with the TSO by bearing the costs incurred in adapting the grid to facilitate a connection to the project. Revised legislation has made it harder to obtain grid connection titles and new ones can only be awarded subject to a final decision in those cases of procedures initiated under the previous framework that are still pending.

In December 2020, applications were opened for a competitive procedure for accessing public financing of €40 million to support the production of green hydrogen and other renewable gases, specifically the development and testing of new technologies, and self-consumption or injection into the grid. Overall, the main incentives arising from government policy relate to renewables and new technologies and systems capable of contributing to accomplishing the goals set by Portugal itself and the EU. Recovery and Resilience Facility funds amounting to €62 million were disbursed for these purposes in 2021 and there are two other similar support mechanisms scheduled for 2022 and 2023.

ii Energy efficiency and conservation

In December 2018, the revised Energy Efficiency Directive (EU Directive 2018/2002 of the European Parliament and of the Council of 11 December 2018) entered into force, setting a community-wide energy efficiency target for 2030 of at least 32.5 per cent.

One of the primary goals of the PNEC 2030 is to prioritise and boost the development of energy efficiency projects. The government has introduced the following measures, among others, to set that up in the next couple of years:

a to ensure the improvement of efficiency in energy consumption in the various economic fields;

b to review the legal framework for energy management and efficiency and to strengthen the monitoring systems;

c to promote the rational use of energy by end users;

d to equip the energy sector with the necessary capacity in terms of human resources qualified in energy efficiency;

e to simplify procedures and reorient and strengthen funds and funding programmes;

f to encourage research and development in the field of energy efficiency; and

g to promote increased penetration of more efficient equipment and products through the renewal of existing ones.

The interest in energy conservation through storage increased throughout the year as Portugal is already a major producer of low-grade lithium, mainly for the ceramic industry, and is prepared to manufacture high-grade metal for electric car batteries. Market participants in Portugal wish to develop an ambitious lithium project with Spain, taking advantage of the geographic proximity of their lithium deposits and with the objective of covering the entire value chain from mining to refining, and cell and battery manufacturing, including battery recycling. The National Strategy for Mineral Resources (including lithium) is expected to be released in the near future, and a large-scale lithium prospection rights tender is due to be launched in early 2022.

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In addition, the promotion of energy efficiency measures is achieved through various instruments.

Since 2006, ERSE has been implementing the Consumption Efficiency Promotion Plan (PPEC), which is a competitive mechanism to support measures that make a real contribution to reducing consumption in the electricity sector.

Under the PPEC, incentives are awarded for the promotion of measures aimed at improving efficiency in electricity consumption. These measures are carried out by suppliers, operators and organisations that promote and protect the interests of electricity consumers in Portugal. The actions result from specific measures, subject to a selection process, whose criteria are defined in the Rules for the Consumption Efficiency Promotion Plan. This process allows the selection of the most promising measures for energy efficiency to be implemented by the promoters, considering the amount available in the PPEC annual budget, which is approved at the beginning of each regulation period for each year of its term.

The implementation of the measures approved by the PPEC for 2017–2018 was carried out until the end of 2019. The 75 measures supported by that edition were selected through a competitive procedure from the 224 measures submitted.

iii Technological developments

In the past couple of years, Portugal has been investing in new energy models for mobility that aim to improve quality of life and reduce pollution.

The Electric Mobility Network, an integrated network linking more than 2,300 charging stations, is managed by Mobi.E and through a universal contract system allows charging of electric cars with the consumer's choice of power provider.

The Portuguese government has been covering some of the costs associated with the use of electricity grids for electric mobility, including the granting of tax advantages when buying an electric car (i.e., immediate deduction of total VAT for companies).

Furthermore, the development of the legal framework applicable to small production units has made possible the emergence of prosumers (i.e., small producers that generate electricity for self-consumption and sell the remainder on, including to the public grid in some cases). This is currently possible following the emergence of smart metering systems, and the increased development of these systems around the country. However, the prosumer approach is suitable not only for small production units but also for all those who intend to form collectives of self-consumers (e.g., the occupants of a condominium) or RECs for the purpose of sharing the energy they produce. This is one of the most researched legal mechanisms as it allows participants to reduce electricity costs, as self-production is logically cheaper.

Recent legislative amendments have made it fully viable to operate independent and integrated storage solutions in production, with their penetration being stimulated through the aforementioned tender mechanisms. The experience gained from the Graciólica project (located in the Azores archipelago and using a combination of solar, wind and a storage facility) will bring a new focus on storage options, and investment, allowing more efficient facilities in the foreseeable future.

Another significant development relates to the generation of offshore wind energy. The Windfloat project was the first to be developed in Portugal using floating technology. Its success will result in the implementation of more such projects since the technological difficulties regarding the installation of these facilities in Portugal have now been overcome.

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With the deployment and commencement of commercial operation of this project, the development of many others has advanced, and the first requests regarding use of the public maritime domain for power production have started to surface.

Hybridisation is another of the significant developments in the recent past. Facilities may now produce electricity from different primary sources utilising the same infrastructure and grid connection point. This allows an increase in generation and a broader energy mix (although different technologies remain subject to different licensing requirements). The combination of wind and solar has already attracted interest from major participants in the industry. This would allow projects to maximise output and efficiency given the different availability of the sources, without incurring more costs for the grid operator in terms of investment in infrastructure. Additional revenue streams may be available through 'overpowering' – an option now available to all renewable sources, whereas it was previously limited to wind-powered plants.

Repowering of renewable power plants is also available to developers according to recent amendments to legislation. Under this legislation, a full replacement of generation equipment affords developers and operators an increase of up to 20 per cent in injection capacity (provided that this does not increase the total area occupied by the project). The applicability of this framework to greenfield projects is currently under assessment.

VI THE YEAR IN REVIEW

The year 2021 was an odd one for the energy market in Portugal, combining significant market, legislative and regulatory activity with strong constraints imposed by the covid-19 pandemic, and end-of-year political turmoil that resulted in general elections in early 2022.

It is an established and generally held opinion that public tenders for allocation of grid capacity will be the main (and largely the only) way to develop an energy generation project. The success of the third auction in late 2021 for floating solar PV, in which the winning bid guaranteed supply at negative prices, serves as proof of the efficiency of that piece of public policy regarding the award of such a scarce asset.

The decommissioning of Portugal's coal-fired power plants has been a systemic success, as no grid or supply instability was experienced. The site at Sines has a particular character, and there is a significant programme of public investment in development for that area, which will create the conditions for the implementation of a green hydrogen 'valley' where production, consumption, shipping and transport can all coexist. Furthermore, the Pego tender has shown great promise in reconverting a coal-fired power plant grid connection into an economically and socially stable and viable project, with fair-transition concerns placed front and centre in the overall design.

Green hydrogen support schemes are now expected to undergo dramatic change in line with the changes in gas markets caused by the uptick in consumption and wider geopolitical concerns. Further announcements are expected in the near future.

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VII CONCLUSIONS AND OUTLOOK

The Portuguese energy market is mature, with a mix in which green energies have been gaining a significant and exponential presence.

The main challenges in the energy market relate to projects involving hydrogen, the completion of the liberalisation of the electricity and gas industries, extended until late 2025. Although market efficiency is expected to increase and competition within the market should benefit end users, the full effects of liberalisation are not yet certain.

The coming months and years will see support for a rapid increase in RECs, set up by groups of companies or natural persons jointly to generate energy mainly for self-consumption. Following recent legislative changes, there will be many new RECs established, through either public ventures or private initiatives. Traditional large participants in the consumer market have already begun advancing their commercial offerings for collective self-consumption and RECs, with a view to operating as production aggregators.

Public tenders will continue to be the main procedure for allocating grid capacity for electricity generation and storage. In the coming years, hydrogen and lithium are expected to play a major role in Portugal. The long-awaited licensing tender for prospection rights for lithium is expected to be launched in the near future. Green hydrogen will, over time, allow Portugal to transform its energy paradigm completely and become a net energy exporter, but the main challenges regarding the Iberian peninsula's de facto status as an energy island must be considered, as a matter of public, and international, policy. Significant changes can be expected in view of the latest geopolitical concerns.

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Appendix 1

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Bruno Azevedo Rodrigues is a partner at TELLES, based in the firm's Lisbon office, where he heads the finance, projects and capital markets practice, and co-leads the energy and natural resources practice. Bruno has been involved as lead counsel over the past 15 years in project development, M&A and structured finance in the energy and infrastructure sector in the EMEA region, and he is ranked by *Chambers and Partners*, *The Legal 500*, *IFLR1000* and *Best Lawyers* in banking and finance, project finance, projects, energy and natural resources and corporate M&A.

Bruno has also been head of the legal committee of the Portuguese Renewable Energy Association (APREN) since 2002, he is a member of the strategic council of Get2C (advisers to the Portuguese government) and of the Portuguese Compliance and Regulatory Observatory (OPCR), and he is a member of the corporate bodies of several corporations, as well as financial institutions.

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Ivone Rocha is a partner at TELLES, based in the firm's Porto office, where she heads the environment and climate change practice, and co-leads the energy and natural resources practice. Ivone has garnered a lifetime of experience in dealing with renewables and climate change and has deep knowledge of the actions needed to face and overcome these challenges. She is well known for her expertise in environmental matters and is ranked by *The Legal 500* and *Best Lawyers*.

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Rui Ferreira de Almeida is an associate at TELLES, and a member of both the energy and natural resources practice and the environment and climate change practice. He is qualified as a lawyer in Portugal and is currently based in the firm's Lisbon office. He joined TELLES after serving as legal adviser to the Deputy Minister and Secretary of State for Energy of the 22nd government of Portugal. His prior experience includes advising national and multinational companies on a range of regulatory and compliance issues, from the deployment of energy

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projects to waste and water regulation, as well as on significant M&A transactions. In his advisory capacity, he assisted in developing and enacting a number of policy changes in the power, hydrogen and mining markets, both nationally and in the context of the Portuguese Presidency of the Council of the European Union.

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