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Portugal Renewable Energy

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This country-specific Q&A provides an overview of renewable energy laws and regulations applicable in Portugal. For a full list of jurisdictional Q&As visit legal500.com/guides

Portugal: Renewable Energy

1. Does your jurisdiction have an established renewable energy industry? What are the main types and sizes of current and planned renewable energy projects? What are the current production levels? What is the generation mix (conventional vs renewables) in your country?

The renewable energy industry in Portugal is wellestablished and continues to expand, with renewable energy supplying a significant part of the national electricity consumption, and an increasing number of projects being developed across the country.

According to the data published by the Directorate-General for Energy and Geology, in the first quarter of 2025 renewable energy production supplied 81% of the country's electricity consumption, reaching a record level. Hydroelectric power (39%) led the mix, followed by wind power (29%), photovoltaics (7%), and biomass (5%). These results demonstrate the increasing maturity of emerging technologies in the energy sector, in line with trends observed in the past few years.

Portugal's renewable energy landscape showcases significant diversity. Combined, wind and hydropower contributed to 74% of the renewable electricity produced within April 2024 and March 2025 – it is worth mentioning that, in 2024, the Alto Tâmega hydroelectric power plant began operating, further increasing the relevance of hydroelectric power within the generation mix. However, the technology with the highest growth in installed capacity is photovoltaic, with 5.4 GW.

At the end of March 2025, the installed capacity in electricity generation units from renewable sources was 21,070 MW, of which only 2,737 MW relates to decentralised production units, including energy selfproduction. As such, the installed capacity in decentralised production represents 13% of the installed renewable capacity.

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More recently, there has also been a significant

investment in storage, namely Battery Energy Storage Systems (BESS). Using funds from the Recovery and Resilience Plan, Portugal will allocate 100 million euros to support 43 new battery projects, aimed at installing at least 500 MW of energy storage capacity in the electricity grid. Iberdrola stands out as the leading beneficiary, securing an investment of approximately 20 million euros.

2. What are the key developments in renewable energy in your country over the last 12 months?

In the past year, Portugal has partially transposed RED III through the approval and publication of Decree-Law no. 99/2024, of 3 December. This legal regime intends to streamline environmental procedures and establish a comprehensive regime for energy storage and hybrid projects. Furthermore, compensation for municipalities hosting renewables was updated to ensure fairer benefitsharing. Additional regulatory developments are expected with the completion of the transposal. The Government also doubled its 2030 solar target to 20.4 GW and approved the Offshore Renewable Energy Allocation Plan (PAER), paving the way for commercial offshore wind.

3. What are your country's net zero/carbon reduction targets? Are they law or an aspiration?

The Portuguese net zero/carbon reduction targets are contained in the National Plan for Energy and Climate 2030 (PNEC 2030), approved by the by Resolution of the Council of Ministers no. 53/2020, of July 10, and recently updated by Resolution of the Assembly of the Republic no. 127/2025, of 10 April. The updated version of the PNEC sets out objectives for the reduction of greenhouse gas emissions (55%, compared to 2005), for the incorporation of renewable energy in gross final energy consumption (51%), for the incorporation of renewable energy in the transportation sector (29%), for energy efficiency (16.711 ktep), and for interconnections (15%).

The PNEC2030 focuses strongly on decarbonization, energy efficiency and security, reducing energy dependency, innovation, and maintaining affordable access to energy.

These targets and policies are further elaborated in detailed national strategies and sector-specific measures

and are supported by regulatory instruments designed to ensure that they translate into concrete action rather than remain mere aspirations.

In addition to PNEC 2030, there are other instruments in force concerning climate change and energy transition, such as RNC2050, the National Hydrogen Plan (NH2P), the Biomethane Action Plan 2024-2040 and the Long-Term Strategy to Address Energy Poverty 2023-2050.

4. Is there a legal definition of 'renewable energy' in your jurisdiction?

Under Decree-Law no. 15/2022, renewable energy is legally defined as the energy that derives from renewable, non-fossil energy sources, namely wind, solar, aerothermal, geothermal, hydrothermal, oceanic, hydroelectric, biomass and renewable gases.

5. Who are the key political and regulatory influencers for renewables industry in your jurisdiction? Is there any national regulatory authority and what is its role in the renewable energy market? Who are the key private sector players that are driving the green renewable energy transition in your jurisdiction?

The Energy Services Regulatory Authority ("ERSE") is the entity responsible for regulating the electricity, natural gas and liquefied petroleum gas sectors, as well as the petroleum-derived fuels and biofuels sectors, and the operational management of the electricity mobility network.

ERSE is a public entity with administrative and financial autonomy. Its mission is to ensure the protection of customers' interests, promote competition, ensure that market agents comply with their obligations, facilitate the resolution of disputes and contribute to the progressive improvement of environmental and economic conditions concerning the energy sector.

ERSE also has the power to issue regulations intended to govern the organization, operation and compensation of the energy sector. In this context, some of the most relevant regulations are the Regulation on Self-Consumption, the Regulation on Access to Networks and Interconnections, the Regulation on Commercial Relationships, the Regulation on Smart Grids and the Regulation on the Management of the Electric Mobility Network Operations.

In addition to ERSE, the Directorate-General for Energy

and Geology ("DGEG") is a state-administered entity whose mission is to contribute to the planning, promotion and implementation of the Portuguese State's policies in the fields of energy and natural resources exploitation. Generally, DGEG is responsible for issuing licenses and other administrative authorisations regarding energyrelated activities, such as production and commercialisation.

Thus, while ERSE is an independent regulatory entity, DGEG is a public body that represents the Portuguese State in all matters pertaining to the energy sector.

In turn, the National Entity for the Energy Sector ("ENSE") is a public organisation with numerous responsibilities, namely the constitution, management and maintenance of the national strategic reserves of petroleum and petroleum-derived products, as well as the supervision and inspection of all areas across the energy sector.

Finally, the Portuguese Environment Agency ("APA") is the Portuguese regulatory authority for hydric resources, waste and dam safety, having broad powers in matters related to the environment. APA is the entity responsible for conducting the environmental assessments of energy projects and issuing the required environmental licenses and authorisations.

6. What are the approaches businesses are taking to access renewable energy? Are some solutions easier to implement than others? If there was one emerging example of how businesses are engaging in renewable energy, what would that be? For example, purchasing green power from a supplier, direct corporate PPAs or use of assets like roofs to generate solar or wind?

Energy self-consumption schemes (individual or collective) and microgrids, hybridisation, re-equipment, and over-equipment are among the preferred options to business access renewable energy. The M&A sector, along with the Guarantees of Origin (GO) market, also play an important role.

Self-consumption power plants (UPACs) are generating plants intended for self-consumption, with the possibility to sell surplus energy in the market. Self-consumption plants may be of any source of technology of generation of renewable energy, but the most common is solar photovoltaic, usually installed on roofs or car parks near the consumption units. These schemes allow consumers to share local electricity generation from one or more self-consumers. Renewable energy communities may share and trade the renewable energy produced by UPACs among their members.

From 2022, electro-intensive consumers are allowed to install remote self-consumption power plants. If grid capacity rights are granted, self-consumption plants can inject excess power into the grid, which is sold at market prices.

An exceptional legal procedure for allocating connection capacity to electricity consumption facilities in highdemand areas was implemented, through Decree-Law 80/2023 of 6 September, addressing the existing grid connection consumption capacity constraints.

This regime ensures predictability for industrial investments and already designates Sines as a high-demand area.

Small-scale production units are decentralised and sell their output to the public networks – as a rule, distribution networks. They can operate under general remuneration (merchant) or guaranteed remuneration schemes. A simpler licensing regime applies to these plants, due to their small installed and injection capacity.

In turn, businesses may recourse to an interconnected set of electricity wires distributing energy in a given location, typically owned by private parties outside existing public network concession agreements.

Microgrids may be developed within a confined area by owners and users of a self-consumption plant. The operator of the closed distribution network has the same duties as the distribution grid operator, in particular to ensure access of energy suppliers to the grid. It is free to set the closed network use tariffs.

Hybridisation, re-equipment and over-equipment are attractive options for developers since they are exempt from grid capacity title allocation, despite subject to the prior control scheme.

Finally, a GO is mandatory issued for each MW produced from renewable sources (or from an efficient combined heat and power plant), providing evidence of the source of the energy being acquired. Producers may sell GO together with the renewable energy generated or separately, in organised markets or through bilateral agreements. The consumption of renewable energy may be done by cancelation of the GO.

GO's issued to generators receiving a feed-in tariff are transferred to DGEG and periodically bided on a

periodically organized public auction.

Power Purchase Agreements (PPAs), in turn, are becoming increasingly prevalent as a contractual instrument in the energy sector. They constitute an effective mechanism for operators to hedge against the growing occurrence of negative price events in the dayahead market. By ensuring price stability and long-term revenue predictability, PPAs contribute to the economic viability of renewable energy projects, which are more exposed to market volatility and merit-order effects.

On this regard, it should be noted that in order to promote PPAs and mitigate the associated risks, Decree-Law No. 99/2024, of 3 December, established the legal framework for the registration and bilateral contracting of energy, in accordance with Regulation (EU) 2024/1747.

This framework was further developed by the Ordinance No. 367/2024/1, of 31 December, which entrusted OMIP, S.A. with the management of this activity through a newly established electronic platform. The applicable regulation stipulates the mandatory registration of PPAs, with deadlines that vary depending on the date on which the contract was concluded.

Furthermore, it provides for the possibility of public disclosure of contractual terms by sellers and buyers on the platform, under the conditions defined by the ERSE. The platform will become operational on 29 June 2025.

7. Has the business approach noticeably changed in the last year in its engagement with renewable energy? If it has why is this (e.g. because of ESG, Paris Agreement, price spikes, political or regulatory change)?

Businesses are increasingly concerned with ensuring that the energy they use to power their operations originates from renewable sources. In particular, self-consumption, on-site PPAs, and participation in renewable energy communities are becoming ever more attractive across sectors, from industry to retail. This trend is not only driven by economic and energy security considerations, but also by growing ESG-related pressures and rising consumer awareness on the issue of climate change public perception of climate urgency is high. At the same time, regulatory and financial ecosystems are evolving to support this transition and, as such, businesses are increasingly expected to go beyond compliance, integrating clean energy strategies as part of a broader strategy to meet investor demands and maintain consumer trust.

The current unstable macro-geopolitical scenario has led to an evolving energy crisis, compounded by economic and logistical challenges such as inflation, high capital costs, and persistent supply chain disruptions. In response, an increasing number of businesses have accelerated their transition from fossil fuels to renewable energy sources, viewing this shift as a strategic response to both the energy crisis and long-term resilience needs.

The recently revised and EU Commission-approved Electricity-Intensive Customer Statute, in an effort to promote the reduction of electricity costs for strategic sectors of the national economy - such as ceramics, glass, metalworking, and textiles - will also play a relevant role. Eligible companies will be able to benefit from partial reductions in General Economic Interest Costs (CIEG). These reductions may reach up to 85% in certain cases, provided that the companies demonstrate that at least 50% of their electricity consumption is sourced from renewable energy, and that at least 10% of that consumption is secured through a long-term contract or 5% results from renewable self-consumption. This measure is yet another example of recent regulatory initiatives aimed at encouraging companies - in particular, industry sector - to adopt renewable energy solutions as a central component of their business strategy.

8. How visible and mature are discussions in business around reducing carbon emissions; and how much support is being given from a political and regulatory perspective to this area (including energy efficiency)?

Discussions around reducing carbon emissions in Portugal are highly visible and increasingly mature within the business community, supported by a strong political and regulatory framework. Portugal has established itself as a leader in climate action, targeting carbon neutrality by 2045 – five years ahead of the EU's general target-and has achieved a net emissions reduction of 43.9% from 2005 to 2023, well above the EU average for the same period. This progress is not only driven by government ambition but is also reflected in the growing engagement of businesses and industry.

From a regulatory perspective, Portugal's Basic Climate Law (2021) sets out clear obligations for decarbonization, establishes a robust governance framework (including a Climate Action Council and sectoral carbon budgets), and mandates regular planning and assessment of climate policies. The law also requires the integration of climate objectives into economic and financial instruments, such as green taxation and sustainable finance, and supports the development of a voluntary carbon market, which is increasingly relevant for companies seeking to meet ESG and Science-Based Targets.

The business sector is responding to these signals. According to a 2023 Eurobarometer survey, 41% of Portuguese respondents expect companies and industry to play a leading role in combating climate change, a figure close to the EU average. There is growing pressure from both regulation and market forces for businesses to decarbonize, with many companies participating in voluntary carbon markets and adopting emission reduction strategies as part of their sustainability and competitiveness agendas. The credibility and rigor of these efforts are reinforced by new legislation and the prioritization of emission reductions over mere offsetting.

Political and regulatory support is also evident in substantial public funding and incentive schemes. Portugal's updated Recovery and Resilience Plan devotes over 41% of its budget to the climate transition, including energy efficiency, renewable energy, and decarbonization measures. The government has implemented a carbon tax-adjusted annually and covering most fossil fuel demand outside the EU ETS-and channels a portion of these revenues into the Environmental Fund to finance decarbonization initiatives. As mentioned above, the European Commission approved a €612 million Portuguese aid scheme to lower electricity levies for energy-intensive businesses operating in essential sectors, provided they invest in energy efficiency, use renewable electricity, or implement emission reduction projects. This is part of a broader trend of linking financial support to concrete decarbonization actions.

Energy efficiency is a key pillar of Portugal's strategy, with ADENE (the National Energy Agency) playing a central role in promoting energy efficiency in buildings, industry, and transport. The agency coordinates national programs, supports the implementation of European directives (such as the Energy Efficiency Directive and the revised EPBD for buildings), and fosters innovation through training, awareness campaigns, and technical support.

9. How are rights to explore/set up or transfer renewable energy projects, such as solar or wind farms, granted? How do these differ based on the source of energy, i.e. solar, wind (on and offshore), nuclear, carbon capture, hydrogen, CHP, hydropower, geothermal; biomass; battery

energy storage systems (BESS) and biomethane?

Generally, the electricity production activity is subject to prior control. Therefore, the promoters who intend to develop renewable energy generation plants in Portugal must first obtain a title to reserve injection capacity in the Public Service Electricity Grid (RESP), through one of the following modalities:

- 1. General access modality.
- 2. Agreement between the interested party and the operator of the RESP.
- 3. Competition procedure.

Once the abovementioned title has been granted, promoters must obtain a production license from the Directorate-General for Energy and Geology ("DGEG"), prior to the start of construction. An establishment license may also be required, in order to construct the grid connection infrastructures.

The installation of power plants may also be subject to prior control procedures concerning urban planning and environmental matters. In this regard, depending on the plant's size and capacity, an Environmental Impact Assessment may be required. In turn, the construction of power plants may be subject to prior notice or a construction license from the Municipality where the project is to be located.

As a general rule, after the power plant is installed and ready to start operating, an operation license – or operation certification, depending on the cases – from DGEG is required. Notwithstanding, an exceptional regime, set forth by Decree-Law No. 30-A/2022, of 18 April, allows power plants to start operating without an operation licence or operation certificate, as long as the grid operator confirms grid injection conditions are met. In this case, the operation licence or certificate must be obtained within three years of the communication to the authorities that the plant has started operating. This exceptional regime was recently extended and will be in force until 31 December 2026.

10. Is the government directly involved with the renewables industry (auctions etc)? Are there government-owned renewables companies or are there plans for one?

No. In line with the requirements of the Third Energy Package, the Portuguese electricity sector is almost fully liberalised and fully privatised and there are no plans to set a government-owned renewables company. 11. What are the government's plans and strategies in terms of the renewables industry? Please also provide a brief overview of key legislation and regulation in the renewable energy sector, including any anticipated legislative proposals?

Portugal's government has set out an ambitious and comprehensive strategy for the renewables industry, aiming to consolidate the country's leadership in the energy transition and meet both national and European climate targets. Central to this strategy is the National Energy and Climate Plan 2030 (PNEC 2030), which was revised in late 2024 and aligns with the European Union's climate goals and the Paris Agreement. The updated plan sets more ambitious targets than previous versions, including reducing greenhouse gas emissions by 55% by 2030 compared to 2005 levels, and raising the share of renewables in gross final energy consumption to 51% by 2030. The plan also targets at least 80% of electricity production from renewables by 2030, with a focus on expanding solar, onshore wind, and offshore wind capacity.

To achieve these goals, Portugal is doubling down on solar energy, aiming to increase installed solar capacity from 8.4 GW in 2025 to 20.4 GW by 2030. The government's strategy also includes the development of energy storage solutions to address market volatility and ensure the efficient integration of renewables. The first large-scale battery projects are expected to come online in 2025, marking a milestone in the country's ability to manage renewable energy generation and grid stability.

A key pillar of Portugal's renewables policy is the promotion of long-term PPAs, which are intended to provide financial stability for developers and attract investment. These contracts have been instrumental in the rapid growth of solar and wind projects, enabling developers to secure financing and offering consumers more stable prices. The government is also fostering the creation of Renewable Energy Communities, which allows citizens and businesses to generate, share, and consume their own energy, promoting decentralization and democratization of the energy system.

In terms of legislation and regulation, several recent and anticipated measures are shaping the sector. Decree-Law 15/2022 remains the core legal framework for renewable power, facilitating new capacity and hybridization of projects. The regulatory environment was changed strengthened by Decree-Law 99/2024, which, partially transposed RED III Directive. The remaining provisions of the Directive will be transposed in the near future. Additionally, the Offshore Renewable Energy Allocation Plan (PAER), approved in February 2025, designates specific maritime zones for the installation of offshore wind and wave energy projects, with a target of 2 GW of offshore wind capacity by 2030. The PAER integrates into the national maritime spatial planning system and is expected to streamline project approval and encourage investment in ocean-based renewables.

Portugal is also preparing to transpose new European directives, such as RED III and those related to the internal electricity market, which are expected to open opportunities in emerging sectors like hydrogen and bioenergy. The government has extended special measures to simplify and accelerate renewable energy project procedures until the end of 2026, including exemptions from prior urban planning control for small plants, expedited decision deadlines, and additional compensation for municipalities hosting projects.

12. Are there any government incentive schemes promoting renewable energy (direct or indirect)? For example, are there any special tax deductions or subsidies (including Contracts for Difference) offered? Equally, are there any disincentives?

Portugal maintains a robust framework of government incentives to promote renewable energy, reflecting the country's commitment to decarbonization and energy transition. Direct financial support is evident in recent initiatives such as the €100 million in grants awarded in January 2025 to 43 energy storage projects with a combined capacity of 500 MW. These grants, funded under the Recovery and Resilience Plan, are designed to enhance grid flexibility and facilitate the integration of more renewable energy sources. Additionally, the government is actively advancing offshore wind energy through capacity auctions, aiming to add 2 GW of offshore renewable capacity by 2030 in line with the National Energy and Climate Plan (PNEC 2030).

Long-term contracts, particularly Power Purchase Agreements (PPAs), are intended to play a central role in securing financing facilities for renewable energy investments. The government encourages the use of PPAs and has introduced risk coverage mechanisms for long-term renewable electricity contracts, especially for electricity-intensive consumers. Contracts for Difference (CfDs) are also being piloted, in line with broader European Union market reforms, to provide revenue certainty for renewable energy developers and stabilize consumer prices. Tax incentives further bolster the adoption of clean technologies. There are substantial subsidies for electric vehicles-up to €4,000 for electric cars and €750 for electric bicycles-reflecting a broader strategy to decarbonize the transport sector. Residential solar panel installations currently benefit from a reduced VAT rate of 6%, though this incentive is set to expire on June 30, 2025, after which the VAT will revert to the standard rate of 23%. This pending increase represents a significant reduction in fiscal support for new residential solar projects.

For the industrial sector, are reduce certain tariff charges for electricity-intensive consumers and provides public guarantees covering up to 80% of obligations under longterm renewable PPAs. This approach is intended to improve industrial competitiveness whilst simultaneously encourage greater uptake of clean energy.

Regulatory and policy measures also support the sector's growth. The government is promoting renewable energy communities, allowing citizens and businesses to generate, share, and consume their own energy under new legislation. Strategic planning documents, such as the updated National Energy and Climate Plan and the Allocation Plan for Offshore Renewable Energy, set ambitious targets for renewable capacity, energy storage, and decarbonization, providing regulatory stability and predictability for investors.

13. How does the structure of the natural gas industry in your country impact the price of electricity? Are there any plans to de-link the price of renewable electricity from gas prices?

The structure of the natural gas industry in Portugal continues to have a significant impact on electricity prices, due to the ongoing role of gas-fired power plants in the national energy mix. Despite the steady growth of renewable energy-which in 2025 already accounts for around 80% of electricity production in several months of the year natural gas remains essential for ensuring system balance, particularly during periods of low renewable output (such as droughts or low wind conditions) and during times of high demand.

In the Iberian Electricity Market (MIBEL), wholesale electricity prices are set through a marginal pricing mechanism, where the final market price is determined by the most expensive unit needed to meet demand at any given hour-often a gas-fired power plant. As a result, fluctuations in international natural gas prices continue to have a direct impact on electricity prices, especially during hours when renewable generation is insufficient to

meet demand.

During the 2022 energy crisis, Portugal and Spain implemented the so-called "Iberian mechanism," which temporarily capped the price of natural gas used for electricity generation, protecting consumers from sharp price increases.

In response to the challenges of the energy crisis and the need to accelerate the energy transition, the European Union approved a comprehensive electricity market reform in 2024, which is currently being implemented in Portugal. This reform aims to reduce consumers' exposure to fossil fuel price volatility by promoting instruments such as long-term contracts (Power Purchase Agreements-PPAs and Contracts for Difference-CfDs) for renewable projects. These contracts provide greater price stability and are designed to progressively decouple electricity prices from short-term fluctuations in the gas market.

Despite these reforms, the process of de-linking electricity prices from gas prices will be gradual and in low with the EU policy. Natural gas will continue to play a relevant role until sufficient storage and flexibility solutions are in place to ensure system reliability using only renewable sources. However, as renewable capacity, energy storage, and European interconnections expand, the influence of natural gas on electricity prices is expected to decrease steadily in the coming years.

In summary, while Portugal is making rapid progress in the energy transition and reducing its dependence on fossil fuels, natural gas still plays a central role in setting electricity prices in 2025. Nevertheless, the ongoing reforms are expected to progressively mitigate this dependency and bring greater stability to the national electricity market.

14. What are the significant barriers that impede both the renewables industry and businesses' access to renewable energy? For example, permitting, grid delays, credit worthiness of counterparties, restrictions on foreign investment, regulatory constraints on acquisitions; disputes/challenges?

Grid capacity is the main bottleneck of renewables industry. Permitting has also been challenging but several measures have been recently enacted aiming to allow for a more expeditious and less heavy permitting process, especially on the environmental assessments required. Scarcity of network capacity and the time and cost of developing and licensing new power plants are probably the main issues restraining or delaying the development of new power plants in Portugal.

Other significant issues restrain the development of new projects:

- Environmental restraints: it is common for renewable energy projects to affect environmentally sensitive areas, such as Natura 2000 Network ecological reserves or areas with protected tree species, and larger projects are subject to environmental assessment procedures.
- Planning restraints: utility-scale photovoltaic plants, especially, cover a large area of land and municipal master plans and others may not allow, or foresee, the development of these projects; and
- Land restraints: developing a renewable energy project requires securing all the land required for it, with no possibility of expropriation or constitution of administrative easements of land (except for certain interconnection lines).

A growing number of suppliers are in the business of off taking the energy generated by renewable energy projects, but the thresholds for bankability of projects in terms of creditworthiness often reduce the number of possible offtakers considered by banks to be creditworthy.

High penetration of solar energy in competitive electricity markets often leads to very low or even zero prices during peak production hours. This undermines the revenue potential of solar projects, making it difficult to secure financing under traditional models. As a result, the market leans toward hybrid projects—such as solar combined with wind or thermal generation—or the integration of battery storage, which allows energy to be shifted to higher-value periods and improves revenue stability.

15. What are the key contracts you typically expect to see in a new-build renewable energy project?

We would expect to find the proper land rights, and all required administrative licenses and authorizations in place, contractual package for securing the financing of the project, the power purchase agreement (PPA) or Contract-for-Difference (CFD) if any, the interconnection agreement, the major supply agreements and the operations and maintenance agreement (O&M).

The Engineering Procurement and Constructions (EPC)

Agreement should still be relevant and provide for proper warranties.

16. Are there any restrictions on the export of renewable energy, local content obligations or domestic supply obligations? What are the impacts (either actual or expected) of the implementation of the Net Zero Industry Act (EU) Regulation 2024/1735?

The National Electricity System is responsible, at each moment through the national dispatch operation, for verifying the electricity system's needs and deciding whether to import or export energy, taking into consideration the energy produced and injected into the grid.

Notwithstanding the foregoing, producers may also sell the energy they produce on organised markets or through bilateral contracts.

The Iberian Electricity Market, MIBEL, resulted from cooperation between the Portuguese and Spanish governments with the aim of promoting the integration of both countries' electrical systems. This played a significant role in establishing an electricity market at the Iberian level but also at the European level, contributing 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.

In the spot electricity market, transactions are executed by the participation of agents on the daily and intraday market that aggregates 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 electrical 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.

On its turn, 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).

The Iberian Peninsula is isolated from an energy market perspective, with limited connection to the central European markets. Although legally permitted to trade with other countries, most of the international electricity trading is done with Spain.

Currently, there are no specific local content or domestic supply obligations applicable to the production of renewable energy in Portugal. However, environmental licensing and public procurement processes, especially for offshore wind and grid expansion, may include socioeconomic criteria that indirectly promote national value chains and local involvement.

In this context, the Net Zero Industry Act (EU) Regulation 2024/1735, which aims to strengthen the EU's industrial base in net-zero technologies, is expected to have an indirect but relevant impact on the Portuguese renewable energy market. Although its provisions do not directly impose obligations on Member States to restrict exports or impose local content rules, the Act introduces a framework that promotes the development and deployment of net-zero technologies within the EU. This includes setting targets for strategic projects, streamlining permitting procedures, and enabling faster deployment of manufacturing capacity.

For Portugal, the Act is likely to accelerate investments in renewable energy manufacturing capacity, especially in solar, wind, batteries, and grid technologies. It may also encourage the prioritisation of projects considered strategic under EU criteria and enhance financing tools for national projects aligned with decarbonisation and energy autonomy goals. Over time, this could foster the development of more local supply chains and increased participation of Portuguese industry in the European green tech market, though without yet translating into mandatory content or supply restrictions.

17. Has deployment of renewables been impacted in the last year by any non-country

specific factors: For example, financing costs, supply chain or taxes or subsidies (e.g. the US's Inflation Reduction Act)?

Yes. Due to inflation and the bever of interest rates. In addition, the political uncertainty caused by tariffs and geopolitical instability has had an impact on the sector.

18. Could you provide a brief overview of the major projects that are currently happening in your jurisdiction?

Portugal has developed a diversified renewable energy matrix, underpinned by utility-scale projects harnessing various sources such as hydropower, wind, solar photovoltaic (PV), and biomass. Hydropower and wind energy remain the dominant contributors in terms of installed capacity, while solar PV has witnessed rapid development and is projected to sustain significant growth through 2030.

As of 2024, Portugal's installed wind power capacity reached approximately 5.9 GW. The central mainland region led with over 2.9 GW, followed by the northern region with around 2.4 GW. Wind power plants across the country typically range between 10 MW and 200 MW in installed capacity and collectively produced around 13.2 TWh in the previous year.

Among the most significant developments is Iberdrola's Tâmega Eólico project, Portugal's largest planned onshore wind farm. This €350 million project, located in the Vila Real and Braga districts, will combine 274 MW of wind capacity with the Tâmega hydropower complex, producing 601 GWh annually and leveraging shared infrastructure to minimize environmental impact. The project, supported by a power purchase agreement (PPA), is expected to power 128,000 homes and represents the country's first hybrid wind-hydro initiative.

Hydropower remains the backbone of Portugal's renewable generation, with an installed capacity of approximately 8.35 GW in 2024. Major plants such as Baixo Sabor, Feiticeiro, Foz Tua, and the Iberdroladeveloped Gouvães, Daivões, and Alto Tâmega (the latter operational since late 2024) form one of the most significant hydropower clusters in southern Europe, collectively contributing 1.2 GW to the system.

Solar PV has been the fastest-growing renewable source. In 2024, Portugal added a record 1 GW of new solar capacity in just the first half of the year, bringing total operational solar capacity to 5.6 GW by mid-2024. This surge was driven by favourable policies, technological advances, and strategic investments. The Alentejo region leads in installed solar PV capacity, closely followed by the central mainland region. National solar capacity is expected to reach 20.4 GW by 2030, with both utilityscale and distributed generation contributing to this growth. Recent and upcoming projects include major solar plants in Paião, Feira, and Trancoso, which will add a combined 43 MWp, as well as new facilities in Lagos and Portimão, together contributing an additional 10 MWp. These developments reflect the broader trend of continued expansion in Portugal's solar sector.

Biomass continues to play a supplementary yet significant role in Portugal's renewable portfolio. As of December 2024, the total installed biomass capacity stood at 861 MW. The central mainland region accounted for the majority of this capacity (532 MW), followed by Lisbon with 186 MW. Biomass installations are often integrated with industrial activities and may reach up to 100 MW individually.

Together, these developments reflect Portugal's ongoing commitment to decarbonization and its alignment with European Union targets for renewable energy integration and climate neutrality by 2050.

19. How confident are you that your jurisdiction can become a leader in newer areas like offshore wind or hydrogen?

Green hydrogen is expected to play a fundamental role in the global energy transition, particularly in sectors that are difficult to electrify, such as aviation, maritime transport, and energy-intensive industrial processes. However, the pace of implementation remains gradual, potentially jeopardizing the opportunity to leverage its full potential.

The Iberian Peninsula is well-positioned to become a central hub for renewable electricity and green hydrogen production in Europe, thanks to its favourable combination of wind, solar, and land resources. This geographical complementarity facilitates lower production costs relative to other European regions, thereby enhancing its competitiveness.

Portugal's port of Sines is at the forefront of this transition, consolidating its position as a strategic hub for green energy and developments are further bolstered by the country's ambitious offshore wind targets, which are expected to catalyse additional investment in port and energy infrastructure.

A key driver of this transformation is the recent €430

million loan granted by the European Investment Bank (EIB) to support two flagship projects at Sines Refinery. The first is a €400 million biofuels unit, of which €250 million is funded by the EIB. Currently under construction, the unit will convert vegetable oils and residual fats into renewable diesel (HVO) and sustainable aviation fuel (SAF)—the latter being critical for reducing emissions in the aviation sector, which accounts for approximately 3% of global greenhouse gas emissions. Upon completion in 2026, the unit will produce up to 270,000 tons of renewable fuels annually, allowing Portugal to meet the EU's SAF targets.

In parallel, a 100 MW electrolyser, backed by \notin 180 million from the EIB and representing a total investment of \notin 250 million, is being installed on the same site. Expected to begin operations in 2026, it will produce up to 15,000 tons of renewable hydrogen per year, making it one of the first units of its scale in Europe.

A portion of this hydrogen is planned to be distributed through Portugal's modern natural gas grid, which spans approximately 19,000 kilometres. The network, with pipelines primarily composed of polyethylene and an average age of under 15 years, is well-suited for hydrogen transport and underscores the country's infrastructural readiness.

In parallel, Portugal is preparing to expand into offshore wind energy. The Portuguese government already outlined the framework for the country's first auction of commercial-scale offshore wind farms. The model follows a centralised sequential approach to allocate development areas, aligned with the targets of the National Energy and Climate Plan (PNEC) 2030. In addition to this commercial-scale expansion, Portugal is also moving forward with pilot initiatives that support technological innovation in offshore energy. Notably, the Nau Azul project has received the Title for Private Use of Maritime Space (TUPEM) from the Directorate-General for Natural Resources, Safety and Maritime Services (DGRM). This 10-year license grants exclusive rights to occupy and use a designated area off the coast of Aguçadoura, in Póvoa de Varzim, for the installation and testing of a 2 MW floating wind platform. The project represents an important step toward the commercialisation of innovative floating wind technologies and is expected to serve as a reference model for future offshore ventures worldwide.

These initiatives not only support Portugal's decarbonization objectives but also contribute to the broader goals of the European Green Deal and REPowerEU strategy, promoting both climate neutrality by 2050 and enhanced energy autonomy within the European Union. The projects have also been bolstered by €22.5 million in incentives from Portugal's Recovery and Resilience Plan, exemplifying the strategic integration of public funding, private investment, and European financial instruments in fostering a sustainable and resilient energy future.

20. How are renewables projects commonly financed in your jurisdiction?

In the context of our jurisdiction, project finance structures, along with instruments such as junior debt and corporate equity, are frequently employed to support project development.

In recent years, alternative financing and refinancing mechanisms for renewable energy projects—particularly the issuance of green bonds and the use of sustainability-linked financing—have gained increasing prominence.

While not a legal requirement, it is common practice for external financing of renewable energy initiatives to adopt a project finance model. This typically involves the establishment of a special purpose vehicle (SPV) to hold ownership of the project.

This structure reflects the application of ring-fencing principles, which serve to isolate specific project assets from the broader asset pool of the sponsor. In doing so, the project's bankability is enhanced by limiting exposure to external risks.

Additionally, once construction-related risks have been mitigated, project sponsors often pursue refinancing strategies to optimize financial performance during the operational phase. This is particularly advantageous in the presence of feed-in tariff schemes, which provide greater income predictability and enhance lender confidence.

21. What is your forecast for the coming year(s) for renewable energy in your jurisdiction?

Portugal is on track to become a net exporter of renewable energy before 2035, and the sector is supported by robust policy, investment, and innovation, including new technologies like wave energy. With these drivers, Portugal's share of renewables in electricity generation is forecast to exceed 80% by 2026 and approach or surpass 90% by 2031.

In 2025, key trends in the renewable energy sector include the rapid expansion of solar and wind energy,

advancements in energy storage with batteries and thermal systems, the rise of digitalization and smart grids, and the electrification of transportation. The ongoing energy transition, driven by sustainability and decarbonization goals, is also fostering increased investments in green hydrogen, energy efficiency, and the adoption of renewable sources like biomass and biogas.

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