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CHAMBERS GLOBAL PRACTICE GUIDES

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# Renewable Energy 2024

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**Portugal: Law and Practice**

Mafalda Ferreira  
CS'Associados



# PORTUGAL



## Law and Practice

**Contributed by:**  
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Contributed by: Mafalda Ferreira, **CS'Associados**

CS'Associados has extensive experience in providing legal advice to energy projects at all stages, from inception to completion – whether in the context of development, sale and purchase, or financing. This practice area covers the full range of issues in connection with energy projects, including licensing, regulatory, real estate and corporate law, structuring, equity investment, insurance, construction and

supply contracts, labour relations, and other legal issues that typically arise in the due diligence process of an energy project. The team has been and continues to be involved in the most innovative and pioneering transactions in the Portuguese renewable energy market by providing comprehensive and global advice to developers, investors, financiers, owners, and buyers/marketers of energy.

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# CS'ASSOCIADOS

## 1. Overview

### 1.1 Energy Transition

Portugal's energy transition is well underway, driven by strong government policies, favourable natural conditions, and a commitment to EU climate goals. The country has already made significant strides in increasing the share of renewables in its energy mix and it has set ambitious targets for the coming decade. As of 2023, Portugal generates a significant portion of its electricity from renewable sources. The share of renewables in the country's electricity generation has been consistently high, often exceeding 50% of the total energy mix. In 2022, renewables accounted for around 59% of the electricity generated in Portugal. The breakdown typically includes about 25–30% from hydroelectric power, 25% from wind power, and around 10% from solar energy.

The primary renewable energy sources in Portugal include hydroelectric power, wind and – increasingly – solar power. Historically, hydroelectricity has played a major role, but the growth of wind and solar has been substantial in recent years. Portugal's National Energy and Climate Plan (NECP) sets a target of 80% of electricity consumption coming from renewable sources by 2030, not just in terms of generation but consumption as well. Portugal has committed to achieving carbon neutrality by 2050.

### 1.2 Renewable Energy Technologies

Portugal's renewable energy landscape is diverse, with hydropower, wind, and solar photovoltaic (PV) being the dominant technologies. The country is also exploring and expanding into newer technologies such as green hydrogen, biogas, and offshore wind. This mix of mature and emerging technologies positions Portugal well to achieve its ambitious renewable energy

targets and further reduce its reliance on fossil fuels.

### 1.3 Renewable Energy Market and Recent Developments

The renewable energy sector in Portugal remains robust and continues to grow, particularly in solar PV and emerging sectors such as green hydrogen. However, challenges related to grid access and project permitting have caused delays for some developments. The market is attractive to international investors, with a strong policy framework supporting continued expansion in renewable energy capacity.

## 2. Legal and Regulatory Regime

### 2.1 Governing Law and Upcoming Changes

In the Portuguese jurisdiction, the principal laws and regulations governing the energy market include:

- the Electricity Sector Law (*Lei do Setor Eléctrico*) – approved by Decree Law No 15/2022 of 14 January, it regulates the organisation and functioning of the electricity sector, including generation, transmission, distribution, and supply activities; and
- the National Gas System Law – approved by Decree Law No 62/2020 of August 28, it establishes the organisation and operation of the National Gas System and the respective legal regime.

Regarding specific provisions for renewable energy, there is a separate legal framework in Portugal. The legal framework for renewable energy includes the Renewable Energy Auctions Regulations, which govern the bidding process

for the allocation of capacity to renewable energy projects.

Upcoming changes in laws and regulations relevant to renewable energy in Portugal may include changes to the licensing procedures to simplify the current regime.

## 2.2 Regulating Authorities

In Portugal, the primary regulators for energy activities (including renewable energy) are as follows.

- The Ministry of the Environment and Energy Transition, the mission of which is to formulate, conduct, implement and evaluate policies on the environment, spatial planning, cities, housing, urban, suburban and road passenger transport, climate, nature conservation and energy from the perspective of sustainable development and social and territorial cohesion.
- The Directorate-General for Energy and Geology (DGEG) is part of the Ministry of Environment and Energy Transition. It has a licensing role and oversees the energy sector, including renewable energy projects.
- The Energy Services Regulatory Authority (*Entidade Reguladora dos Serviços Energéticos*, or ERSE) is responsible for regulating the electricity and natural gas sectors, ensuring compliance with applicable laws and regulations. The ERSE has regulatory, supervisory, inspection and sanctioning powers and must ensure that all entities have access to the electricity grid.

These regulating authorities have various enforcement powers to ensure compliance with energy regulations, as follows.

- Rights to information – regulators have the right to request information from energy companies and stakeholders to assess compliance with regulatory requirements.
- Inspections – regulators have the authority to conduct inspections of energy facilities and activities to verify compliance with regulations and standards.
- Binding instructions – regulating authorities can issue binding instructions to energy companies and operators to rectify non-compliance issues or take specific actions to align with regulatory requirements.
- Penalties – in cases of non-compliance or violations of regulations, regulators have the power to impose penalties, fines or sanctions on entities that fail to meet the required standards.

## 2.3 Regulated Activities

In Portugal, various activities related to energy (including renewable energy) are regulated to ensure a secure, sustainable and efficient energy sector. The relevant rules and restrictions may vary depending on the type of renewable energy source. Regulated activities in Portugal in the renewable energy sector include the following.

- Electricity generation – regulations govern the production of electricity from renewable sources such as solar, wind, hydro, biomass, and geothermal energy. Specific rules may apply to each type of renewable energy generation, outlining technical requirements, connection procedures and support mechanisms.
- Grid connection – rules and restrictions exist for connecting renewable energy projects to the grid, ensuring the stability and reliability of the electricity network. Grid codes specify technical standards and connection requirements with which renewable energy projects must comply.



- Electricity market participation – regulations dictate the participation of renewable energy producers in the electricity market, including access to market mechanisms, auctions, and support schemes. Specific rules may apply to guarantee fair competition and market efficiency.
- Licensing and permitting – renewable energy projects require licences and permits to operate legally. Rules govern the application process, environmental impact assessments, land use planning, and other permitting requirements to ensure sustainable project development.
- Environmental regulations – renewable energy projects are subject to environmental regulations and restrictions to mitigate their impact on ecosystems, biodiversity, and habitats. Compliance with environmental laws is crucial for project approval and operation.

## 2.4 Ownership and Transfer of Control

There are certain regulations and restrictions on the ownership and transfer of renewable energy assets. The following are among key points to consider.

- Investment screening mechanisms – in line with EU regulations, Portugal has an investment screening mechanism for Foreign Direct Investment (FDI) that may affect security or public order. This includes critical infrastructure, which can cover parts of the energy sector.
- Regulatory framework – the transfer of renewable energy assets (including change of control) is subject to restrictions and, in certain cases, prior authorisation from the DGEg, is required.

## 2.5 Market Access and Foreign Investment

Portugal welcomes foreign investment in the renewable energy sector, so investors must navigate a structured regulatory environment and adhere to specific permitting and licensing requirements.

## 3. Production/Generation

### 3.1 Electricity

The generation sector for electricity from renewable sources in Portugal operates within a liberalised market, allowing multiple private, state-owned, and foreign players to participate in energy production. New capacity in recent years is mainly introduced through competitive auctions organised by government entities such as the DGEg, aiming to reduce costs and enhance efficiency. The market features a diverse mix of renewable energy plants, including wind farms, solar parks, hydropower facilities, and biomass plants – all integrated into the national grid managed by REN (*Redes Energéticas Nacionais*, the transmission system operator) and various regional distribution system operators (DSOs).

Key players in this sector include electricity producers, grid operators, and regulatory authorities. REN oversees the transmission network, while regional DSOs manage local distribution. The ERSE governs market operations, tariffs, and consumer protection, whereas the DGEg, handles licensing and supervises energy activities. The regulatory framework in Portugal is influenced by national laws and EU Directives, covering licensing, environmental compliance, grid connection, and renewable energy incentives. These rules ensure that projects meet environmental and technical standards while

aligning with national and EU renewable energy targets.

Portugal's renewable energy generation is also subject to rigorous regulatory oversight, including compliance with environmental impact assessments, construction regulations, and grid connection standards. Investment in this sector, especially from foreign entities, may be scrutinised for national security concerns – reflecting the strategic importance of energy infrastructure. Overall, the country has created a robust framework to support and regulate the renewable energy sector, thereby fostering a competitive and sustainable energy market.

## 3.2 Gas

The production sector for renewable gases in Portugal, including biogas and green gas but excluding hydrogen, is characterised by a decentralised market structure. Production facilities are typically small to medium-sized and are strategically located near sources of organic waste, such as agricultural residues and municipal waste. This sector is closely integrated with waste management, providing a sustainable approach to both energy production and waste disposal.

Key stakeholders in this sector include agricultural businesses, waste management companies, and waste water treatment plants, which are major producers of biogas. Technology providers, including companies specialising in anaerobic digestion and biogas upgrading technologies, play a critical role. Grid operators are responsible for ensuring that biomethane meets the quality standards required for integration into the national gas grid, while regulatory bodies such as the DGEg, and the Portuguese Environment Agency (*Agência Portuguesa do Ambiente*,

or APA) oversee the sector's operations and environmental compliance.

The regulatory framework supporting renewable gas production in Portugal includes specific targets and incentives under national energy plans such as *Plano Nacional de Energia e Clima 2021–2030* (“PNEC 2030”). Financial incentives such as feed-in tariffs encourage investment in biogas production, while stringent environmental regulations and grid injection standards ensure that production and distribution meet sustainability and safety criteria. Licensing and permitting procedures are managed by local and national authorities, with a focus on adhering to health, safety and environmental standards.

## 3.3 Heat

The production sector for renewable heat in Portugal, particularly geothermal energy, is essential to the nation's sustainable energy goals and efforts to reduce emissions. This sector features a mix of centralised and decentralised production units, enabling the use of geothermal heat in residential heating, industrial processes, and district heating systems. This structure supports the integration of geothermal energy across various applications, contributing to a diversified and sustainable energy mix.

Key players in this sector include both public and private producers, specialised renewable energy companies, and municipal entities, alongside technology providers who offer drilling, geothermal plant construction, and heat pump technologies. Regulatory oversight is primarily managed by the DGEg, which ensures that geothermal projects align with national energy policies and safety standards. Additionally, research institutions play a pivotal role in advancing geothermal technologies and exploring new resources, fostering innovation within the sector.



The regulatory framework for geothermal energy in Portugal includes the National Energy Strategy, which promotes the use of renewable energy (including geothermal) as part of the country's commitment to increasing its renewable energy share. Geothermal projects are subject to specific licensing and environmental regulations, overseen by the DGEG, in order to ensure sustainable and safe operations.

### 3.4 Hydrogen and Other Biofuels and Renewables

The production sector for hydrogen, biofuels, and other renewable energy sources in Portugal is a vital part of the country's strategy to enhance sustainability and reduce greenhouse gas emissions. Also, the focus on hydrogen production is primarily on green hydrogen. This type of hydrogen is considered essential for achieving carbon neutrality and integrating into the broader energy system. The biofuels sector – encompassing biodiesel and bioethanol – involves the production of fuels from organic materials, providing alternatives to fossil fuels in transportation and industrial applications.

Key assets in the sector include electrolysis plants for hydrogen production, bio-refineries for converting feedstocks into biofuels, and large-scale solar and wind farms. The regulatory framework is robust, with specific rules governing hydrogen under the National Hydrogen Strategy and the Renewable Energy Directive (“RED II”) for biofuels. Portugal's National Energy and Climate Plan (NECP) sets ambitious renewable energy targets, supported by financial incentives such as feed-in tariffs and competitive auctions, ensuring the continued growth and integration of renewable energy into the national grid while maintaining compliance with environmental and safety standards.

### 3.5 Local and Domestic Production

In Portugal, the regulatory framework for small-scale renewable energy production – particularly rooftop solar PV systems – is established by Decree Law No 162/2019, which promotes decentralised energy production and supports both individual and collective self-consumption.

Key points include the following.

- Registration and licensing – installations under 350 W do not require registration. Systems up to 30 kW must register via the Self-Consumption Registration System (SERUP), whereas larger systems need detailed registration and possibly additional permits for grid connection.
- Technical standards – all installations must comply with EU and national safety standards and be executed by certified professionals. Grid-connected systems must meet requirements from E-REDES and can participate in net metering.
- Financial incentives – the Portuguese government provides various financial support mechanisms, including subsidies, grants, and tax incentives such as VAT reductions and property tax deductions, primarily benefiting small-scale producers.
- Environmental and building regulations – installations must comply with local environmental and building regulations to minimise impact and maintain structural integrity.

Overall, Portugal's framework encourages the adoption of renewable energy while ensuring safety and effective integration with the national grid, allowing individuals to lower energy costs and contribute to sustainability goals.

## 4. Infrastructure: Transportation and Storage

### 4.1 Electricity

Portugal's electricity market for renewable energy transportation and storage operates within a liberalised framework, blending traditional and innovative elements to optimise the distribution and storage of renewable sources. Key players in this sector include renewable energy producers, the transmission system operator REN, and various DSOs such as E-REDES. Electricity suppliers facilitate the retail market, while the Iberian Electricity Market (MIBEL) enables cross-border trading between Portugal and Spain. Storage operators, including battery storage providers and pumped-storage hydro plants, work alongside regulatory authorities such as the ERSE and the DGEg, to ensure efficient energy management.

The market is supported by a range of rules and regulations that govern grid connection, regulatory oversight, and renewable energy support schemes, such as feed-in tariffs and power purchase agreements. Storage solutions, including grid-connected batteries and pumped-storage hydro, play crucial roles in stabilising the grid and balancing supply and demand. Additionally, emerging technologies such as thermal storage and compressed air energy storage are being explored to enhance existing storage options. Overall, public grid operators such as REN and the DSOs are tasked with maintaining grid reliability, managing access, and integrating renewable energy and storage assets into the national grid.

### 4.2 Intermittency, Grid Congestion and Flexibility

Integrating intermittent renewable energy sources such as wind and solar power into Portugal's

national grid presents challenges, particularly in managing potential grid congestion. To address these issues, Portugal employs a multifaceted strategy that includes advanced grid management techniques, infrastructure investments, curtailment systems, flexibility contracts, and off-grid solutions. The national grid operator, REN, is pivotal in ensuring the grid can accommodate the variable outputs of renewable energy, utilising forecasting and real-time monitoring to anticipate and respond to fluctuations in supply.

Portugal's curtailment approach features both voluntary and forced measures. Voluntary curtailment involves renewable energy producers reducing their output based on market signals or directives from the grid operator to prevent overloads or manage excess supply. Forced curtailment occurs when the grid cannot absorb the produced energy, necessitating mandatory reductions to maintain stability and prevent damage. This dual approach helps to ensure the grid remains reliable and effective despite the variable nature of renewable energy generation.

Flexibility and demand-side management are critical components of Portugal's strategy for enhancing grid stability. Standard flexibility contracts enable producers and consumers to adjust their operations based on grid conditions, with compensation provided for such adjustments. Demand-side management programmes encourage consumers to alter their energy usage patterns to relieve grid pressure. Additionally, off-grid solutions such as local microgrids and energy storage systems help manage renewable energy supply in remote areas, further supporting the integration of renewables and enhancing energy access. Overall, these comprehensive measures contribute to Portugal's sustainability and energy resilience goals.

## 4.3 Gas

In Portugal, the transportation and storage sector for renewable gases (such as biogas and green gas) is vital for integrating sustainable energy solutions into the national energy system. This sector operates within a structured market that includes key stakeholders, such as biogas producers, pipeline operators, and utility companies – all of whom collaborate to manage the production, distribution, and utilisation of these gases. The production process involves specialised companies that convert organic waste into usable gas forms through anaerobic digestion and refining.

Transportation of renewable gases occurs via an extensive pipeline network, which connects production sites to end-users and storage facilities. Storage infrastructure, including gas storage tanks and underground sites, plays a critical role in balancing supply and demand by allowing for gas accumulation during low-demand periods and release during peak times. This integration ensures that renewable gases can effectively supplement the national energy grid.

The sector is governed by a comprehensive regulatory framework designed to promote safety and efficiency while facilitating the proper integration of renewable gases. Key regulations include Decree Law No 62/2020, which outlines the organisation of the National Gas System. The regulations ensure compatibility between renewable gases and traditional natural gas, maintaining safety and operational standards through continuous monitoring and reporting of gas quality.

## 4.4 Heat

In Portugal, the sector for the transportation and storage of heat from renewable sources is characterized by a well-structured market that

integrates various technologies and systems to enhance energy efficiency and sustainability. The market primarily focuses on district heating systems, which distribute heat generated from renewable sources (eg, biomass, solar thermal, and waste heat) to residential and commercial consumers. This sector plays a crucial role in reducing carbon emissions and improving energy security by utilising local resources to meet heating demands.

Key parties involved in this sector include heat producers, district heating operators, and consumers.

The operation of heat grids in Portugal is organised and regulated under specific frameworks that promote efficient and sustainable practices. The regulatory framework includes RED II and national laws that establish guidelines for the integration of renewable heat into the energy system. Operators must adhere to standards for system efficiency and maintenance, while consumers benefit from incentives to connect to renewable heat networks. Continuous monitoring and evaluation of system performance ensure compliance with regulations, contributing to the overall sustainability and reliability of heat supply from renewable sources.

## 4.5 Hydrogen and Other Biofuels and Renewables

In Portugal, the sector for the transportation and storage of hydrogen and biofuels represents a crucial element of the country's renewable energy strategy, aimed at reducing carbon emissions and enhancing sustainability. This sector encompasses the production, transportation, and storage of these renewable energy sources, which are integral to Portugal's energy transition.

Key players in this sector include producers of hydrogen and biofuels, who operate production facilities and refining plants. Transportation operators are responsible for the infrastructure necessary to deliver these renewable fuels to their destinations, which includes pipelines for hydrogen and distribution networks for biofuels. Storage facility managers handle the storage of hydrogen and biofuels, ensuring that there is adequate capacity to manage supply-and-demand fluctuations and to support the reliability of the energy system. In Portugal, key players in hydrogen production include EDP (*Energias de Portugal*) and Galp Energia, both focusing on green hydrogen projects. The transportation of hydrogen is managed by REN, which integrates renewable energy sources into the grid, along with logistics companies handling biofuels and hydrogen transport.

The assets involved in this sector are diverse and critical. They include hydrogen production facilities, biofuel refineries, pipelines designed for hydrogen transport, and storage tanks. The infrastructure for hydrogen also includes technologies for compression and liquefaction, while biofuel infrastructure features blending facilities and distribution networks.

Portugal's regulatory framework for hydrogen and biofuels is comprehensive, ensuring that production, transportation, and storage are conducted safely and efficiently. Some of the relevant legislation has already been mentioned in **3.4 Hydrogen and Other Biofuels and Renewables**.

The operation of hydrogen grids and infrastructure for transporting renewable energy in Portugal is carefully regulated to ensure effective integration into the national energy system. Hydrogen infrastructure regulations address

safety and operational standards for hydrogen pipelines and refuelling stations, whereas biofuel transportation is managed through dedicated pipelines and blending facilities.

## 5. Trade and Supply

### 5.1 Electricity

The Portuguese market for trading and supplying renewable electricity is well-structured and regulated to promote fair competition, transparency, and consumer protection. The market consists of several key players, including renewable energy producers who generate electricity from various renewable sources, electricity suppliers who purchase this energy and provide it to end users, and DSOs that facilitate the distribution of electricity to consumers. End consumers, including residential, commercial, and industrial customers, have the flexibility to choose their electricity suppliers and contract terms.

Prominent electricity suppliers in Portugal include EDP Comercial, the largest supplier, along with Galp, Endesa, and Iberdrola, which offer renewable electricity options. Regulatory authorities, such as the DGEg, and the ERSE, oversee the market to ensure compliance and fairness. The electricity market operator, *OMI-Polo Español* (OMIE), manages the wholesale market for the Iberian Peninsula, facilitating transactions between producers and suppliers. Standard contracts in the market include residential and commercial supply contracts, green tariffs ensuring renewable energy supply, as well as wholesale contracts and Power Purchase Agreements (PPAs) between producers and buyers.

The regulatory framework is led by the ERSE, which sets rules for market operations, pricing,

and consumer rights, ensuring that the market remains competitive and transparent. The liberalisation of the market allows consumers to select their electricity suppliers, enhancing competition and choice. Tariff regulations ensure fair pricing, while consumer rights protections guarantee transparent billing and the ability to switch suppliers. Additionally, a green energy certification scheme verifies the origin of renewable electricity, ensuring credibility in the renewable energy trade. EU regulations, such as the Renewable Energy Directive and the Electricity Market Regulation, further support Portugal's commitment to sustainable energy practices.

## 5.2 Gas

In Portugal, the market for the trade and supply of gas from renewable sources (such as biogas and green gas) is a vital segment of the country's energy landscape. This market is designed to facilitate the distribution of renewable gases to various end users, including residential, commercial, and industrial consumers, and plays a significant role in supporting the nation's energy transition towards more sustainable sources.

The structure of this market involves several key components. Renewable gases are produced primarily through biogas plants and gas upgrading facilities that convert organic waste and other renewable inputs into usable gas forms. Once produced, this gas is transported and supplied through an extensive network of pipelines and distribution systems that connect production sites to consumers. The infrastructure for transporting and distributing renewable gas is managed by specialised companies that ensure the efficient movement of gas from the production phase to the end users.

In the sector, key players include the gas producers who operate the facilities generating

renewable gases, the transport and distribution companies responsible for the pipeline infrastructure, and the suppliers who handle the sale and delivery of gas to final consumers. These suppliers manage customer relationships and ensure that gas is delivered in accordance with agreed terms.

Standard contracts within this market typically address several important aspects, including the quality of the gas, the terms of supply agreements, pricing structures, and delivery conditions. These contracts are crucial for defining the responsibilities and expectations of all parties involved, including producers, suppliers, and consumers, thereby ensuring clarity and enforceability in gas supply arrangements.

Regarding the regulatory framework governing the trade and supply of renewable gas from renewable sources in Portugal, please see the aforementioned regulations and certificates.

## 5.3 Heat

In Portugal, the market for the trade and supply of heat from renewable sources is an integral part of the country's energy strategy, focusing on improving sustainability and reducing carbon emissions. This sector encompasses the generation, distribution and supply of renewable heat to end users, including residential, commercial, and industrial consumers.

The market is structured around the production of renewable heat from various sources, such as biomass, solar thermal systems, and geothermal energy. Biomass facilities generate heat through the combustion of organic materials, whereas solar thermal systems capture and convert solar energy into heat. Geothermal energy is harnessed from the Earth's internal heat. This renewable heat is then transported through dis-

district heating networks, which consist of a series of insulated pipes that deliver hot water or steam from production sites to consumers.

Key players in this market include heat producers, who operate the facilities generating renewable heat, and network operators, who manage the district heating infrastructure. Utility companies also play a role by purchasing and distributing the heat to end users, as well as managing customer relationships and billing.

Regarding the regulatory framework governing the trade and supply of heat from renewable sources in Portugal, please see the aforementioned regulations and certificates.

## 5.4 Hydrogen and Other Biofuels and Renewables

In Portugal, the market for the trade and supply of hydrogen, biofuels, and other renewable energy types is an emerging and dynamic sector aimed at supporting the country's transition to sustainable energy sources. This market involves the production, distribution, and sale of these renewable energy forms to end users, including residential, commercial, and industrial consumers.

Key players in this market include the following.

- Producers – entities that operate facilities for producing hydrogen and biofuels. These facilities are responsible for converting raw materials into usable forms of energy.
- Transport and distribution companies – organisations managing the infrastructure needed for transporting and distributing hydrogen and biofuels. This includes pipelines for hydrogen and distribution networks for biofuels.

- Suppliers and utilities – companies that purchase renewable energy from producers and handle its sale to end users. They manage customer interactions, billing, and service delivery.

Standard contracts in this sector typically address the quality, supply terms, pricing, and delivery conditions of renewable energy. These contracts are designed to ensure clear and enforceable agreements between producers, suppliers, and consumers, defining each party's responsibilities and rights.

In summary, the market for hydrogen and biofuels in Portugal is structured to support the efficient production, transportation, and delivery of these renewable energy sources. This structure is underpinned by a robust regulatory framework that ensures safety, quality, and environmental compliance, contributing to Portugal's broader goals of transitioning to sustainable energy.

## 5.5 Renewable Energy Certificates and (Corporate) Power Purchase Agreements

The market for renewable energy certificates (RECs) (*Certificados de Atributo de Energia*) in Portugal is designed to facilitate the trading and certification of electricity generated from renewable sources. These certificates, known as Guarantees of Origin (GOs), provide proof that a specific amount of electricity has been produced from renewable energy sources and are essential for compliance with renewable energy obligations and trading.

As for the market structure, the REC market in Portugal operates within the EU framework, where GOs are used to track and verify renewable energy production. The market is managed by the national grid operator, REN, and integrates with the broader EU system through



the Association of Issuing Bodies (AIB), which ensures the harmonisation and exchange of GOs across member states.

The key parties involved are:

- renewable energy producers – entities that generate electricity from renewable sources and issue GOs;
- energy suppliers and traders – companies that buy and sell GOs to meet regulatory obligations or enhance their green credentials; and
- regulatory authorities – agencies such as the APA or the DGEg, oversee the issuance and verification of GOs and ensure compliance with national and EU regulations.

As regards standard contracts, although specific standard contracts for GOs are not as commonly used as those in other markets, transactions typically involve agreements outlining the sale and transfer of GOs between producers and buyers.

In terms of applicable rules and regulations, the issuance and trade of GOs are governed by national regulations, including the legal framework laid down in Decree Law 141/2010, as amended by Decree Law 60/2020. These regulations establish the rules for the certification, trading and reporting of renewable energy.

As of 2024, the corporate PPA market in Portugal is experiencing significant growth, driven by an increasing demand for renewable energy from corporations seeking to enhance sustainability and reduce carbon footprints. Businesses across various sectors, including technology and manufacturing, are entering into long-term contracts to secure stable electricity prices while ensuring their energy comes from renewable

sources, often certified by GOs. These agreements typically span several years, providing financial certainty both for renewable energy producers and corporate buyers.

Regulatory support and government initiatives have further fostered the PPA market, creating a favourable environment for renewable energy development. The liberalisation of the electricity market, alongside increasing investment in green finance and sustainable projects, has enabled companies to align their energy procurement strategies with their ESG objectives. Overall, the PPA market in Portugal is poised for continued expansion, contributing to the country's commitment to increasing renewable energy usage and reducing greenhouse gas emissions.

## 6. Renewable Energy Projects

### 6.1 Onshore Project Development

As for the maturity of the market and the size of the projects, the Portuguese onshore renewable energy market is well-developed, particularly in wind and solar power. Portugal has been a leader in renewable energy adoption, with most of its energy produced from renewable energies. Portugal has wind farms commonly exceeding 100 MW and solar farms ranging from small installations to large-scale projects over 50 MW. The country's commitment to renewable energy is evident in its national energy strategy – specifically, with PNEC 2030.

Legal considerations for onshore renewable energy projects encompass land acquisition – typically involving leasing agreements with private landowners, with land use needing to be compatible with local zoning laws. Projects must obtain several permits, including environmental

licences from the APA and construction permits from local authorities.

Key rules and regulations governing onshore renewable energy projects in Portugal include the environmental impact assessment regulations for large projects to ensure that environmental and social impacts are assessed and mitigated. Production and operational permits are necessary to ensure that projects meet safety and technical standards; these permits are issued by the DGEG.

Securing a location and obtaining the necessary permits in Portugal typically involves developers negotiating directly with landowners and local authorities to secure project sites and necessary approvals. The permitting process involves multiple stages, including site assessment, environmental impact assessments, public consultations, and final approvals from the APA or the DGEG.

As for standards for onshore contracting, engineering, procurement and construction (EPC) contracts are crucial for ensuring projects are built to standard and within timelines, and typically include performance guarantees and penalties for non-compliance. Operations and maintenance (O&M) contracts cover the long-term operation and maintenance of the project, ensuring that the facility operates efficiently and effectively. These contracts often include regular maintenance schedules, emergency repair protocols, and performance monitoring.

Finally, as for government involvement and community participation, the Portuguese government supports renewable energy through policies and incentives, such as tax incentives. PNEC 2030 outlines ambitious targets for renewable energy expansion. Also, engaging local communities is

a key aspect of project development, including conducting public consultations, implementing benefit-sharing mechanisms, and ensuring local employment opportunities. This way, community participation helps build support and ensures that the projects bring tangible benefits to the local population.

## 6.2 Offshore Project Development

Portugal's offshore renewable energy market, particularly in offshore wind, is emerging with significant potential. Although the market is not as mature as the onshore sector, several pilot projects and plans for commercial-scale developments are underway. Notable projects include the WindFloat Atlantic, a floating offshore wind farm that demonstrates the feasibility and potential of floating wind technology off the Portuguese coast. The Portuguese government has set ambitious goals to expand offshore wind capacity, reflecting a strong commitment to this sector.

Legal considerations for offshore renewable energy projects in Portugal include securing maritime space, which is typically regulated by national maritime spatial plans. Developers must obtain several permits, including environmental licences from the APA, as well as production and operational permits from the DGEG.

The Portuguese government actively supports offshore renewable energy through policies and incentives. PNEC 2030 outlines specific targets for expanding offshore wind capacity. Engaging local communities and stakeholders is essential for project success. This involves conducting public consultations, implementing benefit-sharing mechanisms, and ensuring local employment and economic opportunities.

## 6.3 Project Finance

As for legal risks and considerations, the financing of renewable energy projects in Portugal involves several specific legal risks and considerations distinct from other project-financed assets, as follows.

- Regulatory and permitting risks – renewable energy projects must comply with a complex array of regulations and obtain various permits, which can create uncertainties. Delays or changes in permitting requirements or environmental regulations may affect project timelines and costs. In Portugal, this includes obtaining environmental licences from the APA and construction permits from local authorities. Ensuring that all regulatory approvals are in place before financing is crucial to mitigate these risks.
- Revenue and contractual risks – renewable energy projects typically rely on long-term PPAs or feed-in tariffs to secure revenue. The stability and creditworthiness of these agreements are vital for securing financing. Legal risks include the potential for changes in government policies affecting tariffs or subsidies, which could impact project cash flows. The stability of the PPA and its terms must be carefully negotiated and vetted to ensure financial viability.
- Land and site rights – securing land or maritime space for renewable energy projects involves legal agreements with landowners or authorities. In offshore projects, this includes negotiating maritime space usage agreements. The risk of disputes over land or site rights can affect financing.

## Rules and Regulations for Financing Renewable Energy Assets

Renewable energy financing in Portugal often involves government incentives and support

mechanisms such as feed-in tariffs, tax credits, or grants.

Renewable energy assets often involve different risk profiles and financial structures as compared to other project-financed assets. Renewable energy projects are typically dependent on long-term revenue contracts and government incentives, whereas other project-financed assets might rely more on commercial revenue streams or asset-backed financing. The legal considerations for renewable energy financing often involve a greater focus on regulatory compliance and the stability of incentive mechanisms.

## 6.4 Subsidies and Incentive Schemes

The following national incentive schemes apply to renewable energy projects in Portugal.

- Feed-in tariffs and PPAs – Portugal offers feed-in tariffs and long-term PPAs for renewable energy projects. These schemes guarantee fixed payments for electricity generated from renewable sources, such as wind and solar, over a set period. The tariff rates are designed to ensure that renewable projects receive stable and predictable revenue, making them more attractive to investors.
- Renewable Energy Certificate Scheme – the REC scheme provides tradable certificates to renewable energy producers. Each certificate represents a specific amount of electricity generated from renewable sources. These certificates can be sold to energy suppliers or other entities that need to meet renewable energy obligations, providing an additional revenue stream for project developers.

At a regional level, the following incentive schemes are aimed at renewable energy projects.

- Regional operational programmes – various regional operational programmes under the EU's funding framework, such as the Regional Programme of Lisbon ("Lisbon 2030") and the North Portugal Programme ("North 2030"), are designed to promote regional development and sustainability by offering grants and co-financing opportunities.
- European Regional Development Fund (ERDF) – the ERDF supports regional development initiatives, including renewable energy projects, across Portugal. Funding is available for projects that contribute to economic development and job creation in less developed regions.

The following tax regimes are aimed at renewable energy projects.

- Corporate income tax (CIT) benefits – companies investing in renewable energy projects can benefit from specific tax regimes under the CIT law. These include deductions for R&D expenses related to renewable energy technologies and investments.
- Exemption from municipal property tax (*Imposto Municipal sobre Imóveis*, or IMI) – in some cases, renewable energy installations may be eligible for reductions in municipal property tax, providing further financial relief.
- Energy taxation benefits – special tax regimes may apply to energy produced from renewable sources, including potential reductions in taxes related to energy production and consumption.

Overall, Portugal's national and regional subsidy and incentive schemes – combined with favourable tax regimes – create a supportive environment for the development of renewable energy projects. These incentives are designed to reduce investment costs, enhance financial

viability, and drive the growth of the renewable energy sector.

## 6.5 Decommissioning Requirements

In Portugal, the cessation of activities for renewable energy installations is governed by specific regulations and guidelines that ensure the responsible handling of facilities at the end of their operational lifetime.

The decommissioning of renewable energy installations is regulated as follows.

- Decommissioning plan – before the end of an installation's operational life, developers are required to prepare a decommissioning plan. This plan must outline the procedures for safely dismantling the infrastructure, managing waste, and restoring the site to its original state or to a condition approved by relevant authorities. The plan must be submitted to and approved by the APA, the DGEg, or other relevant regulatory bodies.
- Financial guarantees – developers must provide financial guarantees or bonds to cover the costs of decommissioning and site restoration. These guarantees ensure that adequate funds are available to cover the decommissioning process, even if the original operators are no longer in a position to fulfil their obligations. The amount and form of these financial guarantees are typically specified in the decommissioning plan and regulatory requirements.
- Regulatory compliance – the decommissioning process must adhere to national regulations. The regulations mandate the safe disposal of materials, management of hazardous substances, and restoration of the site to mitigate any adverse environmental impacts.

The disposal of renewable energy installations is regulated as follows.

- Waste management – the disposal of materials from renewable energy installations, such as wind turbine blades and solar panels, is subject to waste management regulations. These regulations require that waste be handled, treated, and disposed of in an environmentally responsible manner. Specific guidelines for the disposal of materials from renewable energy installations are outlined by the APA and include requirements for recycling and proper treatment of hazardous waste.
- Recycling and circular economy – Portugal encourages the recycling and reuse of materials from decommissioned renewable energy installations. Regulations and guidelines support the development of recycling technologies and facilities to manage these materials effectively.
- Site restoration – after decommissioning, the site must be restored to a condition that is environmentally acceptable and meets local land use requirements. This involves removing any remaining infrastructure, treating contaminated soils if necessary, and ensuring that the land is suitable for future use or development.

Additionally, the decommissioning and disposal processes are monitored and enforced by various governmental agencies, including the APA, the DGEg, and local environmental authorities. These bodies ensure that projects comply with all applicable regulations and that decommissioning activities are carried out safely and in accordance with the approved plans.

## 7. Outlook

### 7.1 Renewable Energy Policy Developments

#### Renewable Energy Targets and Ambitions

- PNEC 2030 – PNEC 2030 outlines ambitious targets for the expansion of renewable energy. The plan aims to achieve 80% of electricity consumption from renewable sources by 2030. This includes a significant increase in wind and solar power capacity, with a focus on offshore wind development.
- Offshore wind expansion – Portugal is prioritising the development of offshore wind projects as part of its energy transition strategy. The country has set targets to significantly increase offshore wind capacity, with several floating wind farms planned for deployment in the coming years. This aligns with the broader EU strategy to boost offshore wind energy across member states.
- Hydrogen strategy – Portugal is developing a Hydrogen Strategy to promote the use of green hydrogen as a key component of its energy mix. The strategy focuses on producing hydrogen from renewable energy sources and integrating it into various sectors, including transport and industry. This initiative aims to position Portugal as a leader in hydrogen technology and innovation.
- Energy efficiency and decarbonisation – the Portuguese government is committed to improving energy efficiency and reducing carbon emissions across various sectors. This includes enhancing energy efficiency in buildings, industry and transport, as well as increasing the adoption of electric vehicles and sustainable mobility solutions.

#### Future Points of Attention

- Regulatory framework adaptations – as the renewable energy landscape evolves, regula-

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- tory frameworks are expected to adapt to address new challenges and opportunities. This may include updates to permitting processes, integration of new technologies, and adjustments to financial support mechanisms.
- Integration of renewable energy – with the increase in renewable energy capacity, managing the integration of variable renewable sources into the grid will be crucial. Investments in grid infrastructure, energy storage solutions, and smart grid technologies will be essential to ensure reliable and stable energy supply.
  - Renewable energy auctions – include auction for the centralised purchase of biomethane and hydrogen (already launched), storage auction (to be launched in September 2024) and offshore wind auction.
  - European Union Influence – Portugal's renewable energy policy is also influenced by broader EU targets and initiatives. This includes alignment with the EU's Green Deal and Fit for 55 package, which aim to reduce greenhouse gas emissions and promote sustainable energy practices across Europe.



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