



## Portuguese solar auctions 2020

June 2020

# Executive summary and key thoughts on the upcoming auction

In May 2020, the Government confirmed the parameters for the new auction for solar and storage systems. Compared to the 2019 auction, a new “flexibility option” will be included to provide capacity payments (€/MW/year) to solar plus storage while providing an insurance against price spikes to the system through a one-way CfD

In the 2019 auction, 75% of allocated capacities opted for the “guaranteed remuneration” scheme. Considering the current uncertainty from COVID-19, this scheme is likely to remain a preferred option in this year’s auction

We expect similar levels of competitiveness in this auction compared to last year. This is driven by what we expect will be a highly subscribed process and, as it relates to the “fixed price” modality, the strong appetite for revenue certainty in the current market price environment

The modality for solar plus storage is unlikely to be able to compete with the other remuneration options due to i) high CAPEX costs for storage systems; ii) low benefits for reducing solar price cannibalisation in the short term as solar capacities remain low; and iii) high competitiveness to capture price spreads due to the existing fleet of pumped hydro

Under Aurora’s Central forecast, deployment of subsidised renewables is expected alongside merchant/quasi-merchant projects depending on the risk-return preference of developers. As such, we do not envisage the outcomes of the auction to affect our previous capacity and price projections

# The Portuguese auction held in 2019 secured 1.3 GW of solar capacity at prices as low as 14.8 €/MWh

## Background on the Portuguese auction system

Given the fundamental role of the energy sector in driving decarbonisation, a sustained development of renewables in Portugal is crucial to meet 2030 targets and reach carbon neutrality by 2050

In this context, the Government held the first solar auction in July 2019 which delivered 1.3 GW of solar capacity at prices as low as 14.8 €/MWh

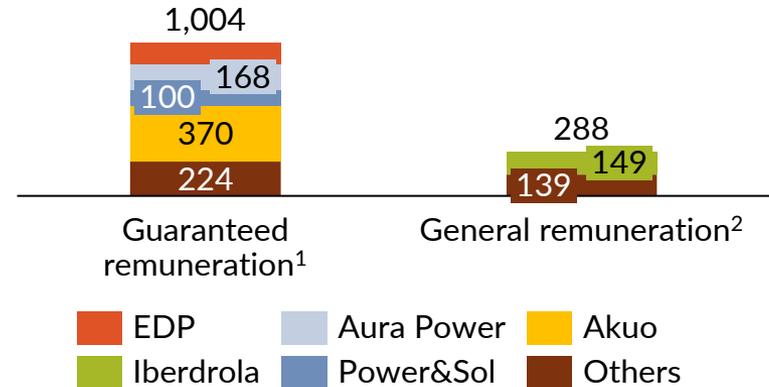
Despite some scepticism about the economic viability of the most aggressive bids of 2019, the results of the auction have been successful at securing renewable capacities at a low cost

Further benefits of this renewables scheme around cost transparency and project developments in optimal grid locations confers significant advantages

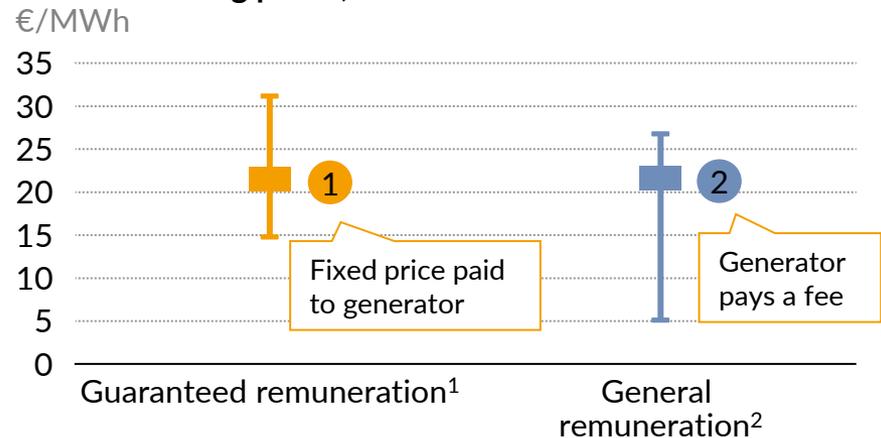
Aurora expects that the Portuguese power system will require around 10 GW of new build wind and solar (which can be merchant based) to meet 2030 renewables targets

## Results of the solar auction in 2019

Contracts awarded under each modality, MW



Auction clearing prices, €/MWh



1. The price of the bid corresponds to a discount (expressed as a %) on the reference price set by the Government. This modality functions as a Feed-in Tariff that guarantees a fixed price (€/MWh) for the electricity generated. 2. The price of the bid corresponds to a compensation value (€/MWh) to the system. Under this modality, generators are exposed to market prices or private contracts but have to pay a fee to the system for the electricity generated

# In May 2020, the Government confirmed the parameters for the new auction for solar and storage systems

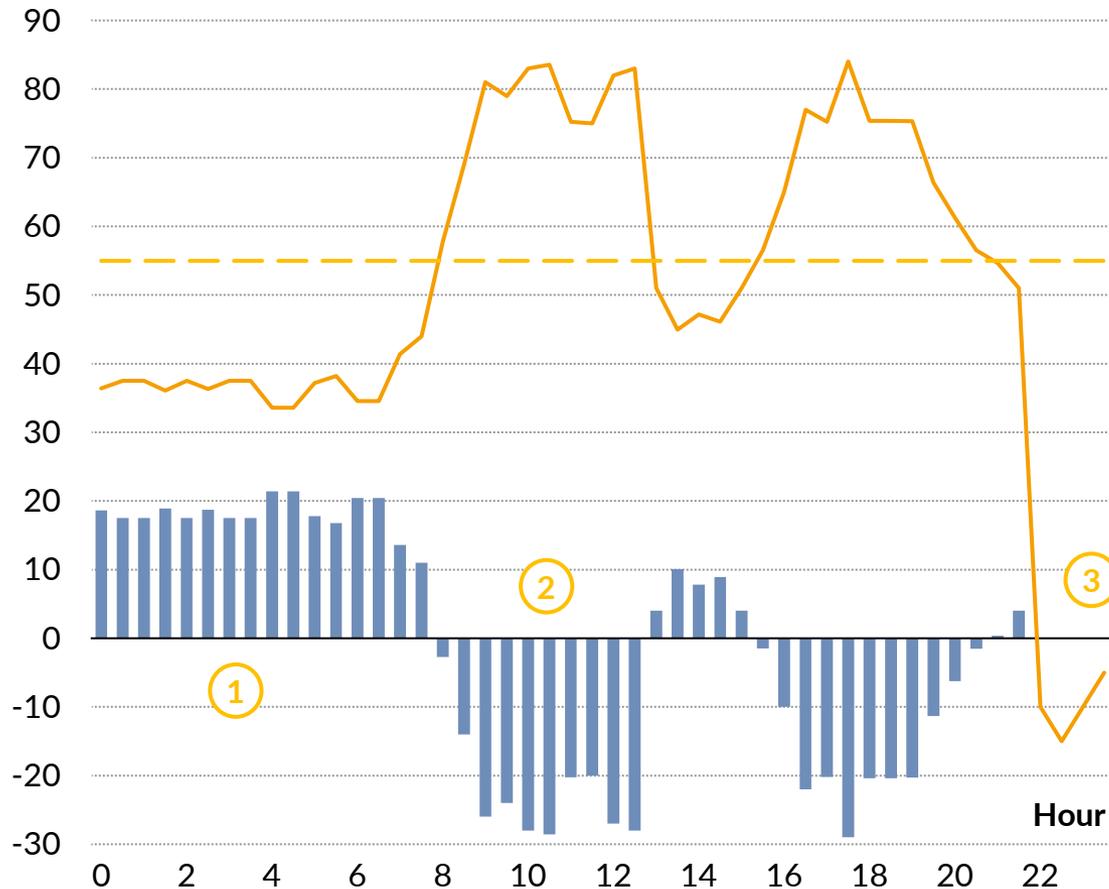
| Key feature                       | 2019   | 2020   |
|-----------------------------------|--|--|
| <b>Auction design</b>             | Ascending clock<br>Pay-as-bid for each capacity slot<br>Bids for capacity and price, converted into NPV  | Ascending clock<br>Pay-as-bid for each capacity slot<br>Bids for capacity and price, converted into NPV  |
| <b>Auctioned capacity</b>         | 1,400 MW divided in 24 slots of 10 - 200 MW  | 700 MW divided in 12 slots of 10 - 109 MW  |
| <b>Location of capacity slots</b> | Alentejo, Algarve, Lisbon, Central Portugal,   | Alentejo and Algarve   |
| <b>Contract duration</b>          | 15 years   | 15 years   |
| <b>Remuneration modalities</b>    | <ol style="list-style-type: none"> <li><b>Guaranteed</b> – Similar to FiT</li> <li><b>General</b> – Payment to the system (in €/MWh) in compensation for selling at market prices</li> </ol> | <ol style="list-style-type: none"> <li><b>Fixed price</b> – Similar to a CfD. Substitutes previous Guaranteed modality</li> <li><b>Fixed contribution to the system</b> – Payment to the system (in €/MW/year). Substitutes previous General modality</li> <li><b>Flexibility option</b> – capacity payment to solar plus storage (in €/MW/year) with a one-way CfD to prevent price spikes<sup>1</sup></li> </ol> |
| <b>Delivery period</b>            | 36 months  | 48 months (42 if no environmental permissions are required)  |
| <b>Administrative fees</b>        | 10 €/kW for the auction procedure<br>60 €/kW for project delivery  | 10 €/kW for the auction procedure<br>60 €/kW for project delivery  |

1. When wholesale prices rise above a strike price based on the marginal cost of a CCGT, the winning bidder must return the difference to the system.

# The new fixed price modality will function as a two-way CfD contract with several key parameters

Variable premium  
in fixed price modality,  
€/MWh, illustrative

— Market price  
- - - Strike price  
■ Support payment

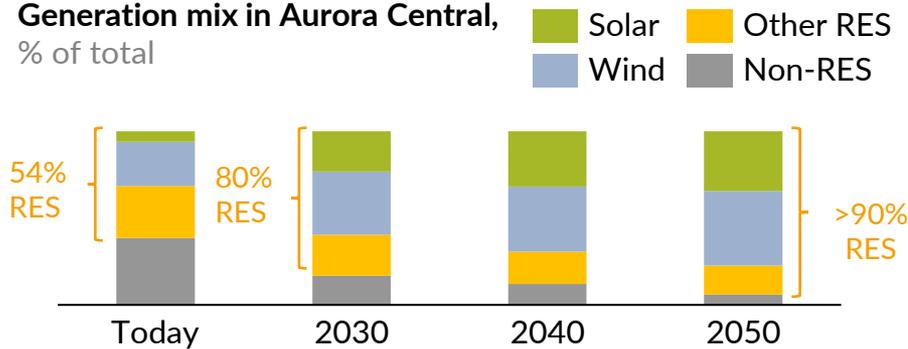


- The new support mechanism will be structured as CfDs, paying generators a positive or negative premium depending on the market price:
  - 1 If the market price for a given settlement period is lower than the generator's strike price, the generator will be paid the difference
  - 2 However if the market price is above the generator's strike price then the generator will have to pay back the difference payment
  - 3 Additionally, if the price falls below zero for any settlement period, the generator does not receive any remuneration

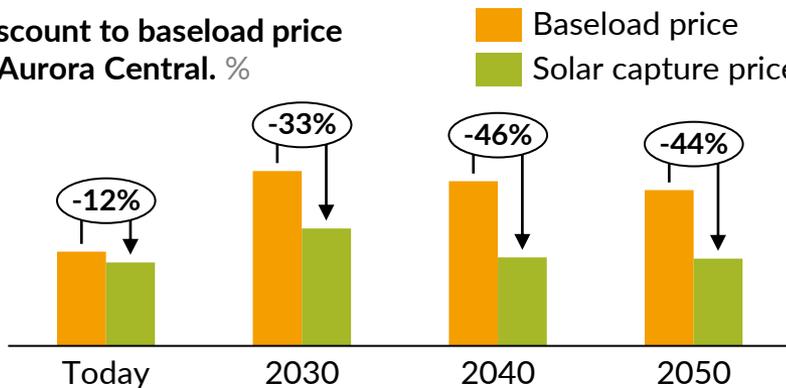
# The new auctions are not expected to result in a change to our forecasted capture prices or the frequency of negative prices

Aurora believes that Government targets can be achieved without the need for subsidies

Generation mix in Aurora Central, % of total



Discount to baseload price in Aurora Central. %

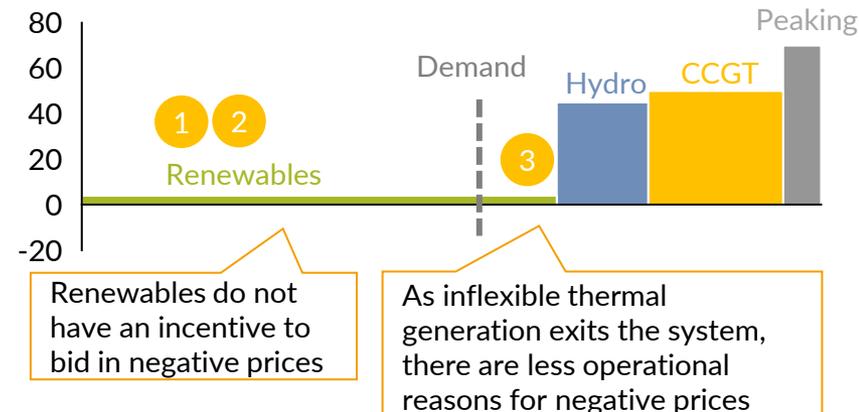


- The entry of subsidised assets will displace merchant or quasi-merchant projects
- However, under Aurora's Central forecast, subsidised assets are unlikely to impose an additional risk on prices

Despite the increase in subsidised capacities, we do not expect this to lead to negative price occurrences

- At the moment, the day-ahead market has a floor price of 0 €/MWh
- While removing this floor price is currently under revision, it is unlikely that this will have a significant impact on prices in Iberia for three key reasons:
  - 1 Renewables in Spain do not receive subsidies based on their generation
  - 2 Fixed price modality in Portugal will not compensate when market prices is negative
  - 3 With the retirement of coal and nuclear in Iberia, there will be less inflexible plants willing to pay to avoid ramp-downs

Energy market bid  
€/MWh, illustrative



# The 2020 auction would be just as competitive as the one in 2019, although COVID-19 could lead to less competitive prices

## Key drivers of auctions

| Key driver                        | 2019  | 2020  | Will factor lead to more/less competitive bids in 2020 auction relative to 2019? <sup>1</sup> |
|-----------------------------------|---|---|---|
| <b>Access to grid</b>             | Key driver of the low clearing prices as securing a contract through the auction is the most effective way to obtain a grid connection            | Remains a key concern for developers who will likely be bidding aggressively for access to the grid   |            |
| <b>Auction participation</b>      | Highly competitive process with 10.2 GW of offers against an auction volume of 1.4 GW   | Likely to be just as competitive as the pipeline of solar assets remains at similar levels  |            |
| <b>Sunk development costs</b>     | Projects that were in an advanced development stage likely considered part of the costs as sunk, lowering their bids                              | Unlikely to be as important as most projects in advanced stages would have already secured a project or have gone ahead with commissioning  |            |
| <b>Merchant tail expectations</b> | High revenue expectations after the 15-year contract can have a significant effect on project profitability with lifetimes of 30 years and beyond | Developers are likely to have similar expectations as 2019 auction  |            |
| <b>IRR expectations</b>           | Expected IRRs from projects were low as investors were looking for safe returns from Government-backed renewables                                 | Investors could continue to seek security from Government-backed subsidies, especially in light of COVID-19. However, COVID-19 could also result in investors requiring higher IRRs |          |
| <b>Speculative bids</b>           | Aggressively low bids suggested that some of these were speculative, and are unlikely to deliver  | Speculative bids are unlikely given that the scheme is now well-established   |          |

1. Up arrow means more competitive prices. Down arrow means less competitive prices.

# We offer a range of support to assist with your bidding decision into the auction

## Typical components of Aurora renewable auction support

1

Policy and regulatory analysis

- Analysis of all relevant legislation, including risks of non delivery
- Implications of potential reforms to 7% clawback tax

2

Bid development and stress-testing

- Forecast of merchant revenues (for “fixed contribution to the system” modality or post subsidy for “fixed price” modality)
- Bid analysis under “flexibility option”, including assessments of battery operations and the probability of occurrence of the strike price for the one-way CfD

3

Interactive competitor analysis tool

- Load factor, generation, CAPEX, OPEX and LCOE
- Project NPV and minimum economic strike price bids
- Ability to test effects of your own assumptions

4

Bid strategy workshop

- Exploration of scenarios for how competitors might bid
- Effects of different assumptions for cost of capital, future power prices (merchant tail), future tech, and of below-cost bidding

For a detailed discussion about the implications on your business, contact [Ana.Barillas@auroraer.com](mailto:Ana.Barillas@auroraer.com)