

# Analysis of the e-POWER July 2020 auction

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Getting to grips with the intricacies embedded in energy and water markets can be a daunting task. There is a wealth of information online to help you keep up-to-date with the latest developments, but finding what you are looking for and understanding the impact for your business can be tough. That's where Cornwall Insight comes in, providing independent and objective expertise. You can ensure your business stays ahead of the game by taking advantage of our:

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# 1 e-POWER Auction Analysis

## 1.1 Headlines

- The July 2020 e-POWER auction ran for three days from 7 July and sold Power Purchase Agreements (PPAs) for 46 renewables projects totalling 96.5MW
- Despite COVID-19's impact on the energy market, PPA results remained broadly positive for generators with competition between suppliers<sup>1</sup> remaining high. The average number of bids per site was 25, up from an average of 19 per site in the January 2020 auction. 10 different suppliers placed an average of 113 bids each across the auction
- £/MWh values achieved in this auction were broadly higher than in the January 2020 auction. Although the January auction was held prior to the full impacts of COVID-19, higher values in July can partially be attributed to a recent resurgence in wholesale prices since a crash early this year
- Although £/MWh values achieved in the auction were higher than in January 2020, value retention levels – i.e. the achieved value versus the estimated maximum benchmark value of each project – declined in this auction. Value retention levels averaged 101.3%, which although is high, were down on the 107.1% seen in the January auction
  - Multiple reasons can be attributed to this including lower projected Roc recycle values for Compliance Period (CP) 19 (2020-21), a reduction in REGO prices<sup>2</sup> and the impacts of price cannibalisation on captured wholesale prices for renewables technologies. All of these trends have been impacted by COVID-19
- In terms of value retention, Roc projects performed least well, going against trends observed in previous auctions. This is likely due to lower projections of Roc recycle values for CP19 owing to reduced demand levels and uncertainty caused by COVID-19
  - FiT sites and projects selling power only had higher value retention levels than Roc projects. Of particular note was that all FiT sites either achieved a value above, or in line with, the administered export tariffs. This is a trend that would not have been expected given prevailing wholesale prices
- By technology, solar PV sites arguably performed best in the auction with six participating. The technology saw average value retention levels at 104.7%, above the auction average, and the two FiT sites in the auction achieved values at or above the higher administered export tariff of £55.00/MWh
  - Two other technologies saw higher value retention levels, including energy from waste (EfW) and biomass, although only one site of each technology was auctioned
  - Hydro, landfill gas and wind technologies saw the lowest average value retention levels, with the former two being the only technologies to average <100%

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<sup>1</sup> We use the term suppliers in this analysis, but buyers of power in PPAs are also often termed offtakers.

<sup>2</sup> REGO prices in Cornwall Insight's latest Green Certificates Market Survey of July 2020 show short-term values have fallen below £0.3/REGO for the current Fuel Mix Disclosure period (2020-21).



## 1.2 Cornwall Insight view

*The July 2020 e-POWER auction saw positive results for green generators despite the impacts of COVID-19 on multiple revenue streams.*

*Values were supported by strong levels of competition from bidding suppliers and our analysis shows offtaker competition has remained high despite the impacts of COVID-19. Suppliers are using multiple routes to market, including e-POWER, to access green power and associated certificates. We observe that new entrants continue to scope the renewables PPA market for entry too.*

*All projects in the auction benefited from a recent rise in wholesale prices, which broadly offset the impacts of COVID-19 on Roc prices, REGO values and capture price rates for intermittent technologies. While like-for-like comparisons with other PPA options are difficult, the trends for value retention in e-POWER remain towards the upper end of our value assessments in the market.*

*Values in future auctions will now depend on any continued resurgence in wholesale prices and if electricity demand continues to rise as lockdown measures are gradually phased out in GB. However, we would note that longer-term recovery trends remain highly uncertain.*

## 2 Methodology

This report analyses the results for contracts awarded in the July 2020 e-POWER auction between 7 and 9 July 2020. It compares the actual value that generators achieved in the auction against a maximum market benchmark value that generators can potentially achieve if the full value of all revenue streams are realised. Achieved project values and maximum benchmark values are presented as a £/MWh figure based on the sum of various revenues streams. These are assessed post-auction, where sources of value include:

- **Wholesale power price**
  - A variety of wholesale power price assumptions were used in this assessment for maximum benchmark values, based on PPA length and start dates. This auction saw six different PPA lengths and start dates, the majority of which (74% of all PPAs) were for 6 months starting 1 October 2020
  - For the purposes of the benchmark prices, the winter 2020 baseload power price has been taken for six-month contracts from October 2020 at £47.79/MWh. Prices for 12-month contracts from October 2020 are assumed at £45.34/MWh. Other contracts in the auction typically saw earlier start dates and have slightly lower wholesale price assumptions
- **Green certificates**
  - Renewables Obligation Certificates (Rocs). The buy-out price for 2020-21 was used by e-POWER for maximum benchmark values at £50.05/Roc. This was confirmed by Ofgem in February 2019
  - Values for REGOs are not included in the maximum benchmark value assessment. However, it should be noted that suppliers may price in value for REGOs as part of their bids
- **Generation Distribution Use of System charges (GDUoS)**
  - These are paid by distribution network operators for localised generation and vary depending on the time of day. GDUoS is the most variable of the potential benefits, as it differs by region, connection voltage and 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
  - It should be noted that the BSUoS embedded benefit is being removed from April 2021
- Triad benefits are not included in this analysis as they are paid separately in the e-POWER contract

Typical maximum benchmark values used for this analysis are summarised in Figure 1. As previously mentioned, other wholesale power price assumptions are used where contracts dates differ from the front-season and front-annual prices.

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

Auction date	Front Season	Annual Wholesale	Rocs	Embedded Benefits
Jul-20	£47.79	£45.34	£50.05	£0.00 to £15.00
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
Jan-17	£46.10	£47.67	£45.00	-£0.60 to +£7.40

Source: e-POWER



# 3 July 2020 analysis

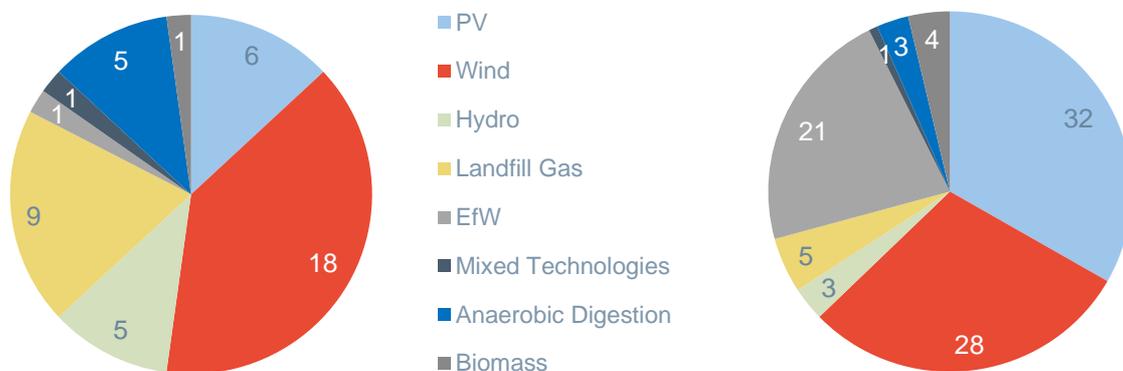
## 3.1 Auction summary and participation

The July 2020 e-POWER auction ran for three days from 7 July and sold PPAs for 46 renewables projects, above the 39 sites sold in the July 2019 auction but slightly under the 52 sites auctioned in January 2020. PPAs totalled 96.5MW of generation across eight different technology types.

The auction was the first of e-POWER’s larger six-monthly auctions since the COVID-19 outbreak and despite its impacts on the energy market PPA results remained broadly positive for generators. The average number of bids per site was 25, up from an average of 19 per site in the January 2020 auction, with 10 different suppliers competing and placing an average of 113 bids each across the auction.

Figure 2 shows the breakdown of sites participating in this auction round, by number and by capacity.

**Figure 2: Sites participating in the July 2020 auction by number (left) and by capacity (MW) (right), broken down by technology**



While it is difficult to make direct comparisons with the January 2020 auction, with each site having varying PPA start dates, lengths and subsidy levels, £/MWh values were broadly higher in this auction. Although the January auction was held prior to the full impacts of COVID-19, higher values in July can partially be attributed to a recent resurgence in wholesale prices as lockdown measures have eased in GB since May, acting to lift power and commodity prices. Furthermore, the majority of contracts in this auction were for six months from October 2020, with winter contract prices typically higher than those for delivery in summer months, which dominated the January 2020 auction where most PPAs commenced 1 April 2020.

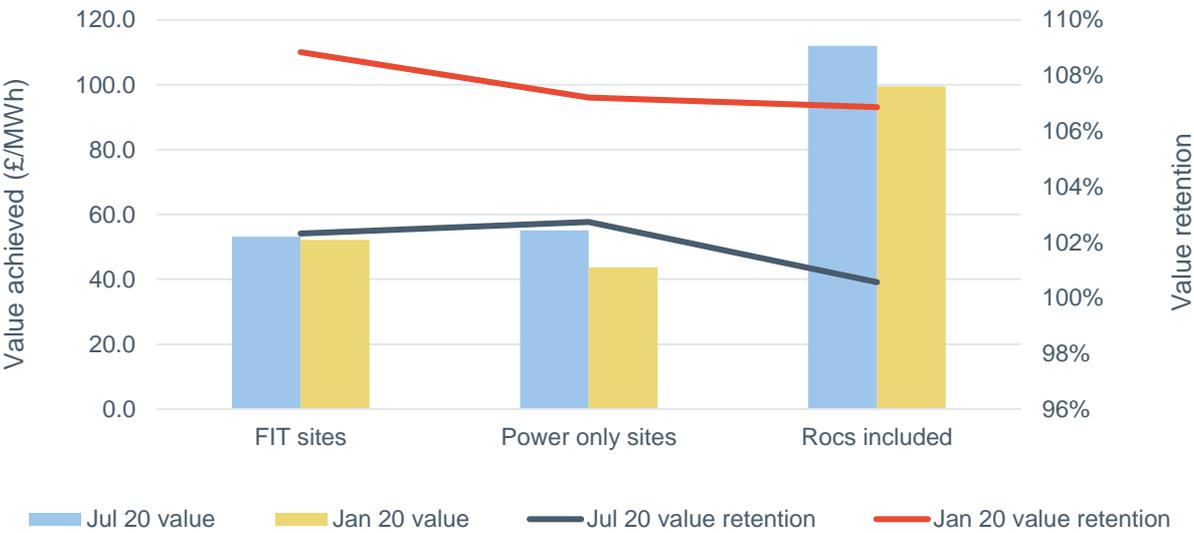
Although £/MWh values achieved in the auction were higher than in January 2020, value retention levels declined in this auction. Value retention levels averaged 101.3% compared to 107.1% seen in the January auction. There are several likely reasons behind this, including:

- Lower projections of Roc recycle values for CP19 (2020-21) owing to reduced demand levels and uncertainty caused by COVID-19. Roc recycle values are not included in maximum benchmark values and therefore act to push value retention levels above 100% when suppliers price these into bids. We detail this in section 3.3, where we can see that Roc sites in particular achieved lower value retention levels
- Impacts of price cannibalisation being increasingly factored into bids. Price cannibalisation is the depressive influence that high levels of correlated intermittent generators have on wholesale prices, which lowers the captured price of such technologies. This phenomenon has been exacerbated amid low electricity demand caused by COVID-19, meaning renewables penetration has surged as a proportion of the generation mix. Whilst the impacts of the pandemic on price cannibalisation are likely to be temporary, suppliers may be increasingly factoring this into PPA bids

- While competition in the PPA market has broadly been unaffected by COVID-19, our research suggests that some suppliers are less willing to take such thin PPA margins whilst the market is currently so uncertain and volatile
- REGO prices have also decreased in recent months. Regos are potentially factored into bids by suppliers, and lower values factored into bids may push value retention down as these are not valued in the maximum benchmark prices

A wide range of PPA lengths were also sought in the auction, the longest being for 14 months in length and the shortest at 6 months. Most PPAs, at 34, were for 6 month PPAs from October 2020 – this is a particularly preferred agreement length for Roc projects which will take sites up to the end of the CP19 obligation period. Other sites, particularly those under the FIT, sought PPAs that start, or started, shortly after the auction in July, August and September.

**Figure 3: Average £/MWh values achieved and value retention levels, July 2020 auction versus January 2020 auction**



Source: e-POWER

### 3.2 Broken down by technology

Eight different technology types participated in the auction across 46 projects including onshore wind, hydro, biomass, anaerobic digestion (AD), energy from waste (EfW), solar PV, landfill gas and mixed technologies.

Onshore wind had the highest presence in the auction with 18 sites, followed by landfill gas and then solar PV. In terms of value retention, the sole EfW site performed best, followed by solar PV and biomass sites. Hydro and landfill gas sites saw the lowest average value retention, both slightly under 100% and closely followed by onshore wind. Lower value retention from these technologies is likely due to the higher proportion of Roc sites within these groups, which typically achieved lower value retention levels in this auction due to the impacts of COVID-19 on Roc values.

Highlights for each technology are below, and comparisons with the previous auction made where possible<sup>3</sup>.

- **Onshore wind** had the highest presence in the auction by number, with 18 sites, auctioning 28.4MW of capacity. However, it had the third lowest average value retention of all technologies at 100.7%, down from 106.8% in the January 2020 auction. 13 of the sites were sold with Rocs, which as previously mentioned likely weighed on value retention levels.
  - It is possible that wind sites also saw suppliers price in greater cannibalisation levels and therefore had lower estimates of captured £/MWh prices following trends seen throughout the COVID-19 outbreak. Analysis by Cornwall Insight shows that onshore wind sites have had captured prices ~15% below baseload prices in the period April – June, as low electricity demand levels have significantly reduced wholesale prices at times of high wind output
  - However, competition for onshore wind sites remained high, with an average of 27 bids per site, slightly higher than the auction average of 25
- **Landfill gas** had the second highest presence in the auction by number, with nine sites participating, but only totalled 4.8MW. All sites included the sale of Rocs and the technology saw the second lowest average value retention at 99.8%, down from 109.8% in the last auction. The large proportion of Roc sites, and the fact that participating sites had relatively high Roc banding awards compared to previous auctions, was a key driver behind lower value retention. This was despite being a baseload/dispatchable technology which in previous auctions has often attracted a premium value
- **Solar PV** had the third highest presence in the auction by number, with six sites participating, but was the largest by capacity with 32.1MW. Only two sites included the sale of Rocs, whilst the remaining four were split equally across FiT sites or those that chose to sell power only. Solar PV sites had the second highest average value retention at 104.7%, but this was down from 106.5% in the January auction
  - Similar to onshore wind sites, suppliers may have priced in greater cannibalisation levels and therefore had lower estimates of captured prices against the prevailing wholesale price estimate used to estimate maximum benchmark values
- **Hydro** had the joint third largest presence in the auction, with 5 sites participating totalling 2.9MW, three of which included the sale of Rocs. The technology achieved an average value retention of 99.5%, the lowest of all technologies in the auction and down from 107.4% in the January auction
  - Despite seeing the lowest average value retention, hydro sites remained the most popular amongst bidders with an average of 37 bids per site
- **AD** also had 5 sites auctioned across 2.8MW. The technology had an average value retention of 101.5%, down from 108.3% in the last auction. AD sites had the lowest average number of bids, but still saw strong competition between suppliers at over 10 bids per site

<sup>3</sup> 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, we make comparisons wherever it is possible to do so.



- **Energy from waste (EfW)** was made up of one site, at 21.1MW, the largest in the auction. It sold power only and achieved a value retention of 108.3%. This was up on the levels seen in the January auction which included two energy from waste sites, averaging 107.2%
- **Biomass** also had just one site auctioned, at 3.6MW. It included the sale of Rocs and achieved a value retention of 103.6%, attracting 23 bids
- **Mixed technologies** saw just one site auctioned with a capacity of 0.8MW. It sold power only and achieved a value retention of 103.3%, above the auction average as it attracted 25 bids

It is important to note that while many technologies saw lower average value retention levels compared to the January 2020 auction, with likely reasons explained in Section 3.1, absolute £/MWh values achieved by all technologies were higher in this auction owing to increases in wholesale power prices and a focus on the shorter-term six month contracts over winter months. As the auction occurred in July, wholesale prices avoided the lows that were seen in April and May when the impacts of COVID-19 were greatest.

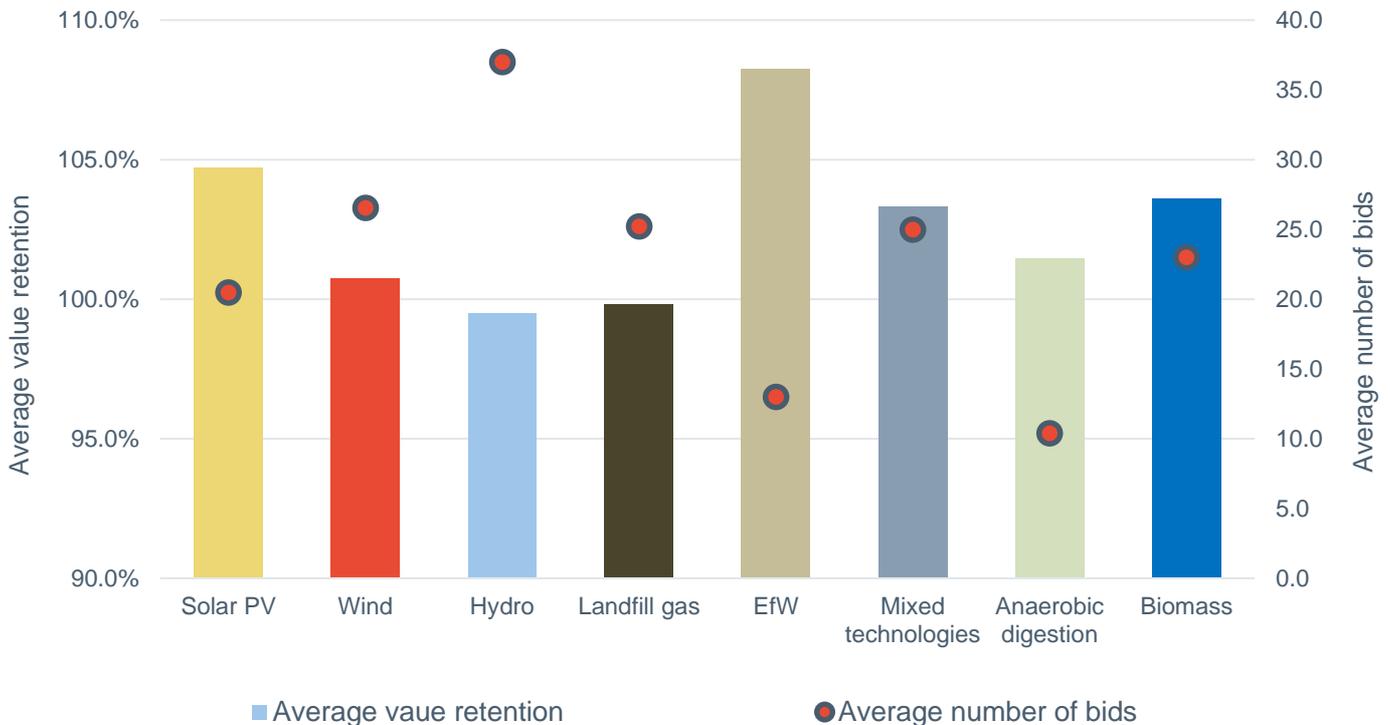
Figure 4 shows the range of values achieved by different technologies against typical maximum benchmark values. Figure 5 also includes the average number of bids accrued per generator.

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

Value retention	Anaerobic digestion	Biomass	Hydro	Landfill gas	EfW	Mixed	Solar PV	Wind
Average	101.5%	103.6%	99.5%	99.8%	108.3%	103.3%	104.7%	100.7%
Maximum	111.9%	103.6%	106.5%	104.7%	108.3%	103.3%	114.4%	111.0%
Minimum	82.3%	103.6%	94.1%	93.3%	108.3%	103.3%	100.6%	87.1%

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 varied by support scheme as well as technology. In this auction RO generators achieved lower value retention on average but continued to make up a greatest proportion of generators, with 29 of the 46 generators including the sale of Rocs. FiT generators made up a smaller number of generators in this auction, making up eight of the 46 generators, but this was up from five in the January auction. In addition, there were nine sites that sold power only.

While FiT sites saw strong artificial competition from the administered export tariffs, which they aimed to beat on this auction, both power only and FiT sites achieved higher value retention levels compared to Roc sites. We explore reasons below.

#### 3.3.1 FiT Generators

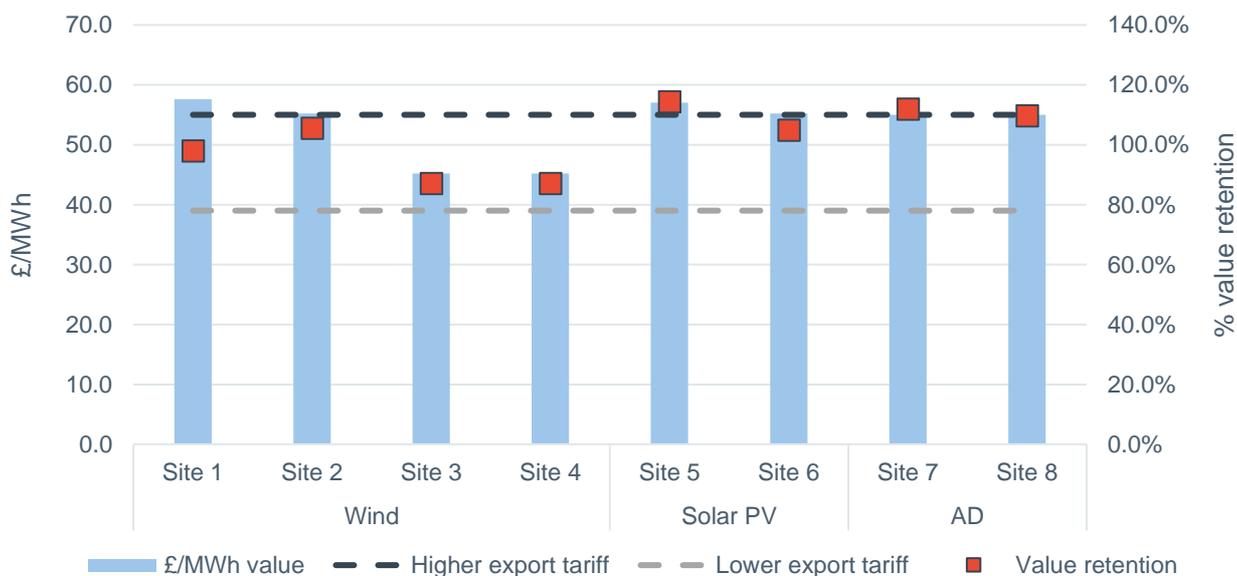
Eight FiT generators participated in the auction, each seeking to beat the administered export tariffs through PPAs – every 12 months FiT generators can opt to receive the administered export rates or choose to enter a commercial PPA, and the choice is often highly dependent on prevailing wholesale prices.

FiT sites achieved an average value retention of 102.3% in this auction, down from 108.8% seen in the January auction. However, £/MWh values were slightly higher in this auction averaging £53.18/MWh, up from £52.12/MWh in the January auction. This has been helped by a small underlying rise in wholesale prices, as this auction missed the lowest prices seen this year through April and May 2020.

The higher administered export rate, for projects that broadly accredited to the FiT after 2012, is currently £55.00/MWh, while the lower export tariff is £39.00/MWh. Figure 6 shows the value achieved by each of the eight sites in the auction and compares this to the administered export rates.

It appears that all sites either achieved a value above, or in line with, the export tariffs. This is perhaps a trend that would not have been expected given prevailing wholesale prices but is positive for the generators in the auction. It is also worth noting that commercial PPAs through e-POWER and other routes to market provide value for embedded benefits, whereas the administered do not. This can also add to £/MWh values in the auction.

Figure 6: Values and value retention achieved by FiT sites



Source: e-POWER



### 3.3.2 Roc Generators

29 generators included the sale of Rocs in this auction, making up the largest proportion of the 46 generators involved. Average value retention of Roc generators was 100.6% in this auction, down from 106.9% in the January auction. This is also lower than the average value retention achieved by FIT and power only generators, at 102.3% and 102.7% respectively.

Lower value retention for Roc projects has gone against trends observed in the last few years. This is owing to lower projections of Roc recycle values for CP19 (2020-21), in turn due to reduced demand levels and uncertainty caused by COVID-19. Roc recycle values are not included in maximum benchmark values and therefore typically act to push value retention levels above 100%. The buy-out price of £50.05/Roc has been used to assess maximum benchmark values in this auction.

Whilst a Roc recycle value of several £s/Roc is currently expected for CP19, there remains a heightened risk that the Roc market could become oversupplied this year. If this were to happen, due to a prolonged trend of lower demand or in combination with high renewables output, then recycle values could fall to zero. Therefore, suppliers are more reluctant to price recycle values into their bids and may even be seeking to buy Rocs below the buy-out price.

This marks a stark contrast to previous auctions, where Roc recycle values have been higher amid short markets in 2018-19 and 2019-20. This typically pushed value retention further in excess of 100% as high recycle values were priced into bids.

### 3.3.3 REGOs

The REGO market has undergone some volatility since the last auction analysis report in January. A survey carried out in July 2020 by Cornwall Insight showed that REGO values have fallen from their levels six to 12 months ago. Regarding REGOs for Fuel Mix Disclosure year 2020-21, this has largely been attributed to COVID-19 and the associated reduction in electricity demand.

Lower electricity demand, and uncertainty about future consumption levels from all consumer types, has meant demand from suppliers has temporarily fallen at a time when more renewables generators are commissioning, conversely increasing REGO supply.

Lower REGO values, if priced into supplier bids, will have acted to slightly lower both £/MWh values achieved and value retention levels as they are not part of the maximum benchmark value assessment. REGO values continue to vary by technology, with un-fuelled technologies (wind, solar and hydro) seeing greater values than fuelled technologies (landfill gas, biomass and EfW).

## 3.4 Comparison with previous auctions

The July 2020 e-POWER auction saw value retention come down from their record high levels seen in the January 2020 auction (at 107.1%), but with the average remaining above 100%. However, £/MWh values achieved in this auction were higher despite ongoing impacts from COVID-19.

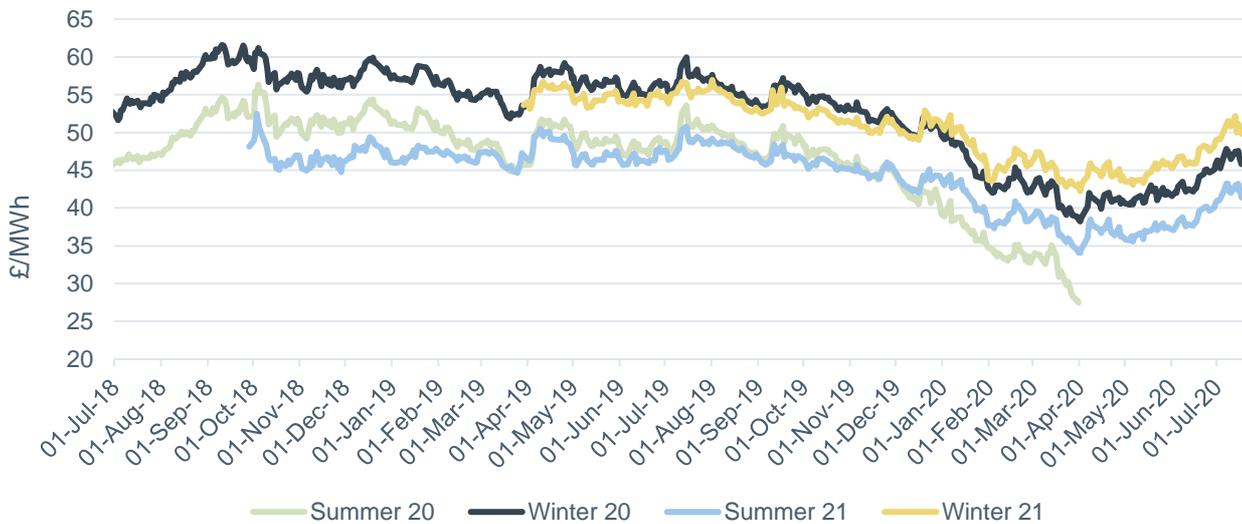
Higher wholesale prices were a key driver behind this. The annual October 20 baseload power contract, the time from which many sites in this auction start their PPA, stood at £45.34/MWh at the time of the auction. This is 10.9% higher than the annual April 20 contract at the time of the January 2020 auction, at £40.89/MWh. Wholesale power prices have resurged as GB and many areas of the globe eased lockdown restrictions, increasing energy demand. Furthermore, a recent rise in underlying commodity markets, including gas, oil and EU ETS carbon prices have helped support GB power contracts going into this auction.

However, wholesale power prices remained at low levels compared to auctions prior to January 2020 (exemplified in the figure below). Although the forward curve for power is currently showing higher prices for



future years, which could lead to further £/MWh rises in future auctions. Figure 7 details wholesale price movements over the last two years.

**Figure 7: Seasonal baseload wholesale power price movements**



Source: Cornwall Insight

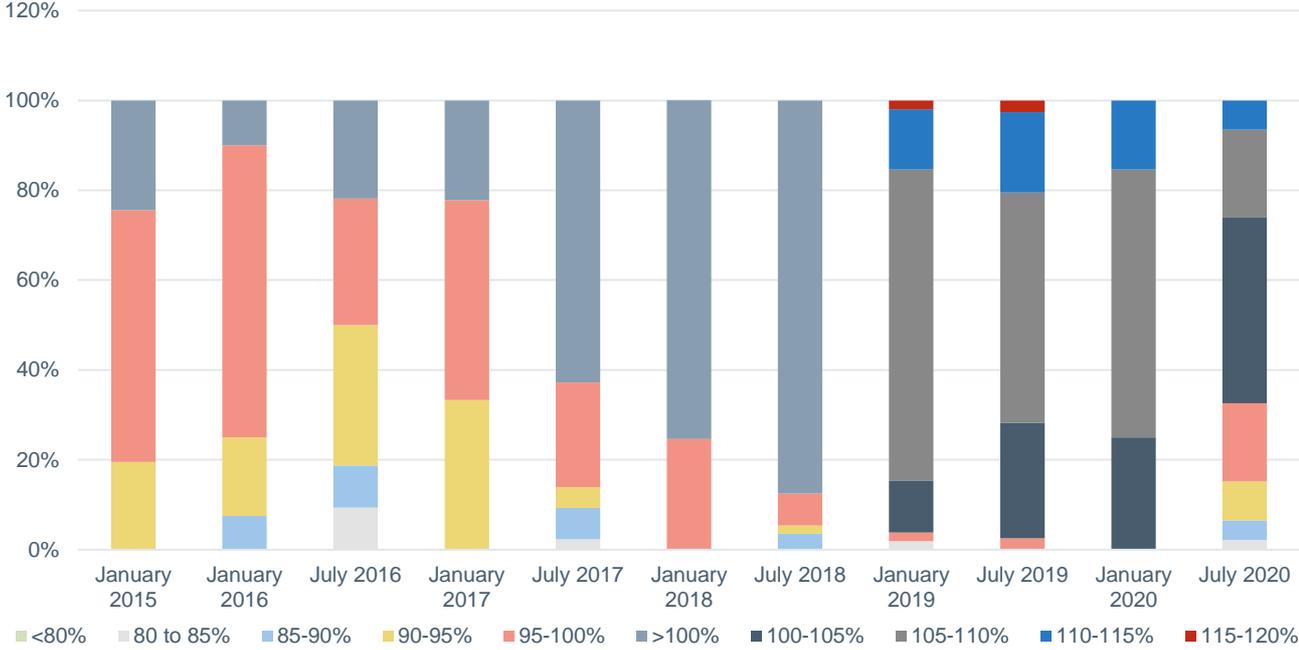
Lower certificate values, including both Rocs and REGOs, worked negatively against generators in this auction compared to recent auctions. Lower REGO values and projections of significantly reduced Roc recycle values amid COVID-19 will have impacted values achieved by generators, which were detailed in Section 3.3.

The overall range of embedded benefit values in this auction was broadly comparable to recent auctions. Embedded benefit values in this auction averaged £7.02/MWh, compared to £5.71/MWh in January 2020. Embedded benefit values are highly site specific and depend on technology, size and location.

The BSUoS embedded benefit has risen significantly this summer, due to increased balancing costs amid COVID-19. The benefit has reached levels in excess of £6/MWh in some months, compared to typical levels of £2.5/MWh – £3.5/MWh; however, this is unlikely to have effected bidding levels in this auction with most projects being auctioned from October 2020. Furthermore, the BSUoS embedded benefit is set to be removed from April 2021. This was an outcome of Ofgem’s Targeted Charging Review (TCR) Significant Code Review (SCR).

As Figure 8 shows, value retention in this auction has remained high amid strong competition from suppliers for green electricity. However, it also highlights that retention levels have fallen from their record highs seen in the last two auctions, with multiple value streams being impacted by COVID-19.

Figure 8: Distribution of values achieved compared to maximum benchmark values and changes Over Time



Source: e-POWER