

Analysis of the e-POWER January 2020 auction

February 2020

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1 e-POWER Auction Analysis

1.1 Headlines

- The January 2020 e-POWER auction, held between 21 and 23 January 2020, sold PPAs for 52 projects totalling 210 MW
- For the first time ever, all generators achieved value retention above 100%; average value retention was level with the July 2019 auction at 107%
- Value retention was higher for 12-month contracts than 6 or 18-month deals. Typically, longer contracts have delivered lower value retention, due in part to higher risks around wholesale price volatility further out along the forward curve
- Low wholesale power prices – the lowest for any auction since January 2016 – depressed absolute values in this auction compared to previous auctions
 - Most generators saw values at lower £/MWh levels than six or 12 months ago, but strong levels of competition in the auction provided some respite
 - Lower numbers of FiT generators participated in the auction as the higher FiT export rate is currently above the level of many market linked PPA offers. Outturn values for FiT generators typically sat below the higher FiT export rate for 2020-21 of £55.00/MWh
 - Many generators in the wider PPA market are seeking very short-term deals, as little as three months in length, in the hope that wholesale prices will pick up and generators can lock in a higher rate. In this auction the majority of generators (26 generators) opted for contracts of 6 months
- Four technologies could be described as achieving highest value:
 - Biomass delivered the highest absolute £/MWh value on average
 - The highest individual £/MWh value achieved was for an anaerobic digestion generator
 - The highest value retention technology on average was landfill gas, at 109.8%
 - The highest value retention achieved by any individual generator was 113% for a hydro generator
- 10 offtakers bid into the auction, with the total number of bids approaching 1,000. The average number of bids per offtaker was 96. Some individual generators received over 50 bids and the average number of bids per generator was 18.4, slightly down on the previous auction but continuing to highlight the high liquidity levels observed for e-POWER auctions
- 18-month PPAs signed in the January 2020 auction were the first in which upcoming changes to embedded benefits were reflected in PPA prices. The BSUoS (Balancing Services Use of System) benefit is scheduled to be removed from April 2021, decreasing values by ~£2.50/MWh. Generators looking for PPAs that contract beyond April 2021 will be exposed to this fall in revenues in the future
- Compared to the previous auction, Roc and REGO values have increased. These increases may have offset some of the falls in wholesale power values
 - The Roc market has grown increasingly tight and Roc recycle values are forecast to rise, increasing the value of certificates to offtakers
 - Cornwall Insight's December 2019 Green Certificates Survey also showed increasing values for REGOs from suppliers looking to provide green tariffs to consumers, especially for future years



1.2 Cornwall Insight view

The January 2020 e-POWER auction saw record value retention levels for generators. While overall £/MWh values were lower than recent previous auctions, owing to significant falls in wholesale power prices, value retention as a percentage of current market values continued to improve for generators. Average bidding levels remained high and continued to align to wider observed short-term PPA market trends of increasing competition and pricing levels.

It should be noted that while value retention is recorded above 100% for all assets, this is in part due to the methodology used in the e-POWER auctions, which does not account for Roc recycle or REGO values in setting benchmark levels. Suppliers will likely have added these values to bids to account for the full value of assets, pushing value retention above 100%.

Nevertheless, when other values are accounted for value retention levels and actual £/MWh values observed in the January 2020 e-POWER auction continue to be at upper end of those we observe in the wider short-term PPA market.

2 Methodology

This report analyses the results for contracts awarded in the January 2020 e-POWER auction between 21 and 23 January 2020. It compares the actual value that generators achieved in the auction against a maximum energy market benchmark value that generators can potentially achieve. Project values and maximum benchmark values are presented as a £/MWh figure based on different potential sources of value. These are assessed post-auction, where sources of value include:

- Wholesale power price
 - For the purposes of the benchmark prices, the summer 2020 baseload power price has been taken for six-month contracts from April 2020 at £36.63/MWh, and the annual baseload price for 12-month contracts from April 2020 at £40.89/MWh. The power price for 18-month contracts from April 2020 has been taken at £40.76/MWh
 - All of the contracts sold in the auction were for PPAs commencing from 1 April 2020. Half of the contracts were for six months, with just over a third (37%) being for 12 months and the remainder (13%) being for 18 months
- Green certificates
 - Renewables Obligation Certificates (Rocs). The buy-out price for 2020-21 was forecast by e-POWER at £50. The buy-out price has since been announced by Ofgem in February at £50.05
- Generation Distribution Use of System charges (GDUoS)
 - These are paid by distribution network operators for localised generation and vary depending on time of day. GDUoS is the most variable of the potential benefits, as it differs by region, connection voltage, intermittency of technology. GDUoS is always built into the contract price, whether it is a cost or a benefit
- Balancing Service Use of System charges (BSUoS) and transmission losses
 - As BSUoS and transmission losses are paid on volumes on the transmission system, distribution connected generators can avoid these charges and offer them as a benefit to suppliers
- Triad benefits are not included in this analysis as they are paid separately in the e-POWER contract

Typical maximum benchmark values of the above elements for the period 1 April 2020 to 31 September 2020 (Summer 2020) are summarised in Figure 1, as well as the front season power price which is applicable for 6-month PPA contracts.

Figure 1: Benchmark Values (£/MWh) of e-POWER Auction Elements

Auction date	Front Season Wholesale Baseload Power	Annual Wholesale Baseload Power	Rocs	Embedded Benefits
Jan-20	£36.63	£40.89	£50.00	£1.00 to £14.00
Jul-19	£56.39	£52.79	£48.78	£2.00 to £14.11
Jan-19	£55.83	£59.31	£48.50	£0.90 to 14.30
Jul-18	£62.36	£57.00	£47.22	£0.00 to £14.10
Jan-18	£43.63	£46.85	£47.22	£0.40 to £13.90
Jul-17	£46.10	£42.76	£45.00	-£2.00 to +£7.40



Auction date	Front Season Wholesale Baseload Power	Annual Wholesale Baseload Power	Rocs	Embedded Benefits
Jan-17	£46.10	£47.67	£45.00	-£0.60 to +£7.40
Jul-16	£46.60	£43.42	£45.00	-£0.60 to +£7.00
Jan-16	£31.60	£33.90	£45.00	£0.00 to £10.60
Jan-15	£41.60	N/A	£44.00	-£1.40 to +£7.30

Source: e-POWER

3 January 2020 analysis

3.1 Auction Summary

The January 2020 e-POWER auction sold PPAs for 52 projects totalling 210.8MW of generation, over twice the size of the July 2019 auction and a third larger than the January 2019 auction, in terms of capacity. Overall e-POWER now has 162 generators through the auction and an overall capacity of 571MW.

This auction continued to achieve high value retention for all technologies with all generators achieving over 100% against post auction maximum benchmark values. The overall average retention remained at 107.1%, the same as the previous six-monthly auction. This was despite a lower proportion of dispatchable (non-intermittent) technologies by capacity in the auction, at around 30%, compared to nearly 60% in the July 2019 auction.

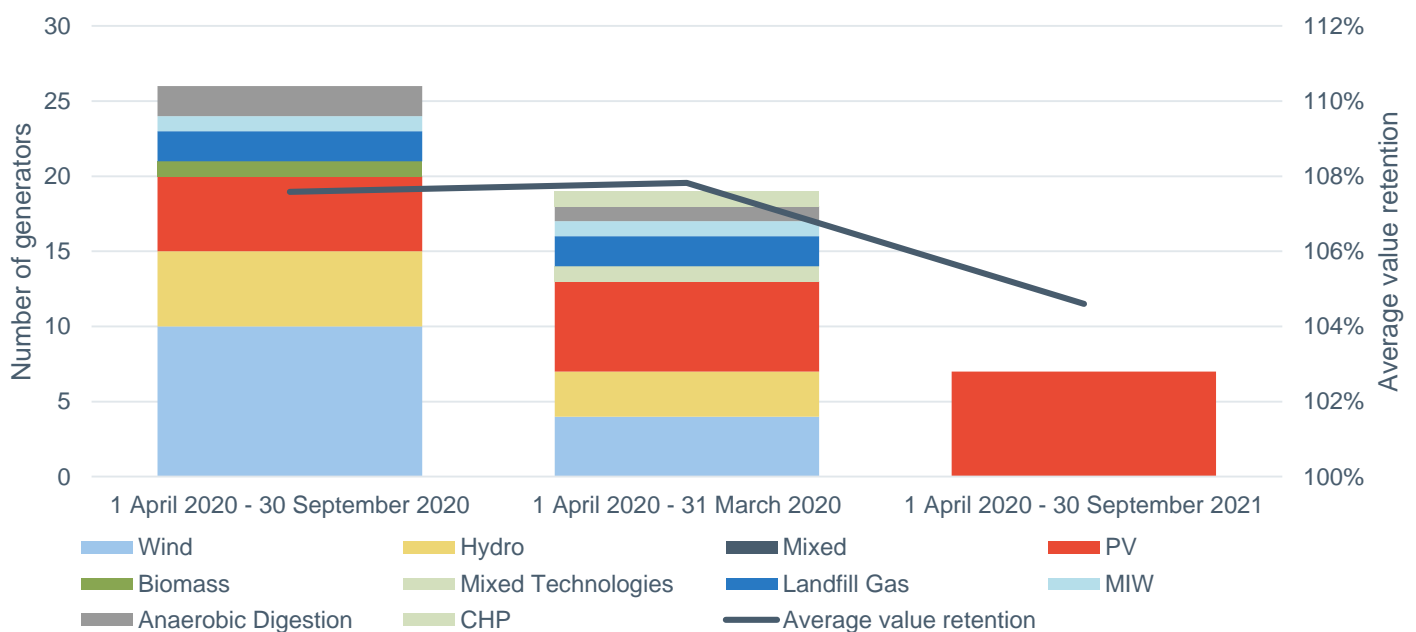
Due to lower wholesale prices, the auction saw a fall in the absolute value achieved by projects on a £/MWh basis. Both front season and full year power prices have not been as low since the January 2016 auction. The drop in average absolute prices was lower than might have been expected due to a larger proportion of capacity selling Rocs alongside power, at 71% compared to 39% in the July 2019 auction.

Figure 2 below details the average value retention for 6, 12 and 18 month contracts from 1 April 2020. Value retention was higher in 12 month contracts than six, and lower again in 18 month contracts. In part, this is due to all of the 18 month contracts being for intermittent solar generation. However, absolute values of 18 month contracts were also lower compared to solar generators seeking 6 and 12 month contract lengths, at 95% of 6-month deals and 90% of 12-month deals when excluding the price of Rocs.

This is unusual for auctions, where 12 month contracts typically deliver lower values than 6 month contracts, even when the front season is summer. 18 month contracts are expected to be lower in value than 6 or 12 month contracts in January auctions, as they include two summer seasons and only one winter.

Furthermore, these contracts extend past April 2021 – the first in the e-POWER auctions to do so – and will feel the effects of changes to network charging arrangements, which are set to remove the BSUoS embedded benefits from 2021.

Figure 2: Contract length by technology and average value retention



Source: e-POWER



3.2 Broken Down by Technology

Solar PV had the greatest number of contracts in the auction making up 18 of the 52 generators or 35%, representing 54% of capacity. This is up considerably compared to the 6 PV generators included in the July 19 auction. Wind had the second largest presence by number with 14 projects or 27%, representing 15% of capacity: a slight reduction from the 15 generators in the last auction. This was followed by hydro which represented 8 of the 52 generators and 1% of capacity. Other technologies individually made up 4 or fewer of the auction's contracts; however, MIW – Mixed Industrial Waste, an Energy from Waste (EfW) technology – made up nearly a quarter (24%) of total auction capacity despite being only two generators.

Average value retention remains highest for LFG (landfill gas) and biomass whereas mixed technologies experienced the lowest value retention. However, all technology types breached 100%, with all technologies except mixed achieving an average retention greater than 105%.

Highlights for each technology are below, and comparisons with the previous auction made where possible¹.

- **Onshore wind** had the second largest presence in this auction making up 14 of the 52 generators. However, it had the third lowest average retention of all technologies at 106.8%, 0.1pp up on the July 2019 auction. Wind was the most popular technology among bidders in terms of overall number of bids. However, the largest number of bids for an individual wind project was 33, with 7 other generators across four other technologies achieving a greater number of bidders. All of the wind generators also sold Rocs
- **Solar PV** had the most generators in the auction with 18 in total awarded contracts; 12 more than the number auctioned in the July 2019 auction. PV also saw the second lowest average retention of 106.5%. This is, however, higher by 1.7pp than the average retention achieved at the July auction and 3.8pp higher than in the January 2019 auction. All but two of the PV generators in this auction were under the RO scheme, with 7 of these contracts running for 18 months. The two FiT generators sold power at £52.20/MWh, below the present higher FiT export rate
- **Hydro** had the third largest presence in this auction, representing 8 of the 52 generators, two more than the previous auction. Hydro achieved an average retention of 107.4% overall, similar to July 2019. Hydro was also the third most popular technology for overall number of bidders, with two of the 8 generators within the top five most bid-on generators. Of the three hydro generators with 12-month contracts the average value achieved was £95.00/MWh
- **AD** had the third highest retention achieved in this auction of 108.3%, with three generators included overall. This is a slightly lower retention by 1.5pp compared to the July 2019 auction which also included three AD projects. One AD generator was particularly popular, attracting 52 bids, the largest number of bids in the auction, and achieved a retention of 110.6%
- **Mixed technology** generators had the joint smallest presence in this auction, with only one generator included. This single generator was a 12-month contract under the RO scheme which achieved a retention of 101.4%, the lowest in the auction, and a value of £50.60/MWh. This was a reduction on all accounts from the last auction
- **Landfill gas** saw four generators participate in the auction and achieved the highest average value retention among all technology types at 109.8%, 0.5pp lower than the previous auction. As in previous auctions, this is likely due to the premium that offtakers place on baseload technologies. Of the two 12-month contracts, an average value of £104.40/MWh was achieved, with the two 6-month contracts achieving an average of £103.9/MWh

¹ Direct £/MWh comparisons between contracts sold in this auction and contracts sold in previous auctions can be difficult, particularly for RO generators receiving different Roc awards. Therefore, where possible we have chosen to compare 12 month contracts for the sale of power only (i.e. including wholesale power and embedded benefits but excluding Rocs). While these generators may have different contract start dates, and therefore different benchmark wholesale power values and location specific embedded benefits, it allows for the best comparison.



- **Biomass** had just one generator represented in the auction, achieving the second highest overall retention by technology of 109.0%. The generator achieved a value of £126.60/MWh, selling both power and Rocs, less than in the July 2019 auction – due to the much lower wholesale power prices
- **Waste technologies** included two MIW generators which achieved an average retention of 107.2%.
- **Other technologies** included one CHP generators which achieved an average retention of 108.0%

Figure 3 shows the range of values achieved by different technologies against typical maximum benchmark values. The table highlights the general trend of baseload generators achieving higher value retention in the auction.

Figure 3: Number of generators achieving proportion of typical maximum benchmark value

Technology	100% - 105%	105% - 110%	110% - 115%	Total
Anaerobic digestion (AD)	0	2	1	3
Biomass	0	1	0	1
CHP	0	1	0	1
Hydro	3	2	3	8
Landfill Gas	0	2	2	4
MIW	0	2	0	2
Mixed	1	0	0	1
Solar PV	7	10	1	18
Onshore Wind	2	11	1	14
Total	13	31	8	52
Percent	25.0%	59.6%	15.4%	100%

Source: e-POWER *Error! Not a valid bookmark self-reference.* and Source: e-POWER

Figure 5 detail the performance by technology in terms of value retention, and Source: e-POWER

Figure 5 also includes the average number of bids accrued per generator. It is worth noting that there were only 2 MIW sites in this auction; both with very high reserves prices and thus far less bids were received.

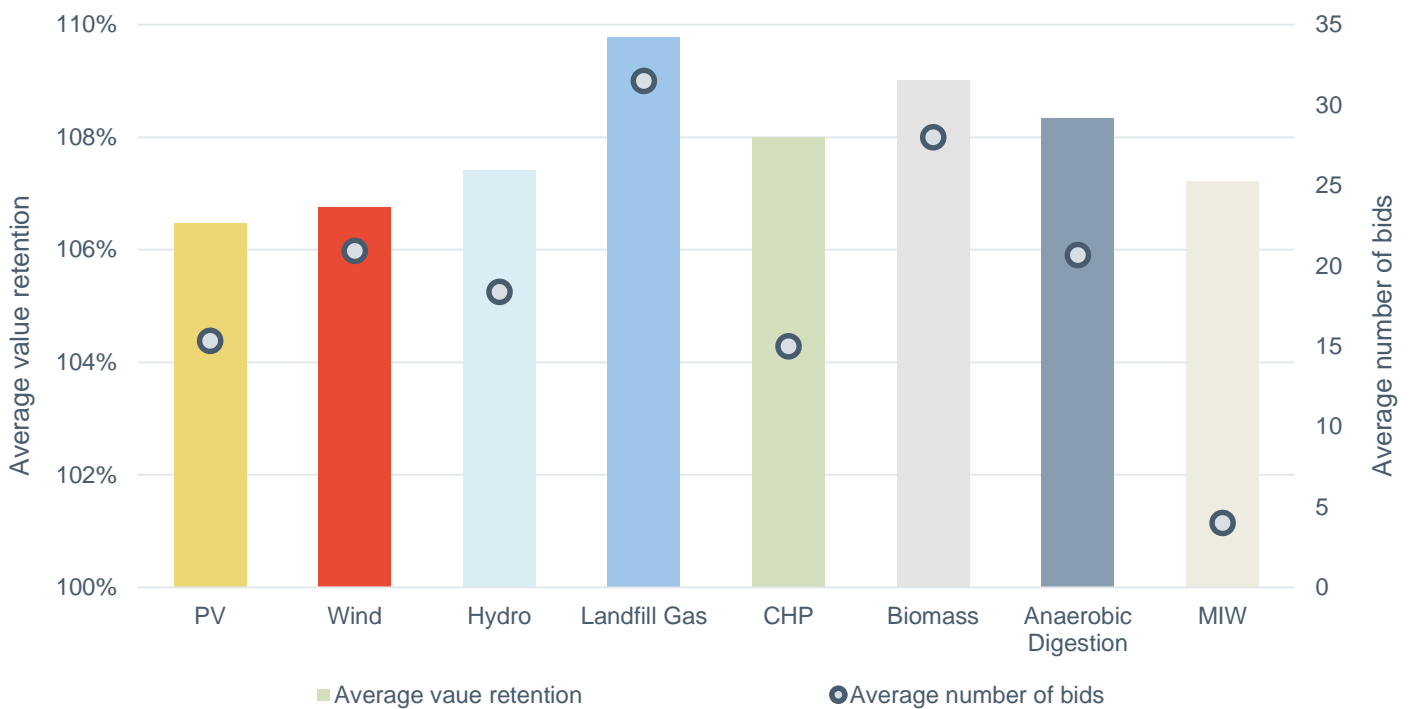
Figure 4: Average, minimum and maximum value retention by technology

Value retention	AD	Biomass	CHP	Hydro	Landfill Gas	MIW	Mixed	PV	Wind
Average	108.34%	109.02%	108.00%	107.43%	109.79%	107.21%	101.42%	106.47%	106.76%
Maximum	110.56%	109.02%	108.00%	113.15%	111.84%	107.25%	101.42%	111.19%	110.88%
Minimum	107.17%	109.02%	108.00%	100.60%	107.90%	107.17%	101.42%	102.94%	101.98%

Source: e-POWER



Figure 5: Average value retention and average number of bids by technology



Source: e-POWER

3.3 Summary by Support Scheme

Value retention for generators varies by support scheme as well as technology. Unlike the previous auction, RO generators have achieved lower value retention on average but continue to make up a greater proportion of generators auctioned, with 45 of the 52 generators under the RO scheme. FiT generators made up a much smaller number and proportion of generators within this auction compared to the last, making up just 5 of the 52 generators. However, FiT generators under this auction attained a better value retention than the July 2019 auction, 1.98pp higher on average than RO generators.

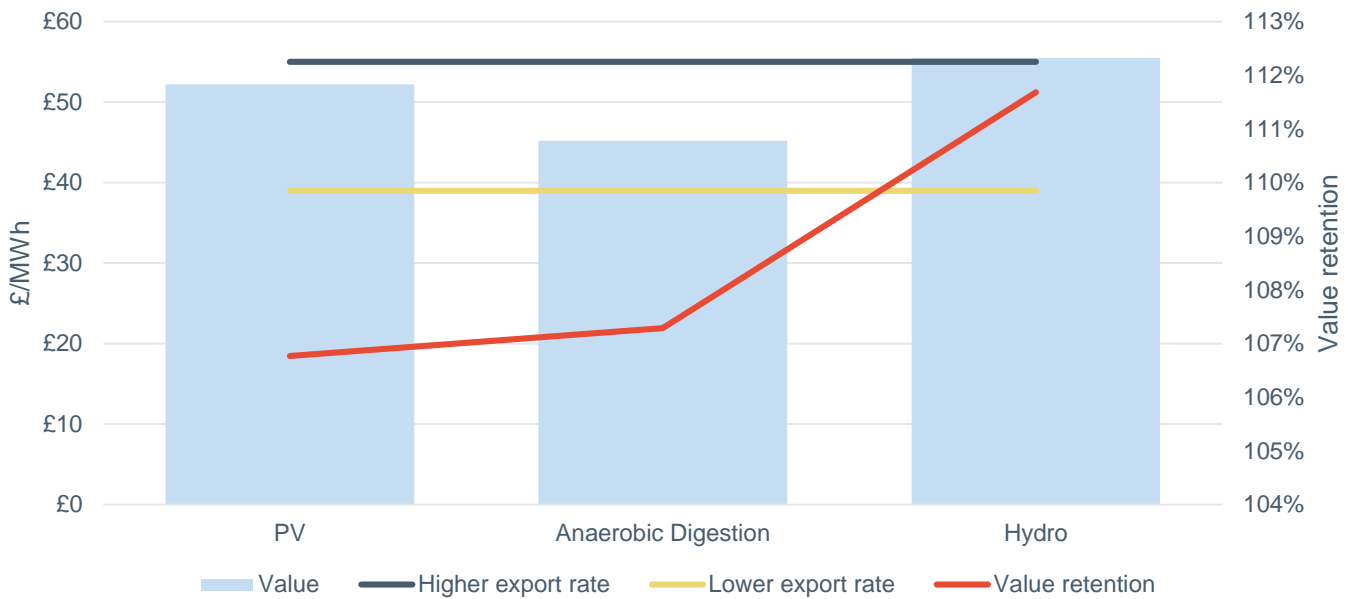
3.3.1 FiT Generators

Only five FiT generators were included in this auction, which was a reduction of 9 compared to the July 2019 auction. The number of FiT generators in the auction was lower than in July 2019 and January 2019, possibly due to a combination of factors including lower wholesale prices making the FiT export tariff more attractive relative to PPA values and more route to market options with the launch of the Smart Export Guarantee.

FiT generators saw an average value retention of 108.8% and an average price of £52.12/MWh. Average retention was up by 3.1pp on the last auction but price was down by £12.28/MWh. This is reflective of sharp falls in wholesale prices acting to lower the absolute values achieved by generators. Of the technologies included in this auction only AD, hydro and PV included generators accredited under the FiT scheme, with hydro achieving the highest average retention of 111.7%. AD and PV achieved an average retention of 107.3% and 106.8% respectively.

Of the five FiT generators, only one delivered a price higher than the 2020-21 export rate (£55.00/MWh), though all exceeded the export rate for legacy/ pre-end-November 2012 projects (£39.00/MWh). Figure 6 overleaf presents average values and value retention by technology.

Figure 6: Average value retention by technology



Source: e-POWER

3.3.2 Roc Generators

45 Roc generators took part in the auction, making up most of the overall 52 generators involved. The majority, 37, sold power and Rocs together, with eight choosing to sell only power. Generators which sold power and Rocs saw a slight decline in average value retention (at 106.9%), down 1.5pp on the last auction. Going against recent trends, Roc generators also achieved lower retention on average than the FiT generators included in this auction. Roc generators with 12-month contracts achieved £106.27/MWh on average.

e-POWER forecast a buy-out value of £50/Roc for 2020-21, which is in line with the Roc buyout price set by BEIS since the auction at £50.05. Prices for Rocs have continued to be buoyant in a short market, with high recycle values (as seen in the last several years) expected to continue for 2019-20 and 2020-21. This is exemplified in recent monthly e-ROC auctions, where Rocs have been trading at their highest ever levels. Given the additional recycle value on top of the Roc buy-out price, offtakers purchasing Rocs stand to achieve a significant benefit from these generators. Recycle values for 2019-20 and 2020-21 were projected in excess of £8/Roc and £6/Roc respectively, in February 2020 by Cornwall Insight.

High recycle values have provided some respite for Roc generators, which will see lower overall revenues from the sharp falls in wholesale prices.

3.3.3 REGOs

The REGO market has continued to develop in the six months since the last auction analysis report. A December 2019 survey by Cornwall Insight indicated that REGO values have climbed to around £0.65/MWh, with 75% participants believing this price would see further increases. Some values are being seen of £1.00/MWh or higher, with future fuel-mix disclosure years seeing higher pricing.

This continues to be driven by demand from consumers for 100% renewable electricity tariffs, which is broadening the market for REGO certificates. e-POWER’s auction methodology for valuing maximum benchmark prices does not include a REGO value assumption, so suppliers factoring a value into their bids will result in value retention being pushed further above 100%.

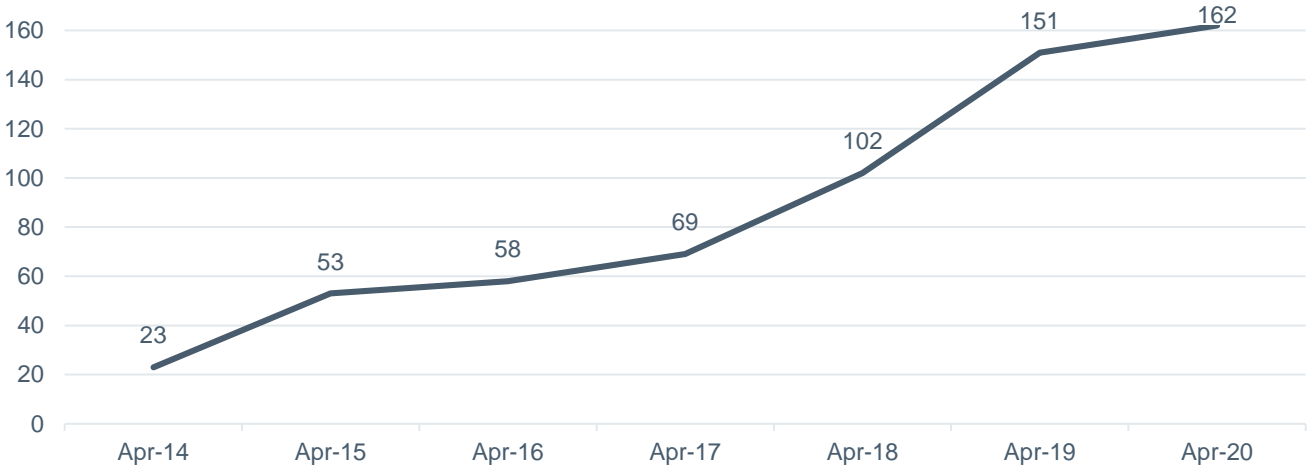
Value of REGOs vary according to technology type, with unfuelled technologies – wind, solar and hydro – seeing greater values than fuelled technologies – landfill gas, biomass and EfW. In light of market developments, e-POWER now runs a separate e-REGO auction.



3.4 Competition and auctioned contract numbers

52 projects totalling 210.8MW of capacity was sold in the auction. By number of generators, it was the joint third largest auction to date. In total, 162 generators with an overall capacity of 571MW have signed PPAs through the e-POWER auction for April 2020. Figure 7 presents the evolution of the number of generators with PPAs secured through the e-POWER auctions since April 2014.

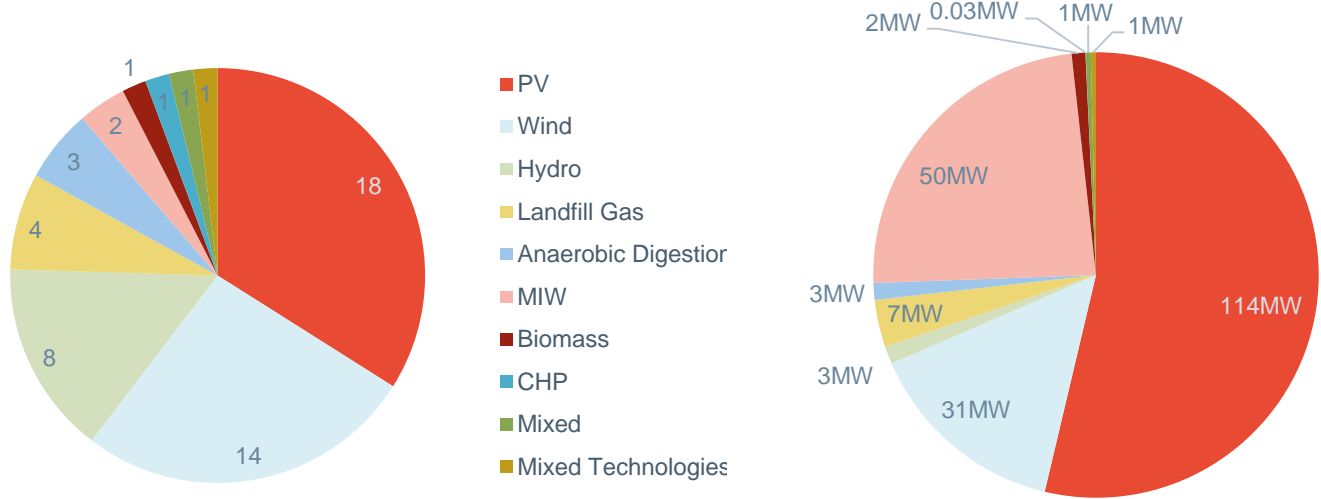
Figure 7: Total number of generators using e-POWER (all auctions)



Source: e-POWER

Figure 8 and Figure 9 summarise the latest engagement from generators in terms of total number and the proportion of technologies auctioned in January 2020.

Figure 8 and Figure 9: Number and capacity of technologies auctioned in January 2020



Source: e-POWER

Participation in the auction remained high for several reasons including:

- Continued and growing competition among supplier off-takers for green power and particularly green certificates
- Increasing value retention for smaller-scale generation in the auction amid declining wholesale prices

Participation in future auctions will change, with a rising number of generators exiting their initial long-term PPAs and subsequently seeking shorter-term deals with higher achievable value for their power.



3.5 Comparison with Previous Auctions

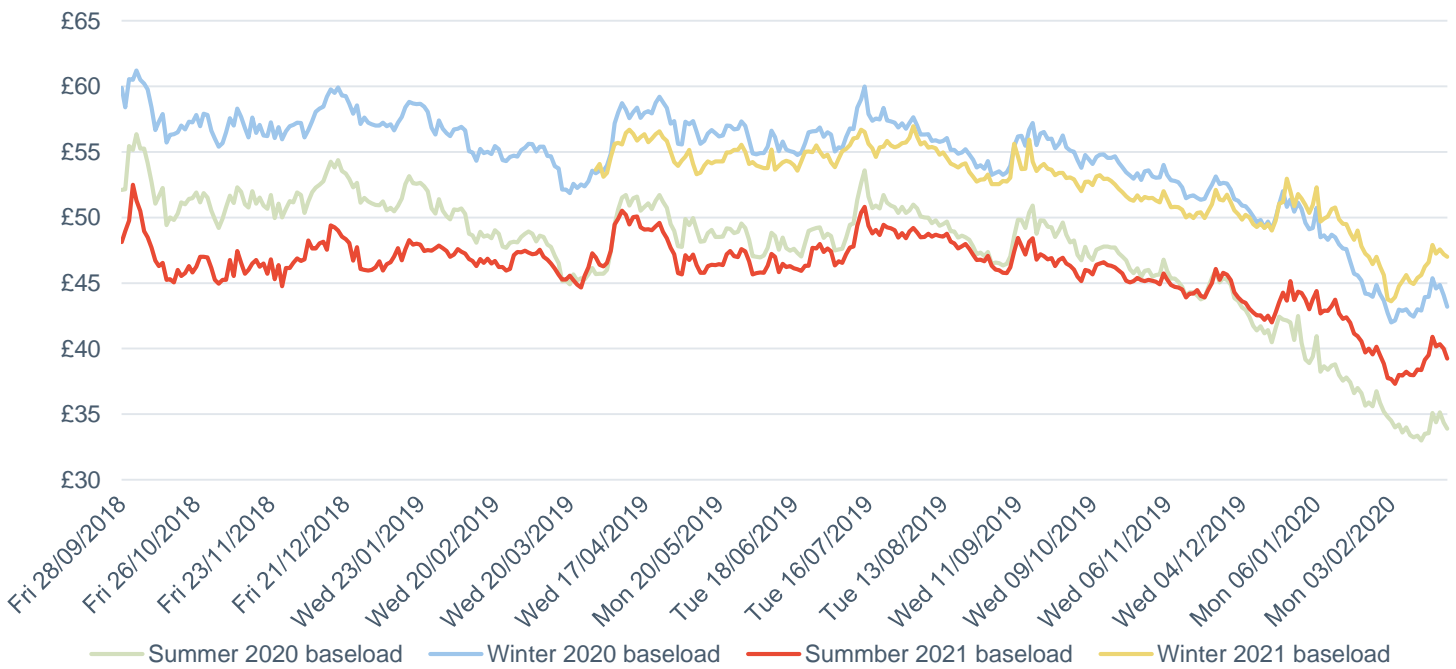
The January 2020 e-POWER auction saw a new record, with all generating units achieving value retention of over 100% for the first time. Average value retention remained approximately the same as the previous two auctions, at 107.1% compared to 107.2% in July 2019 and 106.9% in January 2019.

The much lower wholesale prices – the lowest in a January or July auction since 2016 – have driven down absolute values in £/MWh. For generators selling power and Rocs, average value was £99.50/MWh, down £12.59/MWh from July 2019. With wholesale power prices down £11.90/MWh for year-ahead and £19.76/MWh for season ahead, this indicates that the auction has retained value in the face of wholesale power price declines. Wholesale power prices are broadly expected to remain low over the foreseeable future, in the face of low global gas prices caused by global oversupply in the LNG market, and from large volumes of additional wind power capacity commissioning under the Contracts for Difference subsidy scheme.

GB power is heavily exposed to global gas prices, as around 40% of GB generation remains gas-fired despite record levels of renewable generation. The downward pressure of low gas prices on power prices has been exacerbated by the easing of the EU ETS, where the price of carbon emissions fell a sixth from the 13-year highs of €29/t at the time of the July 2019 auction to €24/t in January 2020. This is expected to be relevant over the next 11 months until the UK exits the European Union on 31 December 2020, and alternative carbon pricing arrangements will be made.

REGO values have increased over the last six months, pushing value retention for generators up as previously mentioned. This trend is expected to continue.

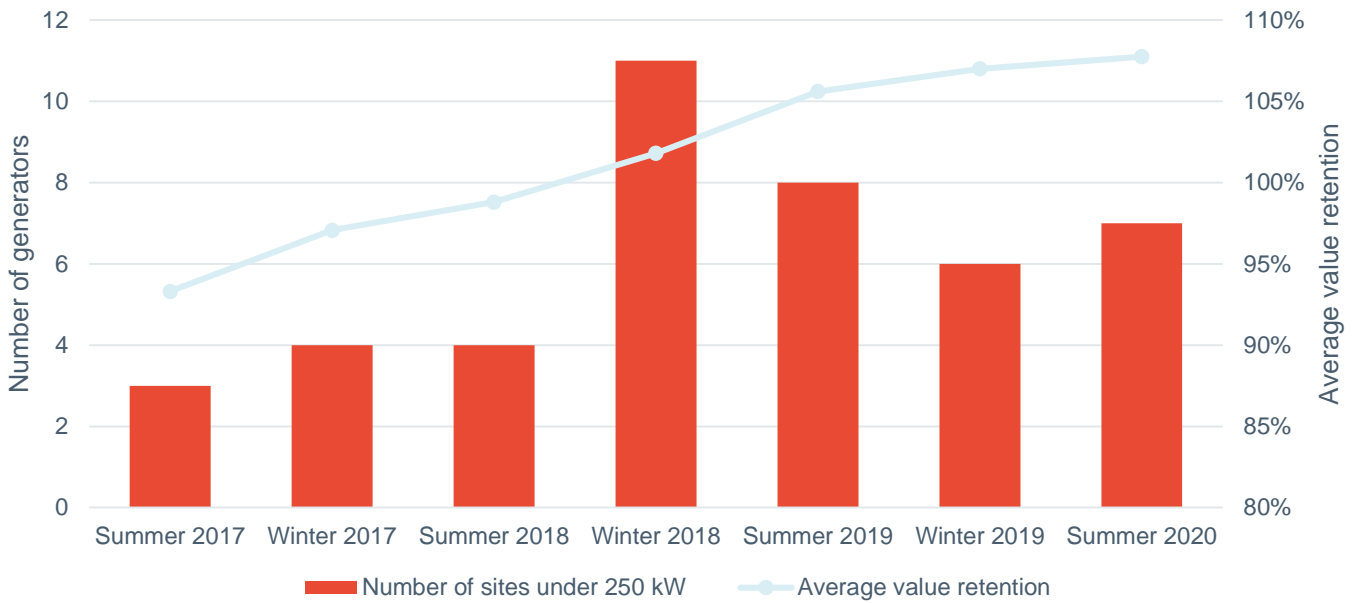
Figure 10: Wholesale Power Price Movements



The number of small generators (<250kW) entering the auction increased from the July 2019 auction, with one additional generators entering the auction. However, the absolute number remains low at 7, down from a peak of 11 in the Winter 2018 auction held in July 2018. Average value retention continued to climb, reaching 107.8% – marginally higher than average value retention for the entire auction.



Figure 11: Number of under 250kW generators entering auctions and average value retention through time



Source: e-POWER

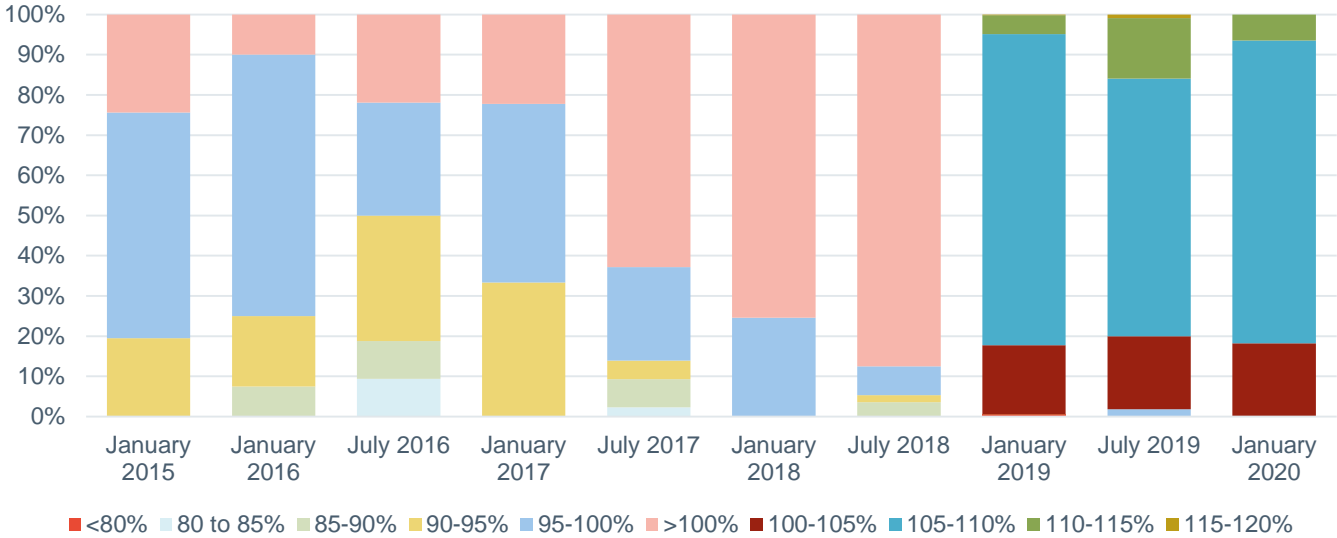
The buy-out price for Rocs for CP19 (2020-21) was confirmed by Ofgem in February to have increased to £50.05 from £48.78, though the forecast used in the auction for purposes of calculating value retention was £50.00.

Average embedded benefit values across all generators were £5.71/MWh, £0.75/MWh lower than in the July 2019 auction. These values, however, can vary significantly by location and depend on location specific parameters. Embedded benefits ranged from £1.00/MWh to £14.00/MWh across the 52 generators which secured contracts in the auction.

2020-21 will be the first year when changes to the Balancing Service Use of System (BSUoS) benefit arising from Ofgem’s Targeted Charging Review (TCR) Significant Code Review (SCR) will impact generators. These changes have a negative impact on embedded benefit values for distribution-connected generation and will cause a revenue reduction of ~£2.50/MWh. Further changes to embedded benefits will filter into charging in future years, with a negative outlook for total values achieved.

As Figure 12 shows, the number of generators achieving high levels of value retention remains high and in this analysis report we have broken down the >100% value retention segment, as all generators are now clustered in this window.

Figure 12: Distribution of Values Achieved Compared to Maximum Benchmark Values and Changes Over Time



Source: e-POWER

