

Solar Auctions in Europe

Comparing PV tenders across markets

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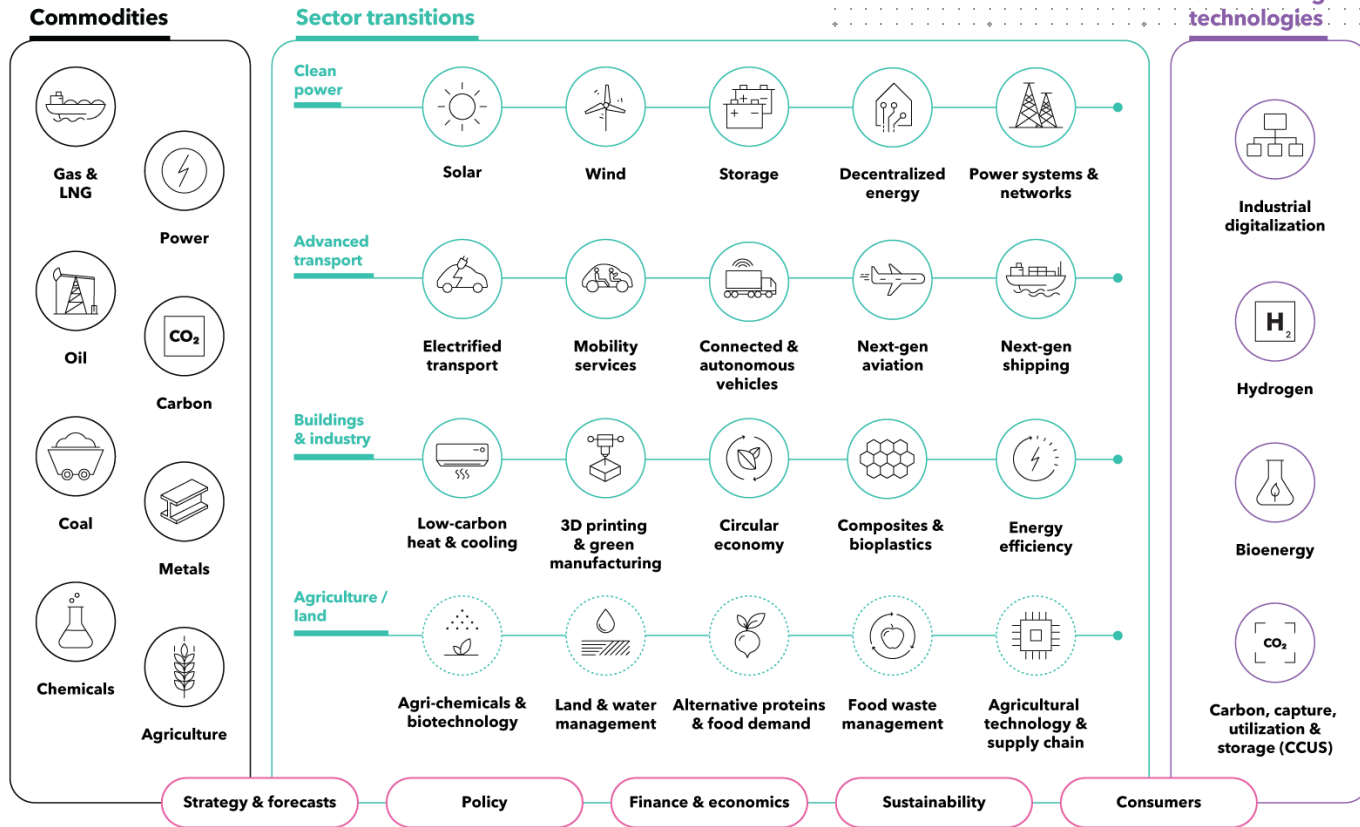
250

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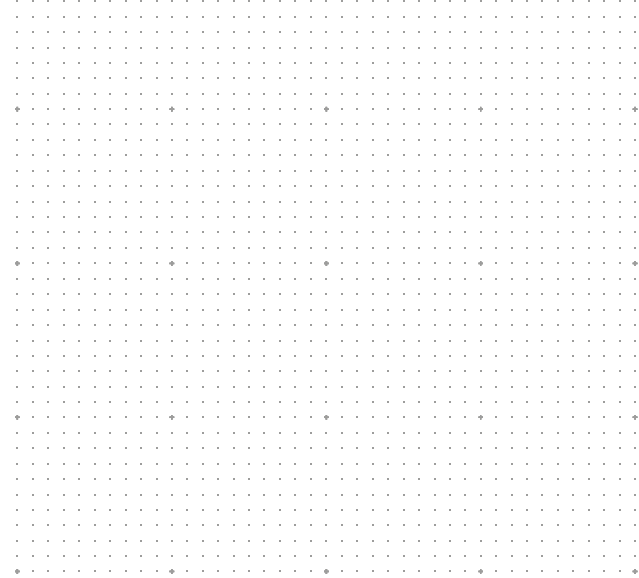
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Strategies for a cleaner, more competitive future



Auction design

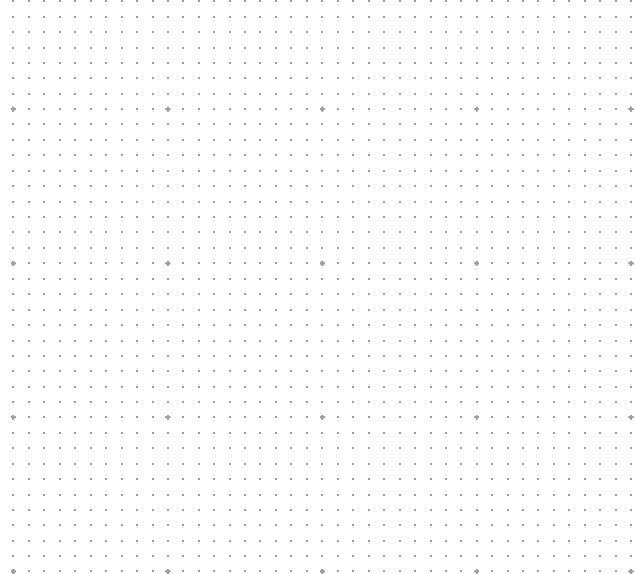


National auction schemes targeting solar vary considerably

Auction scheme	 Spain (REER)	 Netherlands (SDE+)	 U.K. (CfD)	 Italy (FER)		
Policy lifetime	Active: 2021-26	Closed: 2011-20	Active: 2015-35	Active: 2019-22		
Volume awarded to date	3GW	26GW	11GW	3GW		
Round frequency	Every year	Every 6 months	Every two years	Every 3 months		
Contract type	Two-way CfD* (adjusted)	One-way CfD* (adjusted)	Two-way CfD*	Two-way CfD*		
Contract duration	12 years	15 years	15 years	20 years		
Negative price cap	Not applicable**	>6 consecutive hours	>6 consecutive hours	>6 consecutive hours		
Inflation adjusted	No	No	Yes	No		
Technologies	  	    	   	   		
Technology key	 Onshore wind	 Offshore wind	 PV	 Biomass and waste	 Other	 Separate pot

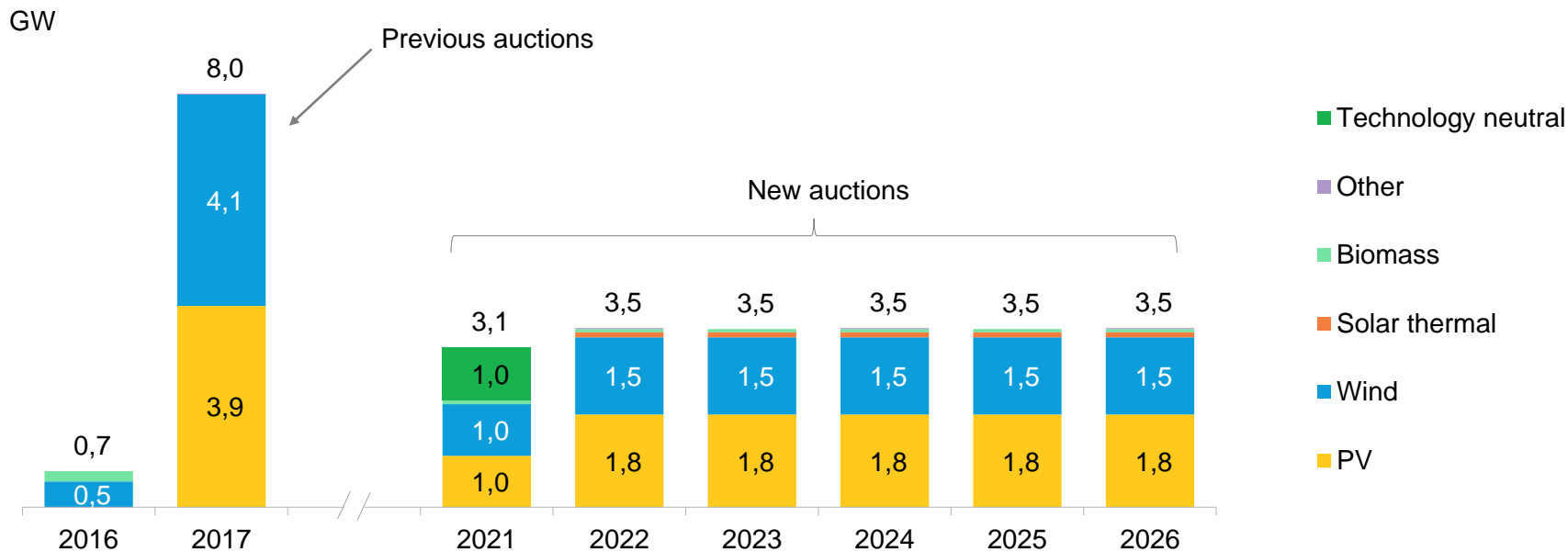
Source: BloombergNEF, Miteco, RVO, BEIS, GSE. Note: CfD to contract for difference.

Spain



Spain's auctions calendar

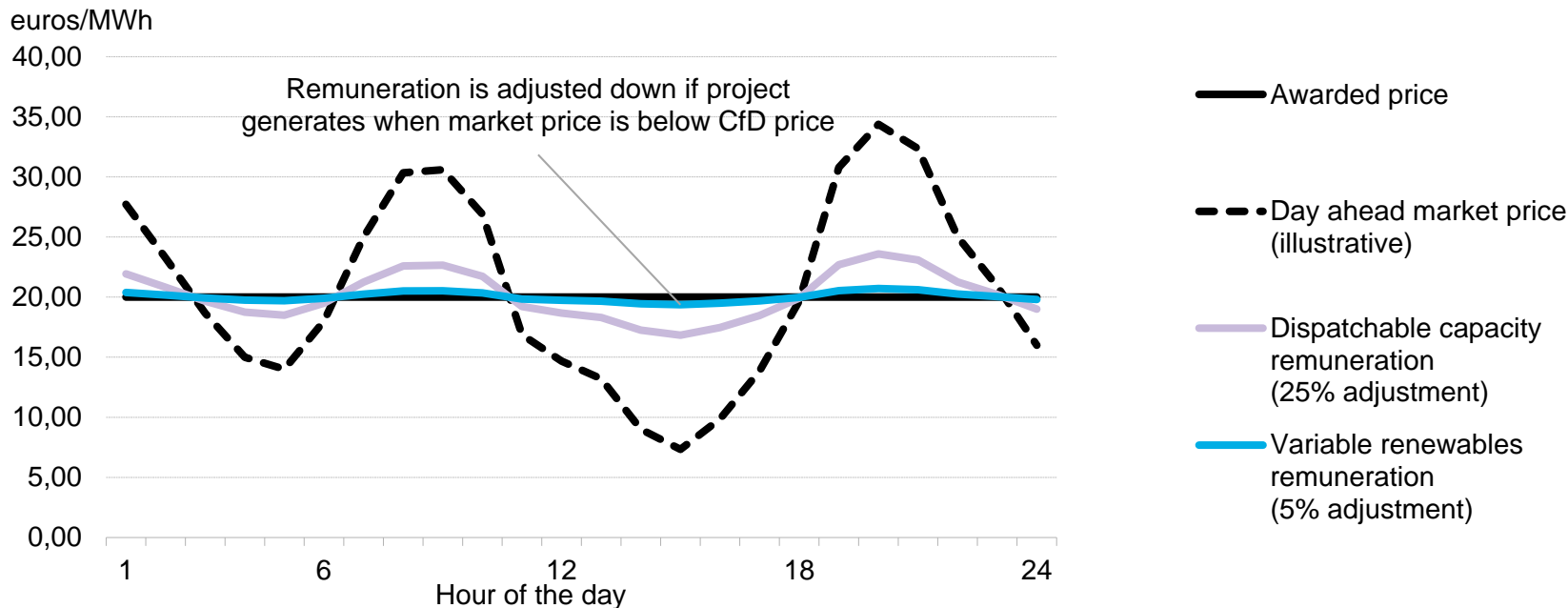
Spain's previous and planned REER auction schedule for new projects, by technology



Source: BloombergNEF, Miteco.

How Spain's REER tariff works

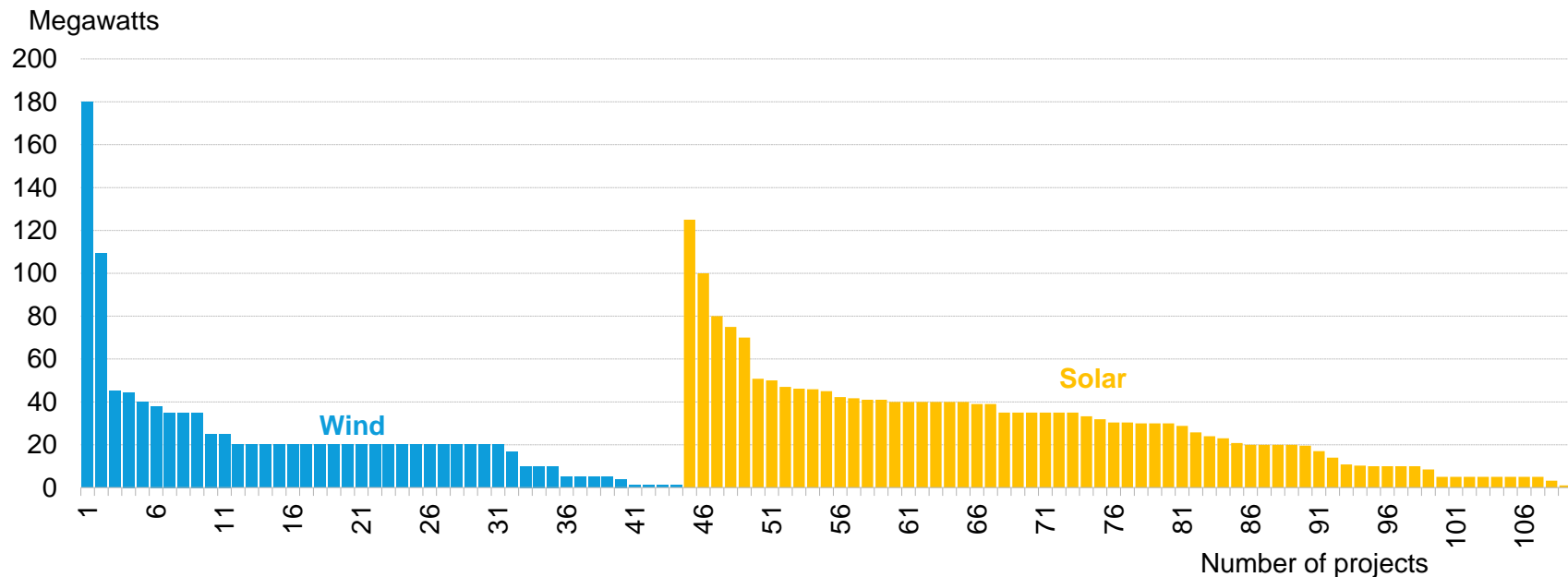
Illustration of the adjustment factor applied to CfDs under Spain's REER auction



Source: BloombergNEF, Miteco. Note: Variable renewables includes wind and PV. Market prices are for illustrative purposes only.

Successful projects are surprisingly small

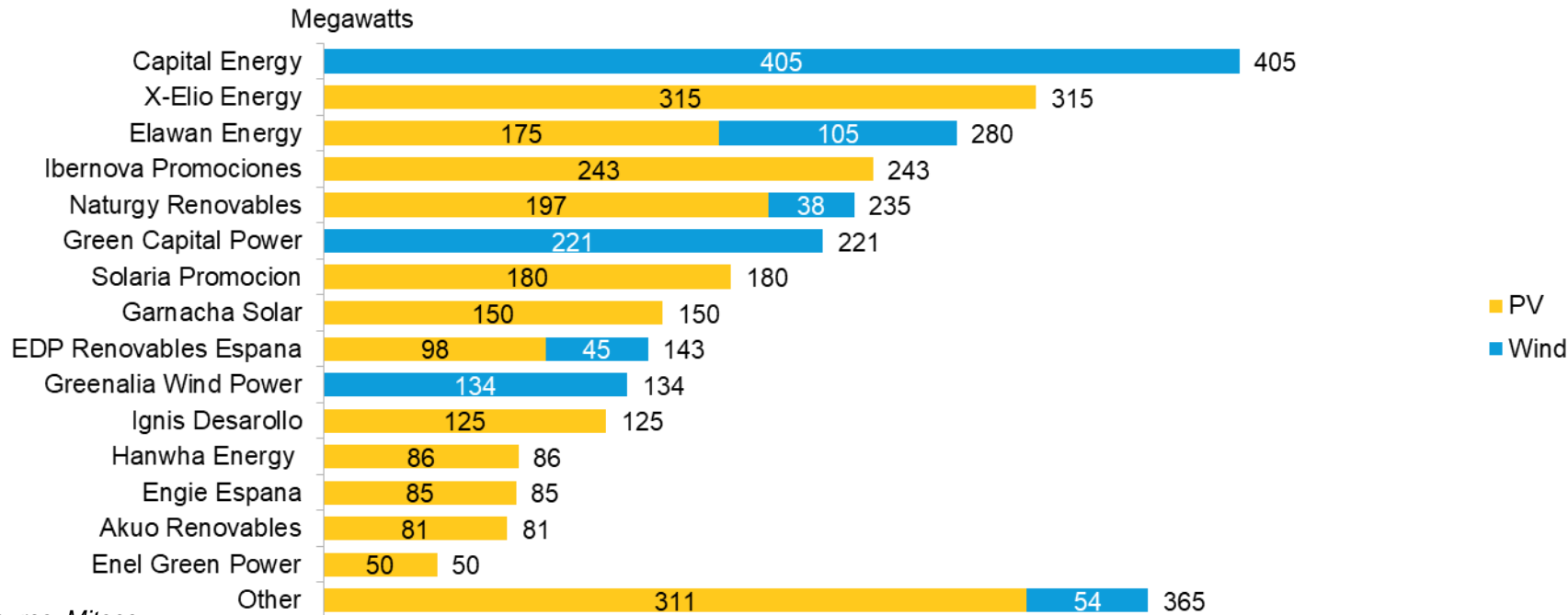
Size of successful projects by technology



Source: Miteco.

Smaller, local players make up a large share of winning bidders

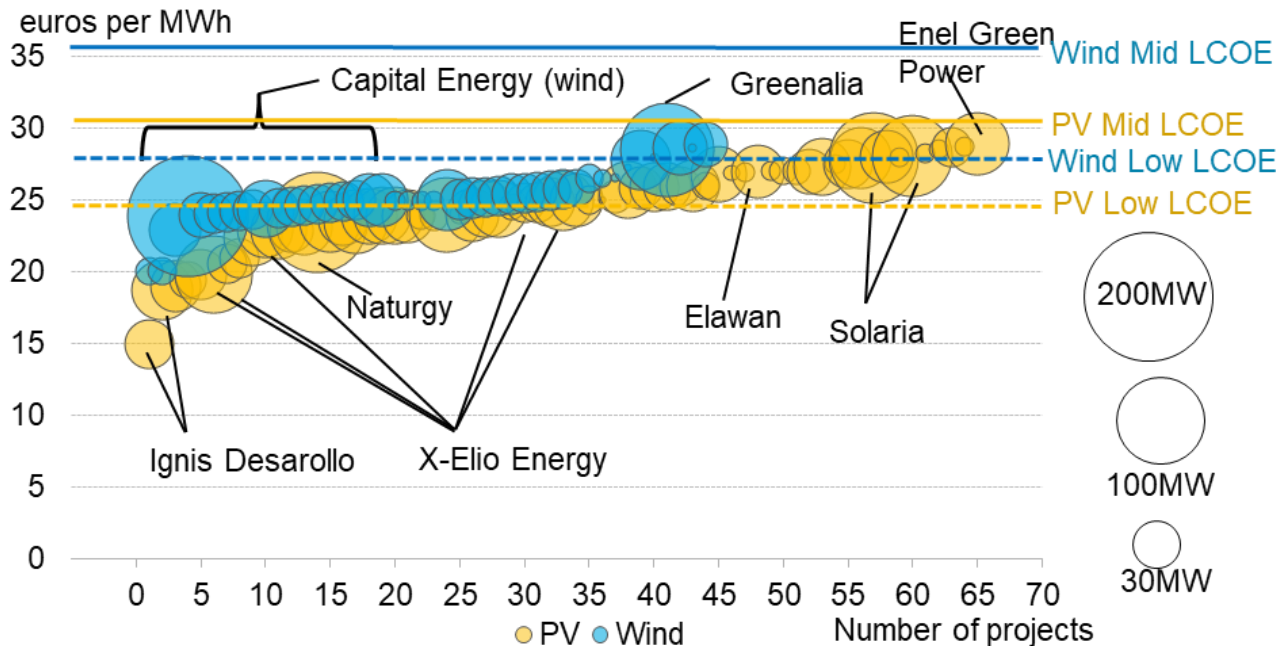
Successful bids in first round of Spain's REER auctions, by technology



Source: Miteco.

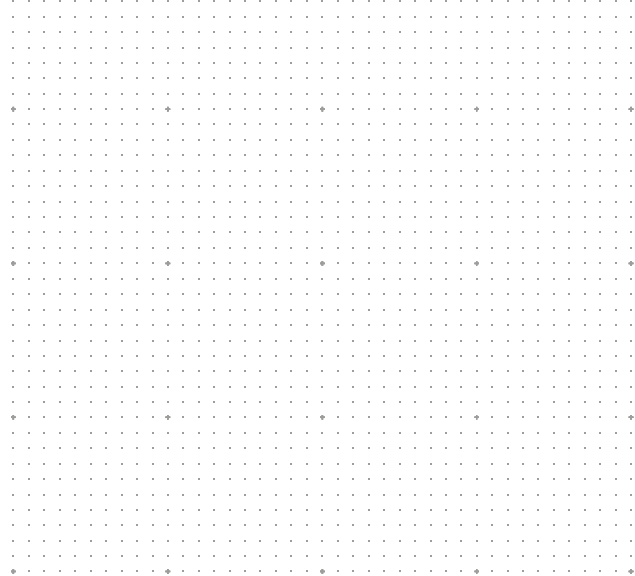
Many bids undercut LCOEs

Comparison of single bids and LCOEs (levelized cost of electricity) by technology

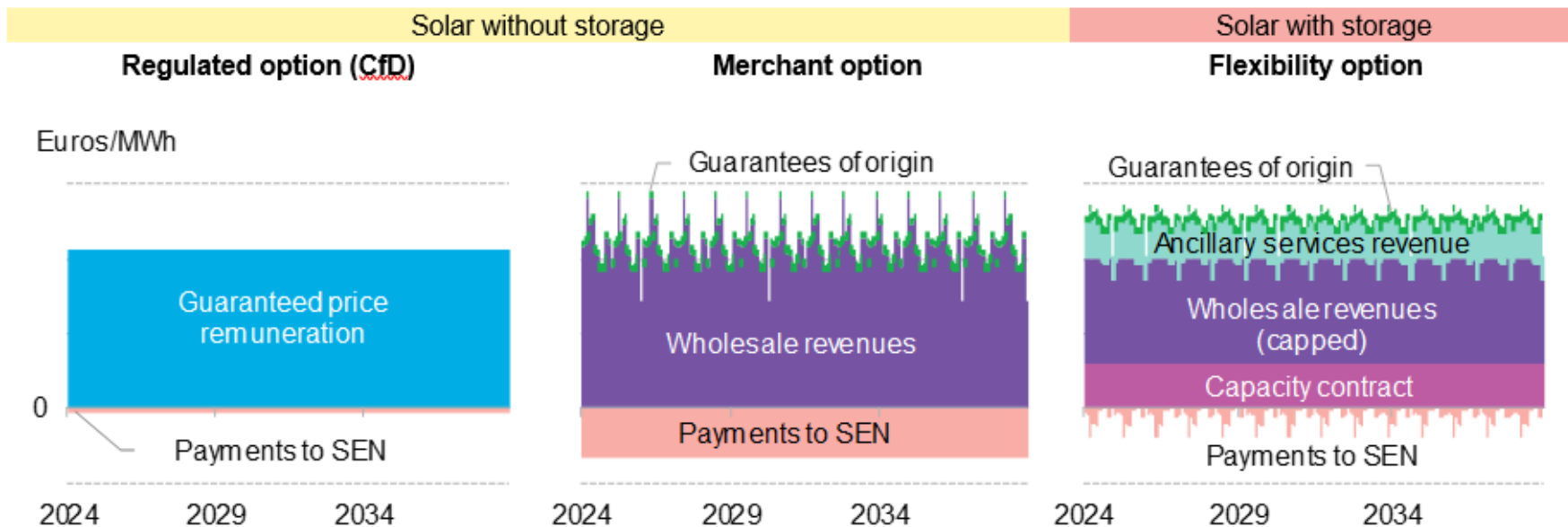


Source: BloombergNEF, Miteco. Note: Wind and PV LCOEs are for 2024 and 2023 respectively, and assume flat annual revenues in nominal terms to ensure comparability with auction results.

Portugal

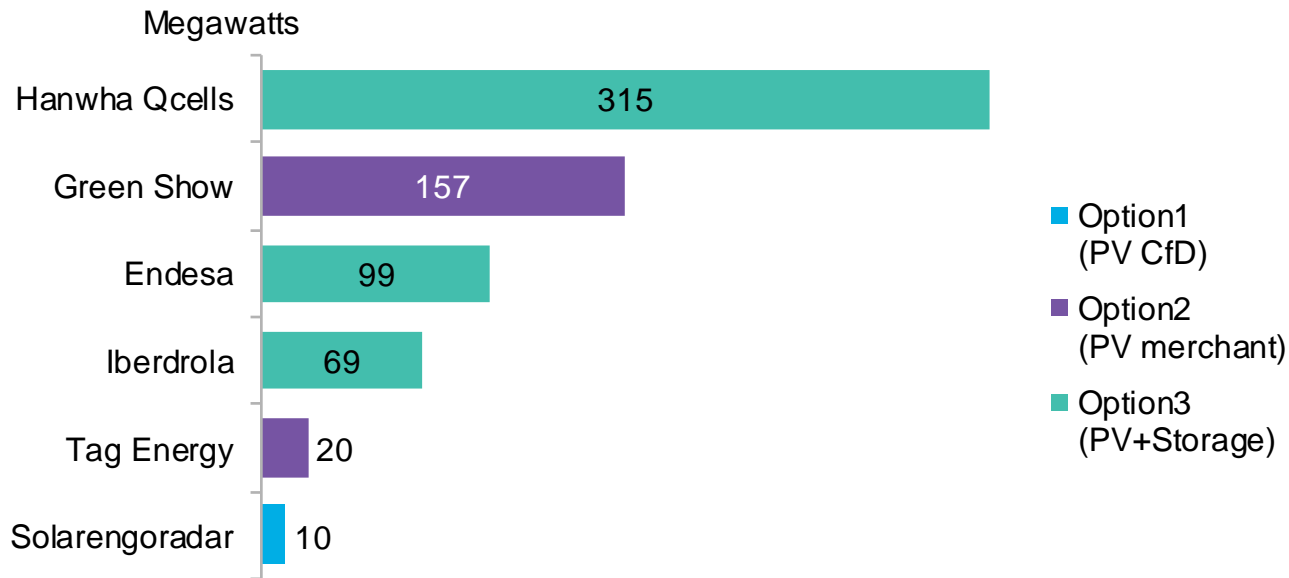


Illustrations of revenue options



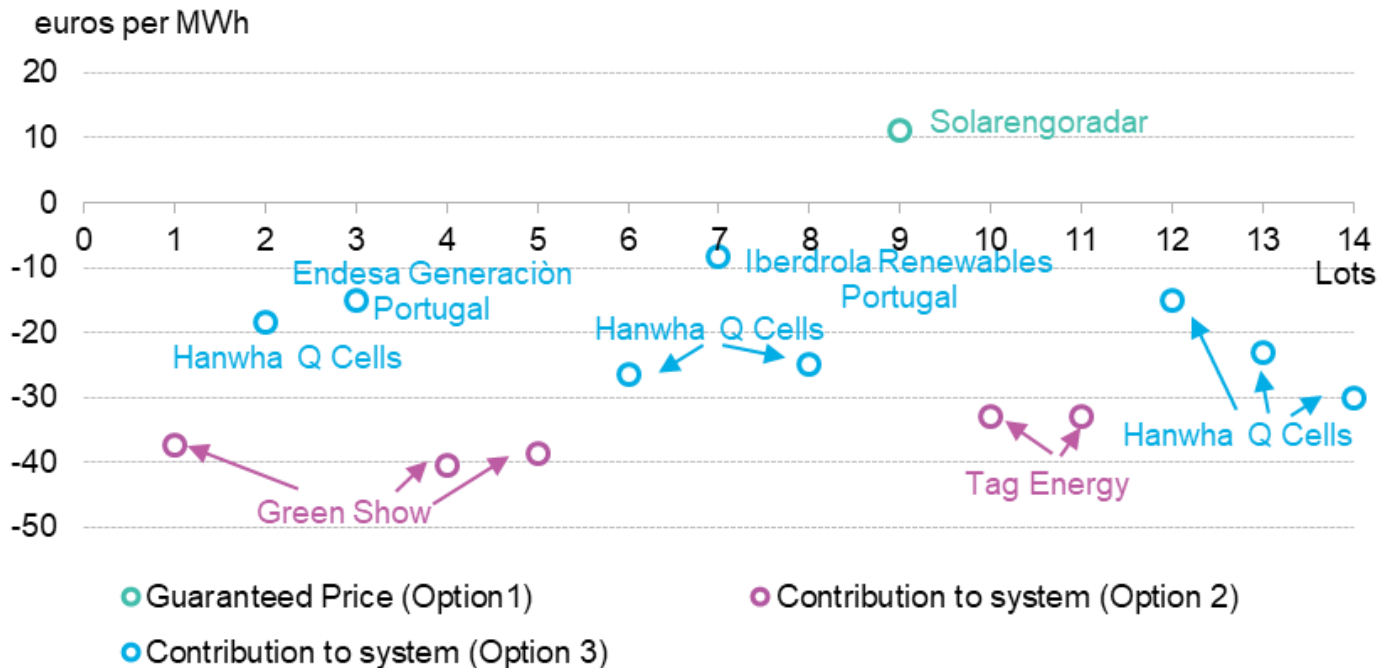
Source: BloombergNEF Note: Wholesale prices and revenue of the 15-year tariff lifetime are for illustrative purposes only. Outgoing payments to SEN and capacity contracts are displayed flat above for illustrative purposes

Winners of Portugal's second PV (and storage) auction round



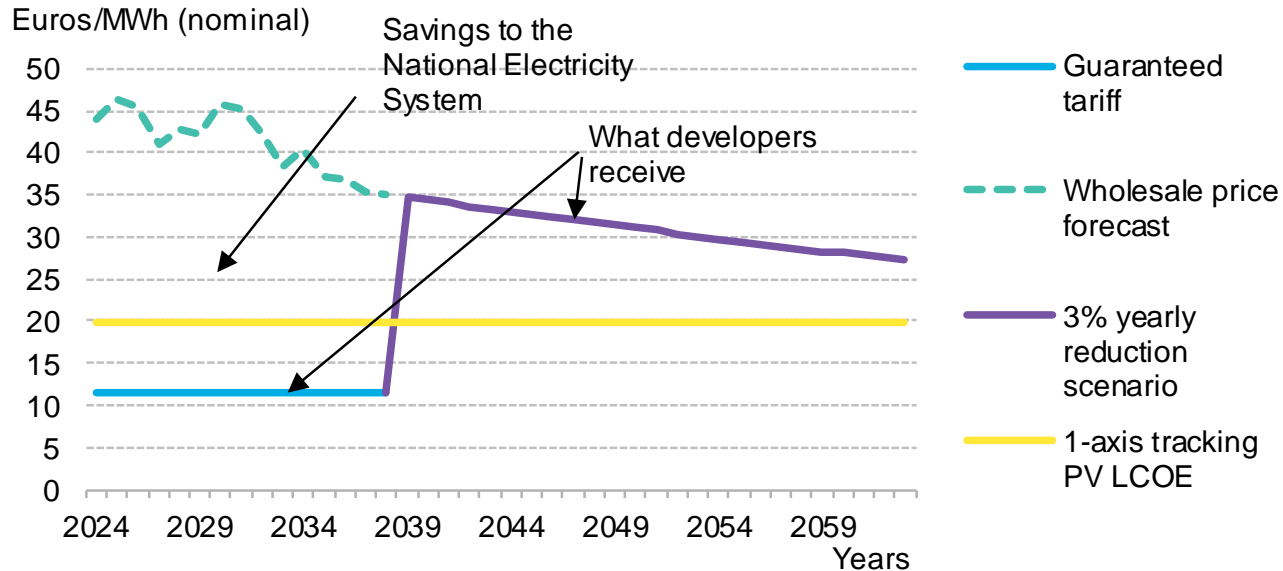
Source: DGEG (Portugal Directorate General for Energy), BloombergNEF. Note: Green Show is a subsidiary of independent utility company Audax Energia.

Successful bids in Portugal's 2020 PV-plus-storage auction



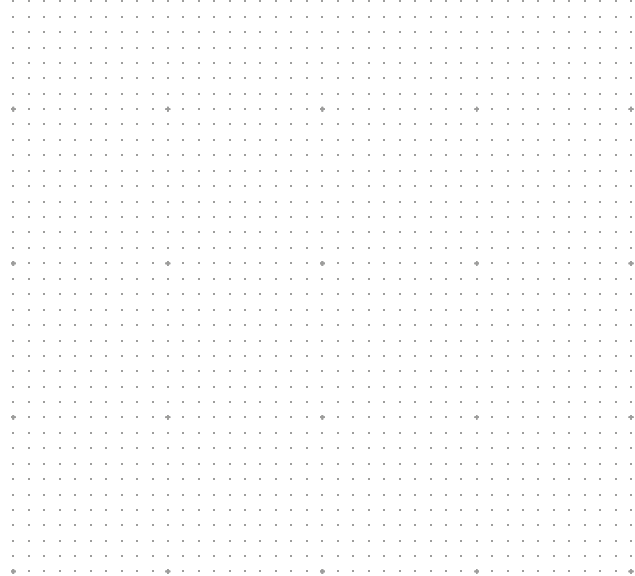
Source: BloombergNEF

Estimated project cashflows under option 1



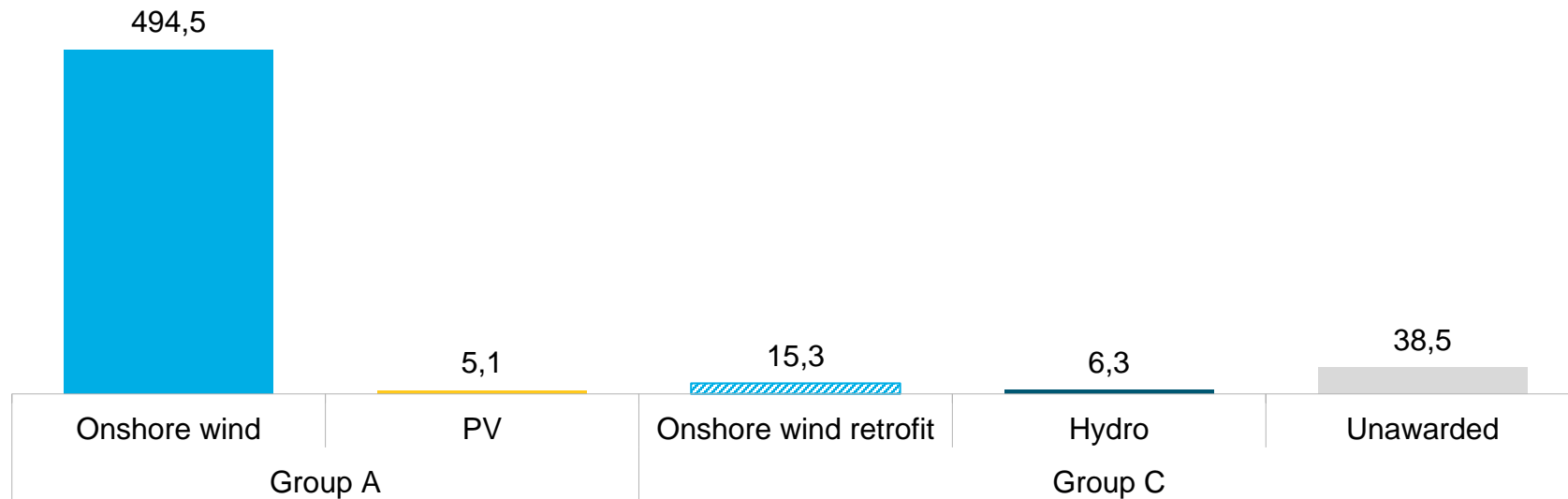
Source: BloombergNEF Note: Prices in nominal terms. Realized solar electricity prices out to 2038 are provided by Portuguese authorities. We assumed a 3% reduction in real terms between year 16 (2039) and 40 (2063), and applied a 2.05% inflation rate.

Italy



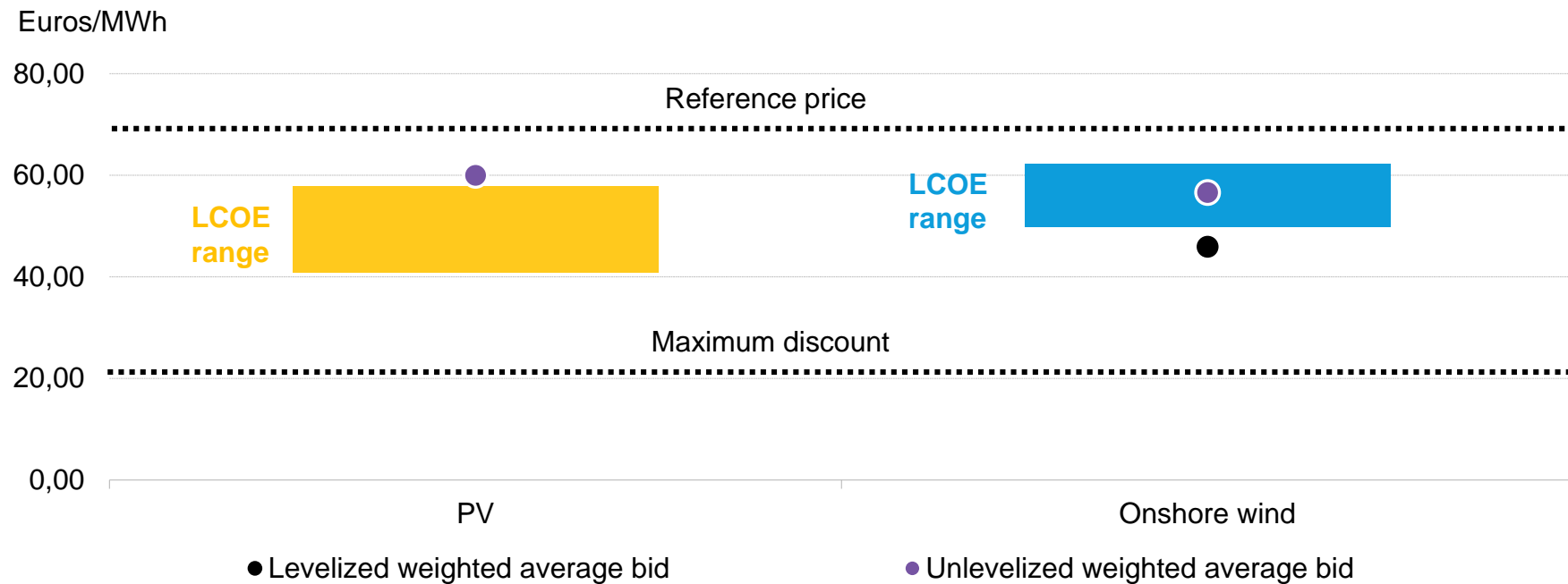
Results of round 1: capacity allocated by technology

Capacity allocated (MW)



Source: BloombergNEF

Results of round 1: capacity allocated by technology



Source: BloombergNEF

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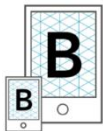
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