

Why the Spanish auction results cannot be compared to PPA prices

On Tuesday, 26th of January 2021, Spain celebrated an auction to allocate 3 GW of renewable energy capacity. It finally awarded 2.036 MW of solar PV and 998 MW of onshore wind to 32 companies. Statkraft presents its view of the auction results and its implications for the PPA market going forward.

Renewable energy developers, Spanish and international, are trying to install solar and wind capacity at record time. The reason for this frenzy is twofold. Spanish administrations are saturated amidst an avalanche of permit requests. Waiting times for obtaining the necessary documentation are long and tedious and in 2020 were aggravated even further by the pandemic.

In addition, solar and wind developers know that the earlier they install their projects, the higher their returns will be. With the current flow of solar and wind capacity development, Spain is expected to experience a cannibalisation effect in peak solar hours, and to some extent also in the peak wind hours. This will result in lower prices during certain hours of the day. Therefore, the slogan is, “Rush to the finish line”.

The announcement of the auction in 2020 was welcomed by many solar and wind developers. Being awarded with capacity in the auction could mean being prioritised by the Spanish administration to obtain grid connections as well as environmental and construction permits.

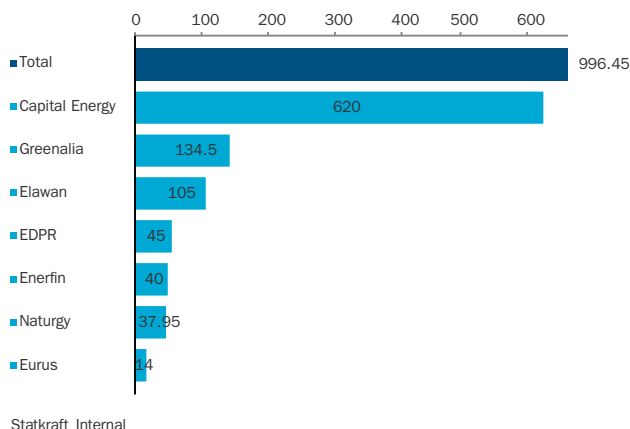


Auction as an instrument for accelerating permitting of solar and wind projects

Companies were incentivised to put forward their best price per unit of electrical energy (€/MWh) in a pay as bid profile for a period up to 10 - 12 years, with the main objective to ensure a swift permitting process. This was underpinned by the fact that the auction awarded several blocks of only 1 kW of capacity. Statkraft believes that the regulation might have inadvertently led to situations whereby companies who win a block offering 1 kW of capacity,

could potentially install a larger capacity solar or wind power plant of e.g. 100 MW per block for which they sell 1 kW of capacity at the auction price and for the rest they can capture additional value by closing a financial PPA at higher market prices. As such, Statkraft believes these “auction winners” might have priority in the permitting for the whole 100 MW but only sell 1 kW of corresponding volume at the auction price.

Awarded Wind capacity, price and companies of the Spanish auction



Company	MW Volume	Min price (€/MWh)	Max price (€/MWh)
Capital Energy	620	23.85	28.6
Greenalia	134.5	28.5	29
Elawan (Orix)	105	23.98	27.98
EDPR	45	24.99	24.99
Enerfin	40	20	20
Naturgy	37.95	28.63	28.63
Eurus	14	26.5	26.5

Lessons from the first auction of the decade

The auction resulted in a weighted average price of 24,47 €/MWh for solar PV and 25,31 €/MWh for onshore wind. Even though solar and wind as produced prices are different than baseload prices, the solar and wind auction prices resulted on average 40% lower than forward price levels for baseload at OMIP on the 26th January 2021.

We celebrate the trend that Spanish solar and wind is becoming even more cost competitive, as this will mean that a larger deployment of renewable technologies is possible. These average prices give us an indication of the potential for power cost reduction for consumers in the long run. They also show, to an extent, the level at which the winning companies see forward market prices for power.

However, it is important to take the auction results with a pinch of salt:

- The auctioned capacity represents less than 3% of Spain's total generation capacity, therefore it is too soon to see

any effect on consumer prices.

- The awarded projects (those that make it) will have to be installed between 2023 and 2024. Average baseload forward prices for 2023-2024 (42,75 €/MWh) are 8% lower than the forward market price level for 2022 (46,55 €/MWh) on the 26th of January 2021 at OMIP.

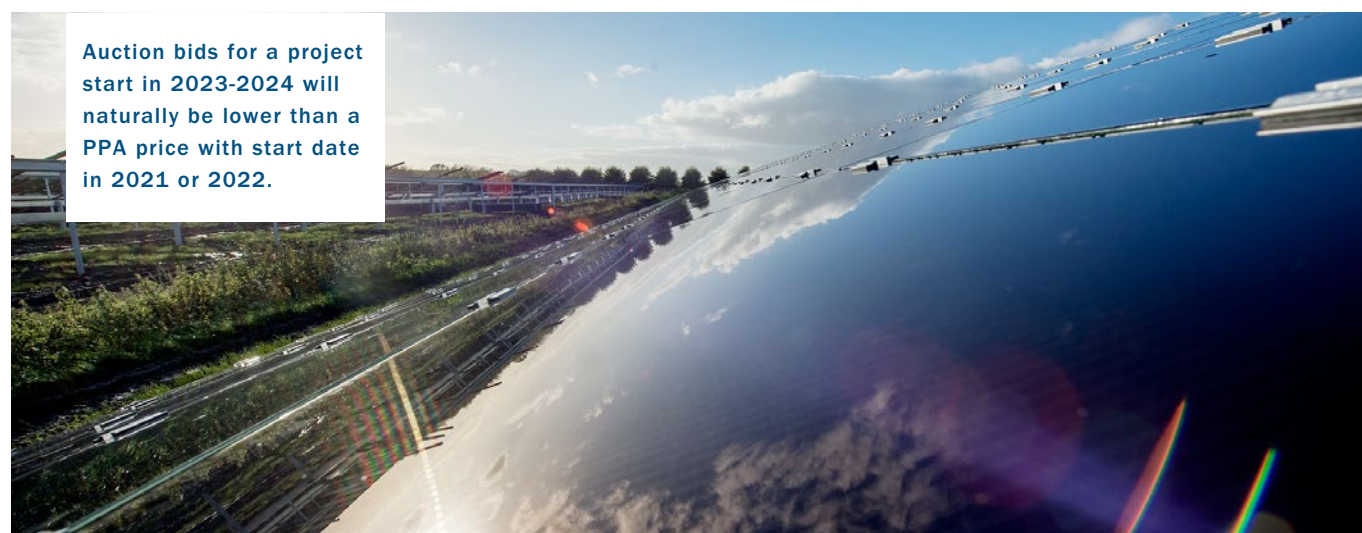
- The lowest auction bids between 15 €/MWh for solar and 20 €/MWh for onshore wind, as shown in the figures from UNEF and Altran, reflect the opportunity cost of installing solar and wind capacity quickly rather than the true costs of the solar and wind technology.

- Developers saw the opportunity to be "the auction winner" and with that attract public visibility and leverage project financing credibility. Some developers see the option to go merchant as very difficult to secure a reasonable financing and do not have the internal capacities to close PPAs,

therefore the auctions might represent their best route to market.

- Developers see auctions as one of the instruments to develop renewable capacity next to private PPAs and unsubsidised merchant projects. This blended portfolio perspective allows them to offer a lower bid at the auction with the intention of maximising returns with private PPAs. Contracted volumes in the auction are lower than contracted volumes in PPAs. Therefore, some auction bidders can be more aggressive relying on more bullish merchant forecasts and/or increasing merchant exposure to compensate lower returns with cash-flows coming from the auction.

- According to a presentation by Deloitte in December 2020 and a publication from Altran from November 2020, the average auction prices correspond to internal rates of return (IRR) of 3-4% in comparison to the standard IRR of PPA projects of 7-8%.



Auction bids for a project start in 2023-2024 will naturally be lower than a PPA price with start date in 2021 or 2022.

The Auction Scheme in competition with Corporate PPAs

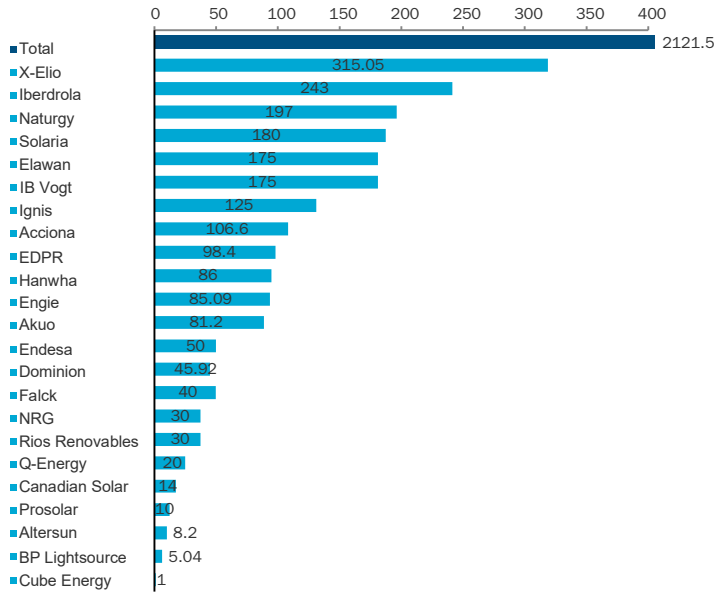
Aurora Energy Research, a leading energy market consultant and forecast provider, explains that without the auctions, the supply of PPAs would significantly outstrip corporate PPA demand. With the auction removing over 19 GW of renewable capacity from the PPA market until 2025, the market will balance itself. This means that as corporates increase their demand for PPAs, PPAs will be priced

at their "fair value" of 32 - 40 €/MWh. They add that PPA prices in Spain are significantly higher than the auction clearing price as they forecast market prices to rise due to higher commodity prices.

Another important consideration is that the auction capacity will reduce the amount of capacity that corporates can claim as "additional".

There will be less projects available for them in the market to claim that thanks to their PPA, new renewable capacity will be connected. The Guarantees of Origin of auction projects will be considered "subsidised" and therefore not exportable. This points out to a competition of corporate PPA projects with auction projects.

Awarded Solar PV capacity, price and companies of the Spanish auction



Company	MW Volume	Min price (€/MWh)	Max price (€/MWh)
X-Elio (KKR / Broofield)	315	19.8	27.8
Iberdrola	243	22.87	25.87
Naturgy	197	23.45	25.58
Solaria	180	27.91	28.05
Elawan (Orix)	175	23.98	27.98
IB Vogt	175	23.94	23.94
Ignis	125	14.98	23.49
Acciona	106	19.44	27.29
EDPR	98	18.99	27.01

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2 Source: UNEF

Way forward for the Corporate PPA market

An auction bid of 25 €/MWh for a plant that will be connected in 2024 and will receive remuneration for 12 years, is not the same as a solar or wind PPA to be closed in 2021 for 10 years. An auction plant that will sell a low volume of its power production at the auction price while looking for capturing additional value with bilateral financial PPAs or at the Day-Ahead and Intra-Day market for the largest part of its volume, cannot be taken as a reference for a PPA price.

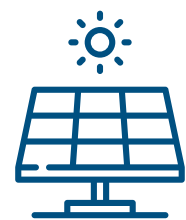
Statkraft, as one of the most active PPA providers and developers of solar and wind assets in Spain, welcomes the competitive prices and the high level of competition in the auction. We consider the awarded prices for solar PV projects and wind projects with COD in February 2023 and 2024 reasonable

considering the auction context. The auction results in Spain also follow the pattern seen in the auction in Portugal where minimum bids of 14,89 €/MWh were linked to returns below the current market level. Additionally, we think that that these prices need to be put into perspective and in the right context in order to better understand how the PPA market will likely develop.

From Statkraft, we want to transmit our perspective to both generators and consumers in order to help optimize their energy management and support the development of renewable energy, with the ultimate goal of advancing climate commitments. For this reason, we encourage companies to contact us to discuss any topic related to renewable energy and its optimization.

The corporate PPA market is partly driven by the technology costs of solar and wind power, but more strongly by market factors such as forward prices, the capture prices of solar and wind in the long-run as well as the risk sharing structure in the PPA in terms of tenors, profiles and credit structures.

Comparing the conditions of renewable plants at the auction to bilateral PPAs, is misleading.



About Statkraft



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Statkraft is a leading company in hydropower internationally and Europe's largest generator of renewable energy. The Group produces hydropower, wind power, solar power, gas-fired power and supplies district heating. Statkraft is a global company in energy market operations. Statkraft has 4000 employees in 17 countries. Since its arrival in the Iberian market in 2018, Statkraft has become an active player in renewable energy growth in both Spain and Portugal.



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