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AT A GLANCE: SOLAR AUCTIONS IN PORTUGAL AND SPAIN

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OVERVIEW

Portugal and Spain are strongly committed to the decarbonization goals set by the Paris Agreement. After a significative downtime, mainly due to the 2008-2012 economic crisis, there have been significant changes in recent years with strategy refocusing on the development of solar energy comes along, as both countries have two of the highest solar irradiation levels in Europe.

This is a market with high growth potential where, until the end of 2030, Portugal intends on reaching 9 GW of solar photovoltaic ("**PV**") installed capacity, and Spain has set the objective of reaching 37 GW, against a current installed capacity of, respectively, 1,030 MW and 11,547 MW.

In this article, we have looked into how both countries are addressing the challenges arising of how to combine limited the low availability of network capacity with a high demand from market players. Both countries have launched public tenders for PV capacity and to these challenges have added a political priority of reducing tariffs to final costumers.

THE IBERIAN AUCTION EXPERIENCES

The Portuguese National Plan for Energy and Climate 2030 ("**PNEC 2030**") established a set of ambitious goals for renewable energy to be met until 2030. According to this plan, renewable energies should represent 47% of national electricity consumption in 2030, with an increase in installed capacity up to 28.8 GW. Particularly in solar, there has been a significant reduction of costs associated with PV technology since 2017 which, alongside with the high level of predictability of solar resources, has led to an increase of the number of requests for energy production licenses in Portugal. Such demand proved to be higher than the installed capacity of the Public Grid ("**RESP**").

To deal with a reduced grid capacity, in 2019 the Portuguese Government changed the legal framework of the electricity sector reviewing the whole procedure for allocating power generation licenses. The licensing process was reversed, requiring the promoter to request the granting of a grid capacity title ("**RESP Title**") before applying for a power plant production license. Under the 2019 regulatory framework, the RESP Title can be obtained: (i) by request directly to the Portuguese Energy Directorate ("**DGEG**") if there is any available network capacity; (ii) by entering into a capacity agreement with the grid operator if there is no available network capacity, where the promoter bears the costs of the grid capacity extension; or (iii) by award in an auction organized by DGEG, where the title is granted after a tendering procedure for the allocation of reserve capacity.

The first Portuguese auction under this new regime, in August 2019, awarded 1150 MW, distributed by 22 projects. Bids were submitted by two different pricing schemes: the guaranteed remuneration tariff where the average result has been of €22,22 p/MWh; and the market scheme, with an average tariff offered of €18.36 p/MWh. This auction was a huge success, with demand outstripping nine times the supply and the lowest ever solar power electricity price bid of €14.8 p/MW. A total of 64 companies participated, including major players in the energy sector, such as EDPR, Galp, Iberdrola, Voltalia, EDF and

Finerge. By country, Spain was the big winner country of the auction with the largest lot awarded to JB Capital Markets, with 110 MW. Iberdrola won five lots, corresponding to 149 MW, and Solaria won four lots, with 49 MW.

A subsequent auction of 700 MW held in August 2020 awarded 670 MW composed of 12 lots in Alentejo and Algarve, with an average bid of €0.020/kWh. A total of 35 bidders participated, with demand once again largely outstripping the offer. The big winner was the South Korea's company Hanwha Q-Cells, awarded with 315 MW, while Tag Energy obtained 20 MW. Iberdrola and Endesa gained 69 MW and 99 MW respectively. This second auction was perceived by the Portuguese Government as an even greater success than the one of 2019, with a gain of about 833 thousand Euros for each MW awarded, an increase of about 80% compared with 2019. The Portuguese Government came into this auction expecting to obtain 33.5 thousand euros per MWh, but the winners ended up paying to 37.1 thousand euros per MWh to the system. Also, the World record for the lowest output price was broken once again with a bid of €0.0112/kWh.

In Spain, the development of solar energy started earlier. At the beginning of the new millennium, the country started stimulating the solar energy market with attractive remuneration schemes and subsidies which led to its early development. In 2008, Spain had 2,718 MW of installed solar capacity but the outbreak of the financial crisis, an unexpected increase of PV installations, and the Spanish Government move to contain costs by reducing the sector's subsidies lead to a severe market contraction. In 2009, requests for injection were in the reduced number of 44 MW.

The turning point came with the Paris Agreement and with Spain's national action plans to meet new decarbonizations goals. Economic conditions allowed the decline of the PV technology implementation costs, boosting investment in this segment of the energy market, and, as in Portugal, resulting in an increase of requests for energy production licenses exceeding the available grid reception capacity.

Spain launched its first 700 MW renewable energy auction in January 2016 exclusively for wind and biomass technology. In May 2017, a new bigger auction was held: 3,000 MW were awarded. In both Forestalia took the biggest share, with in excess of 1,500 MW of wind and biomass capacity in Aragón.

In the second auction of 2017 (which also comprised solar), 5,037 MW were granted to 40 different companies. The largest share was granted to the Spanish industrial group ACS with 1.55 GW of assigned projects, followed by X-Elio (455 MW), Endesa (338 MW), Forestalia (316 MW), Gas Natural Fenosa (250 MW) and Solaria Energía (250 MW).

In 2020, Spain announced ambitious targets for the development of renewable energy under its proposed Integrated National Energy and Climate Plan ("**PNIEC**") 2021-2030, which comprises the installation of around 5,000 MW of new renewable energy capacity per year over the next decade. To achieve these goals and increase competitiveness process, a new remuneration scheme for renewable energy facilities was established through the New Economic Regime for Renewable Energy ("**REER**") setting up a long-term guaranteed remuneration price for awarded bidders in an auction.

On January 26, 2021, Spain held the first auction of installed power capacity under the REER, where 84 companies offered bids, and represented a total of 9,700 MW of capacity. There were 32 winning bids, representing a total of 3,034MW of energy capacity awarded: 2,036 MW of solar PV and 998 MW of wind energy. The average price for solar was set at 0.02447/kWh and the lowest bid at €0.01498. The most successful bidder has been X-Elio Energy with 315 MW of PV capacity, followed by Iberdrola subsidiary Iberenova Promociones (243 MW) and Spanish utility Naturgy (196 MW).

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DIFFERENT APPROACHES TO AUCTIONS

In its auction procedures, Portugal had more restrictive approach than Spain, as only new PV installations were allowed to participate, while in Spain new facilities and enlargements or modifications of existing facilities were eligible.

The application process in Portugal is very simple. Promoters sign up their application through an online platform and provided basic information regarding their company and their bidding capacity intentions. In Spain, it there is more bureaucracy. First, promoters have to be pre-qualified, by submitting a high detailed set of documentation regarding their commercial information electronically. After being pre-qualified, bidders are entitled to participate in the auction for a certain power previous declared. In both countries, promoters must provide a bid bond: 10,000€ p/MW in Portugal and 60,000€ p/MW in Spain.

In the Portuguese bidding stage, promoters submit several bids through an online platform, applying for one of the following remuneration schemes already mentioned above: (i) market scheme without storage where promoters bid for a contribution to be paid to the National Electrical System ("**NES**"); (ii) a fixed guaranteed tariff structure for a 15-year period, where the bids expressed a discount to the reference feed; and (iii) a market scheme for plants incorporating a storage system, where the bids expressed a discount to an annual fee. The storage mechanism was a new feature compared to the auction held in 2019. This modality has two advantages: since renewable energy production is intermittent, it is essential to increase this storage capacity in order to obtain energy autonomously. On the other hand, concerning price fluctuations, storage ensures that the price of electricity injected into the grid never exceeds a particular value.

In Spain, the capacity is awarded through a competitive sealed-bid auction whereby the awarded bid corresponds to an awarded price. As such, Producers are bound to sell all their energy at their bidding price, with small adjustments concerning wholesale market pricing. In the last auction, promoters were granted a 12-year offtake agreement that could vary in future auctions between 10 and 15 years. The specific remuneration under the ERRE is obtained from its auction price, the remuneration parameters of the technology, the characteristics of each facility and its participation in the energy market. For the 2021 auction, the remuneration parameters included: a minimum number of annual operating hours; a maximum number of annual operating hours; and market adjustment percentages. This auction offered the possibility for bidders to include energy storage in their offers. Although, no winning bids featured such technology. This can be justified by the fact that the storage market in Spain is currently underdeveloped, limited to pilot projects or research facilities and by the fact that the profitability of this model depends exclusively on market prices.

The Portuguese bidding phase is much more competitive than the Spanish one since promoters are entitled to make several bids competing directly and simultaneously with other promoters, and thus, it is no surprise that output price has been breaking records. The Spanish bidding phase is less competitive among the promoters since promoters are only allowed to make one offer (by closed letter), and without knowing the bid offers of the other promoters. On one hand, prices in Spain may not be as low as in Portugal, but on the other hand, winning an auction in Spain is much more uncertain than in Portugal since promoters have a much lesser active role.

In both countries, operators with an awarded bid must provide a performance bond of 60,000€ p/MW and are subject to a strict schedule and the compliance of certain millstones, starting with obtaining the necessary construction licenses and permits. Failure to comply with these obligations would result in the loss of the bond provided after the awarding. The Spanish auction granted, on average, longer deadlines for the compliance of these obligations.

Summarizing the differences between the two countries in relation to solar auctions:

i. The Spanish auction system allows existing installations to participate, while the Portuguese system only new ones.

ii. The Portuguese auctions contain various types of remuneration, which allow investors to tailor proposals according to the preferable business model, whereas the Spanish system only permits a fixed guaranteed tariff structure. Also, the Portuguese fixed remuneration scheme offers a 15-year period and the Spanish 12-year period only.

iii. The energy storage appears to be more attractive in Portugal than in Spain since the storage bids are granted a capacity payment in exchange for hedging the Portuguese electricity system against high market prices. This capacity payment has been a real advantage for storage bids since the storage system itself was almost free of constraints to operate on the different markets.

iv. The Portuguese bidding phase is more competitive than the Spanish closed offer system, since it allows promoters to make several bids competing directly and simultaneously with other promoters. Even though bid prices in Spain are higher than in Portugal, Portuguese Promoters have a more active role and influence the auction prices.

WHAT NEXT?

To achieve decarbonization goals, promotion of renewable energies is paramount. Given the privileged geography and the investment in solar energy of these two countries, we can only expect that new solar auctions follow this year and in the upcoming years taking into account that the auction system ensures for a number of advantages, namely: (i) limitation of investor's risk (ii) economic efficiency of the winning projects, and (iii) achievement of energy policy goals.

In Portugal, the Government intends to continue to hold solar auctions in the coming years, but there are still no dates for the new solar tenders in 2021. Even so, according to the goals outlined in the PNEC, the country aims to achieve a solar installed capacity of 6,6 GW in 2025, and 9 GW in 2030. In a scenario of strong demand for production licenses and shortage of reception capacity in the grid, auctions will be the main way to meet this demand and to speed investment in new capacity.

The next Portuguese solar auction this year will include floating power plants on reservoirs to circumvent availability of land limitations as well as to reduce costs related to land rights' acquisition.

In parallel, the Portuguese Government has already announced that it will move forward with the first green hydrogen auctions in 2021, which will not be targeted to producers, but to potential and future consumers of green hydrogen. The outline presentation of the green hydrogen auctions will be made public in the first week of April. Auctions for offshore wind energy in Portugal are also expected to be launched in the near future.

As for Spain, the auction schedule appears to be substantially more solid, with the Spanish government committing to launching one auction per year in the next four years: 4,600 MW in 2022; 6,400 MW in 2023; 8,200 MW in 2024; and 10,000 MW in 2025.

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