

Analysis of the e-POWER July 2017 auction

July 2017

Natalie Cole and James Brabben

About Cornwall Insight

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:

- Publications – Covering the full breadth of the GB energy industry our reports and publications will help you keep pace with the fast moving, complex and multi-faceted markets by collating all the “must-know” developments and breaking-down complex topics
- Market research and insight – Providing you with comprehensive appraisals of the energy landscape helping you track, understand and respond to industry developments; effectively budget for fluctuating costs and charges; and understand the best route to market for your power
- Training, events and forums – From new starters to industry veterans, our training courses will ensure your team has the right knowledge and skills to support your business growth ambitions
- Consultancy – Energy market knowledge and expertise utilised to provide you with a deep insight to help you prove your business strategies are viable

For more information about us and our services contact us on enquiries@cornwall-insight.com or 01603 604400.

1 e-POWER Auction Analysis

1.1 Headlines

The latest e-POWER auction was held over three days, from 11 to 14 July 2017. The auction sold contracts of varying lengths for 43 commercial projects, accounting for 172.4MW of capacity. The auction also included the last 15 legacy Non-Fossil Fuel Obligation (NFFO) contracts. This report analyses the commercial contracts only.

Headlines from the latest auction are:

- The July 2017 auction saw average value retention against pre-auction maximum benchmarks of over 100% at 100.8%. This compared to 97.2% in January 2017, 94.5% in July 2016 and 96.4% in January 2016. Cornwall Insight analysis suggests the 100% benchmark was breached for two reasons:
 - Suppliers bidding in the auction are placing a higher premium on sites able to generate over peak periods (landfill gas, biomass, anaerobic digestion (AD) and municipal waste (MIW)¹.
 - Roc pricing in bids has increased owing to a sharp uplift in market forecast over the last six months. A short market is expected for 2017-18 and suppliers may have bid more aggressively on Rocs to secure them.
- Average prices in the July 2017² auction varied significantly by support scheme compared to previous auctions. FiT sites averaged £47.8/MWh, 9.1% lower than the January 2017 auction, whereas 1 Roc projects averaged £100.2/MWh, 6.8% higher than the January 2017 auction
 - Lower FiT prices were due to the technology make-up of the sites in this auction being weighted more to intermittent plant (3 solar PV sites and only one AD site), in comparison to the previous auction (2 AD sites and one onshore wind site).
 - Roc projects achieved higher values as Rocs were valued higher in supplier bids, owing to a rise in forecast certificate prices and a short market for 2017-18
- 35 sites were auctioned for the period from 1 October 2017 to 31 March 2018, achieving an average value retention of 102.3%. 5 sites were auctioned for the period from 1 October 2017 to 30 September 2018, achieving an average value of 97.7%. Two sites were auctioned for 1 August 2017 to 31 October 2017, achieving an average value of 88.9%. One site was auctioned for 1 October 2017 to 31 December 2017, achieving an average value of 85.9%
- Differences in value retention between different contract lengths reflect the technology mix of each grouping. On average, the six-month contracts achieved the highest value retention due to the presence of more baseload sites
- FiT sites achieved 97.6% of market benchmark value. This was split between three solar PV FiT sites, which achieved average retention of 95.8% and an AD site which had a higher retention of 103.3%. Roc projects achieved higher average value retention than their FiT counterparts, unlike the previous auction when this trend was reversed. 1 Roc/MWh projects achieved average value retention of 103.5%
- Baseload sites continued the trend of higher value retention, with AD, landfill gas, biomass and MIW sites all achieving average value retention of 100.0% and above. For intermittent sites, onshore wind power had the highest number of sites in the auction (14), and achieved average value retention of 102.4%. Hydro sites achieved average value retention of 100.7% and solar PV 95.1%

¹ Energy from waste (EfW) is the process of generating energy in the form of electricity and/or heat from the primary treatment of waste (other than a fuel produced by means of anaerobic digestion, gasification or pyrolysis). This category includes municipal waste (MIW).

²Note: These seasonal auctions are held for the season-ahead, typically with January auctions held for power delivered during the summer and July auctions held for winter power delivery

1.2 Cornwall Insight Comment

The July 2017 auction continued recent auction trends of increased generator value retention through e-POWER. Extending the trend to new levels, the auction achieved a new record of 100.8% average value retention, the highest Cornwall Insight has observed since assessing the auctions. We believe this was achieved through two major market factors.

Firstly, suppliers placed a higher premium on technologies able to generate over peak periods, these technologies were landfill gas, biomass, AD, and MIW. This higher premium could be due to increasing wholesale power market volatility seen over recent months, and suppliers may have increased their bids in order to secure power and lock in costs ahead of the winter season. Increasing supplier participation in the auction may also have increased competition. Additionally, peak generation from these sites means they can also access greater embedded benefit values, including TRIAD. Suppliers may have bid more aggressively on this aspect of projects in order to access these network cost savings.

Secondly, Roc pricing in bids has increased owing to a sharp uplift in market forecast over the last 6 months. A short market has seen increased bidding and competition to secure certificates and with pre-auction benchmarks at £45.0/Roc in the auction (around 5% below current forecast prices) suppliers may have bid over this in order to secure projects with these certificates.

Outside of Roc projects, auction value retention for FiT project was in line with recent high retention trends at 97.6%. Average values were £47.8/MWh, below the higher Ofgem Administered Export Rate of £50.3/MWh. Low and stable wholesale power prices continue to mean that only baseload FiT sites (AD) and those with higher embedded benefits can gain values above this rate of £50.3/MWh.

Overall, absolute comparisons with alternative routes to market are complex given the spread of offers across different PPA providers for different technologies, and variations between fixed and floating prices of PPAs of different maturities. Analysis can be drawn with the auction data continuing to show a distinct premium placed on non-intermittent sites. This premium extended to Roc projects in the July 2017 auction owing to a short market and surging traded certificate prices. This trend of peak power and Roc pricing premiums is something Cornwall Insight has observed across the market for short-term PPAs. Overall, non-intermittent commercial sites achieved value retention towards the upper end of market values that we are aware of for those technologies. Intermittent sites achieved values in the July 2017 auction which were equivalent to market averages seen elsewhere.

2 Introduction

This short report analyses the results for the commercial contracts in the July 2017 e-POWER auction completed over three days, from 11 to 14 July 2017. It references the **maximum market benchmark value** a site could achieve as a £/MWh figure based on different potential sources of value. These are assessed pre-auction based on underlying figures and market benchmarks. These sources of value include:

- Wholesale power price
 - for the purposes of the benchmark prices, this is calculated using the July (winter) 17 baseload power price for six-month contracts, at £46.08/MWh, the annual October 17 price for 12-month contracts, at £42.76/MWh. There were bespoke contracts for four PV sites, one for a site auctioning for 1 October 2017 to 31 March 2018 at £43.05/MWh, two sites auctioning for 1 August 2017 to 31 October 2017 at £41.81/MWh, and one site auctioning for 1 October 2017 to 31 December 2017 at £45.19/MWh. Prices were assessed on the first day of auction
- Green certificates
 - Renewables Obligation Certificates (Rocs). The rate of award of these certificates varies depending on the technology used for generation
- 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, and whether it is included in the contract
- Balancing Service Use of System charges (BSUoS) and transmission losses
 - As BSUoS and transmission losses are accounted and paid for against 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 October 2017 to 31 March 2018 (winter 17) are summarised in Figure 1 and are compared with typical maximum values for front season contracts on the days of recent auctions³.

Figure 1: Typical Maximum Benchmark Values (£/MWh) of e-Power Auction Elements (six-month season-ahead prices)

Element	Wholesale Baseload Power	Rocs	Lecs	GDUoS
July 2017 value	£46.1	£45.0	n/a	-£2.0 to +£7.4
January 2017 value	£46.1	£45.0	n/a	-£0.6 to +£7.4
July 2016 value	£46.6	£45.0	n/a	-£0.6 to +£7.0
January 2016 value	£31.6	£45.0	n/a	£0 to £10.6
January 2015 value	£41.6	£44.0	£5.5	-£1.4 to +£7.3

Source: e-Power

³In the January 2016, July 2016, January 2017 and July 2017 auctions, new annual and bespoke monthly contracts were included. Separate power price valuations were made for these contracts and they are not shown for comparison



3 July 2017 Analysis

3.1 Auction Summary

Overall, 43 commercial projects were contracted in the auction. This compares to 36 in the January 2017 auction and 32 in the July 2016 auction. The 43 sites totalled 172.4MW of capacity, with sites ranging in size from 0.1MW (solar PV) to 73.6MW (MIW). The average project size was 4.0MW.

With the volatility seen in seasonal wholesale prices over recent months, generators continued to take different strategies on contract lengths, based on their view of future wholesale prices. Value retention varied with different contract lengths in the auction.

35 sites were auctioned for the period from 1 October 2017 to 31 March 2018, achieving an average value of 102.3%. 5 sites were auctioned for the period from 1 October 2017 to 30 September 2018, achieving an average value of 97.7%. Two sites auctioned for 1 August 2017 to 31 October 2017, achieving an average value of 88.9%. One site auctioned for 1 October 2017 to 31 December 2017, achieving an average value of 85.9%.

Differences in value retention between different contract lengths reflect the technology mix of each grouping. On average, the six-month contracts achieved the highest value retention due to the presence of more baseload sites. Suppliers may also have bid more aggressively on these contracts, with greater certainty on price. Longer-term and bespoke contracts saw lower value retention due to the technology types being mostly intermittent, with six solar PV sites, one hydro site and one AD site.

In general, baseload projects tend to see higher value retention in e-POWER auctions as they can access greater wholesale power and embedded benefit values over peak periods. However, in the July 2017 auction some intermittent Roc projects also saw high value retention (100%+). This is likely due to the Rocs sold with the sites being valued by suppliers at a higher level. Rocs have been trading in the e-ROC auctions at levels well above the buy-out price and the £45.0/Roc valuation used as the benchmark for this auction.

Figure 2 below details average value retention with auction contract length. Figure 3 shows the range of values achieved by different technologies against the typical maximum benchmark value. The table highlights the general trend of baseload sites achieving higher values in the auction.

Figure 2: Contract Length by Technology and Average Value Retention

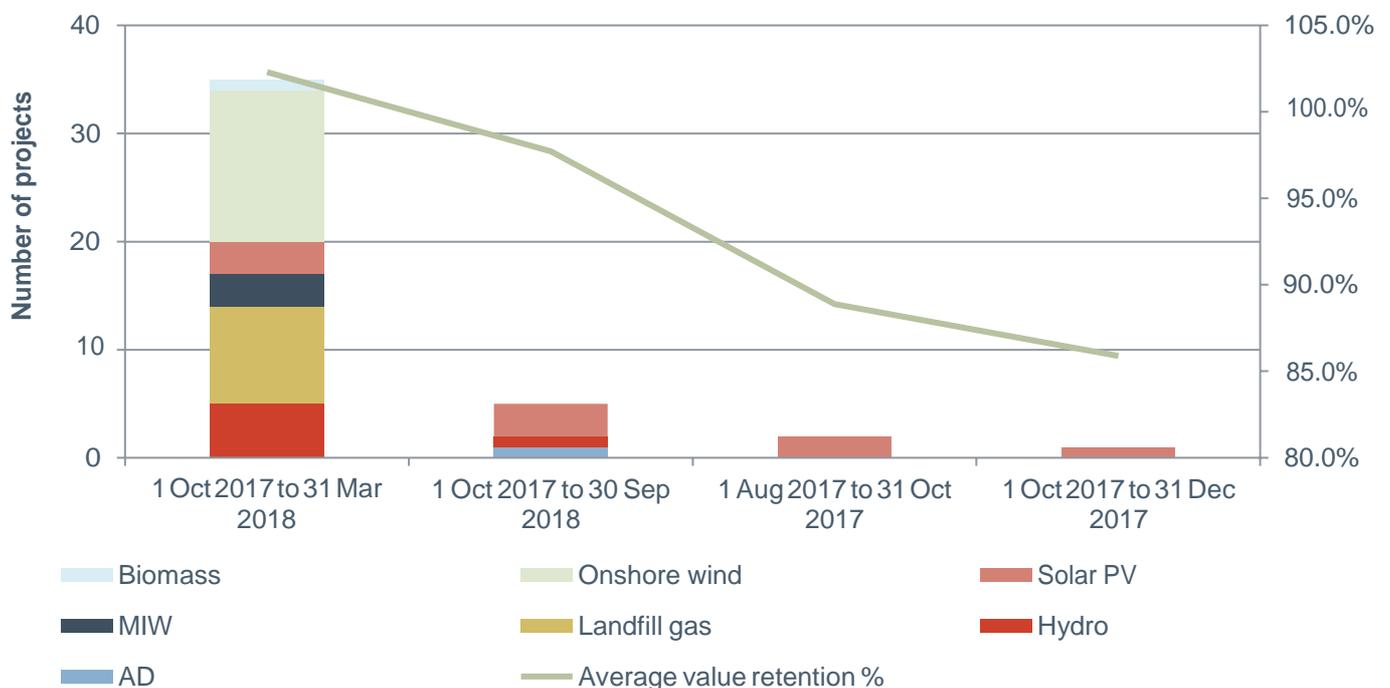


Figure 3: Number of Sites Achieving Proportion of Typical Maximum Benchmark Value

Technology	<90%	90%-95%	95%-100%	100%-105%	>105%
Anaerobic digestion (AD)	0	0	0	1	0
Hydro	0	0	3	2	1
Landfill gas (LFG)	2	0	0	2	5
Municipal waste (MIW)	0	0	0	1	2
Solar PV	2	1	4	2	0
Onshore wind	0	1	3	7	3
Biomass	0	0	0	1	0
Total	4	2	10	16	11
Percent	9%	5%	23%	37%	26%

3.2 Broken Down by Technology

The latest auction saw significant changes in the capacity mix of the auction. In this auction, biomass technologies were present, which have been absent from the previous few auctions. MIW had the highest share of capacity in the auction, followed by solar PV with the second highest share:

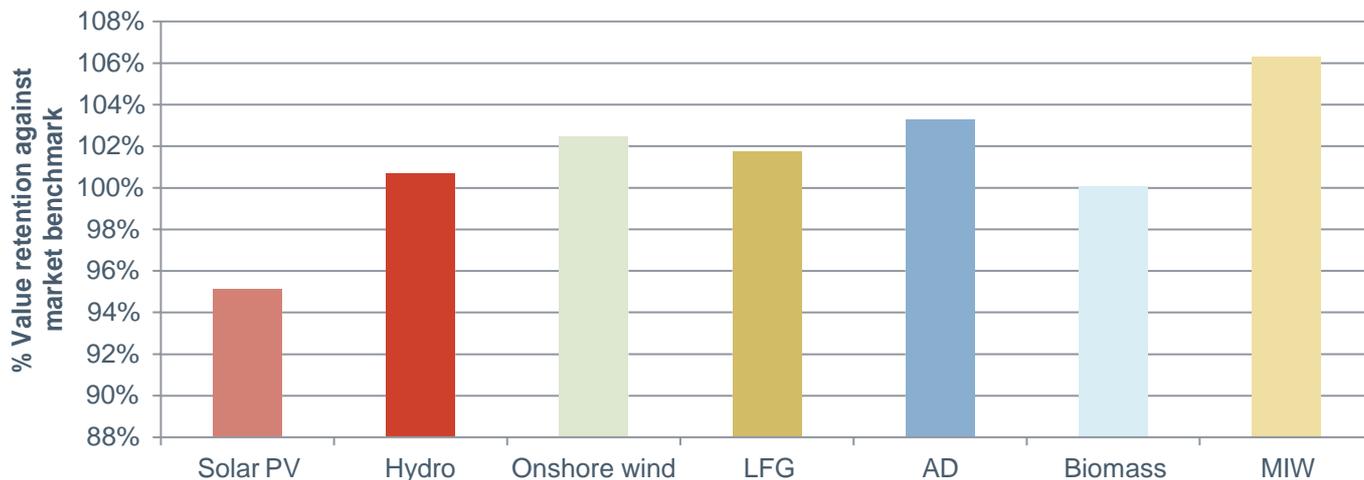
- Onshore wind power had the highest number of sites in the auction (14), which was also the case in the previous auction (17 sites). Its share of capacity slipped to 16.6% (28.6MW), down from 31.4% in the previous auction. 1 Roc/MWh wind projects achieved a mean price of £99.1/MWh, or 102.9% of each site’s maximum value
- MIW had the highest share of capacity in the auction, with three sites making up 42.7% (73.6MW) of the total. MIW achieved a mean price of £52.4/MWh, or 106.3% of the benchmark value. MIW also had the highest share of capacity in the previous auction (37.7%, four sites totalling 42MW).
- Solar PV’s share of capacity increased to 17.8% (30.7MW), compared to only 5.8% in the previous auction. The three solar FiT sites in the auction achieved an average price of £47.5/MWh, with value retention averaging 95.8%. The two 2 Roc/MWh solar PV projects achieved a mean price of £142.8/MWh, with value retention averaging 103.4%
- Landfill gas share of capacity in the auction rose to 6.5% (nine sites totalling 11.3MW), compared to 4.6% (four sites) in the previous auction. The technology’s average value retention was higher this auction at 101.7%, compared to 99.8% in the previous auction, at an average price of £86.8/MWh
- Only one AD site was present in this auction, it achieved a 0.3% share of the capacity. The site’s capacity was 0.5MW and its value retention was 103.3%
- Hydro had a 12.6% share of the market (six sites totalling 21.7MW), with an average price of £90.7/MWh, 100.7% of its benchmark value
- Biomass had a 3.5% share of the market, with only one site present in the auction. This site’s capacity was 6.0MW and achieved a price of £46.1/MWh, 100.0% of its benchmark value

Figure 4 and Figure 5 detail average performance by technology against market benchmark prices.

Figure 4 Average value retention by technology

Technology	AD	Biomass	Hydro	LFG	PV	Wind	MIW
Average %	103.3	100.0	100.7	101.7	95.1	102.5	106.3

Figure 5 Average Value Retention by Technology



3.3 Broken Down by Support Scheme

Value retention for sites varied by support scheme as well as technology. FiT sites achieved 97.6% of market benchmark value. This was split between three solar PV FiT sites, which achieved average retention of 95.8% and an AD site which had a higher retention of 103.3%.

Roc projects achieved higher average value retention than their FiT counterparts, unlike the previous auction when this trend was reversed. 1 Roc/MWh projects achieved average value retention of 103.5%, 2 Roc/MWh projects achieved slightly lower value at 103.4%, 0.9 Roc/MWh onshore wind projects achieved 104.6% and 0.2 Roc/MWh achieved 107.5%.

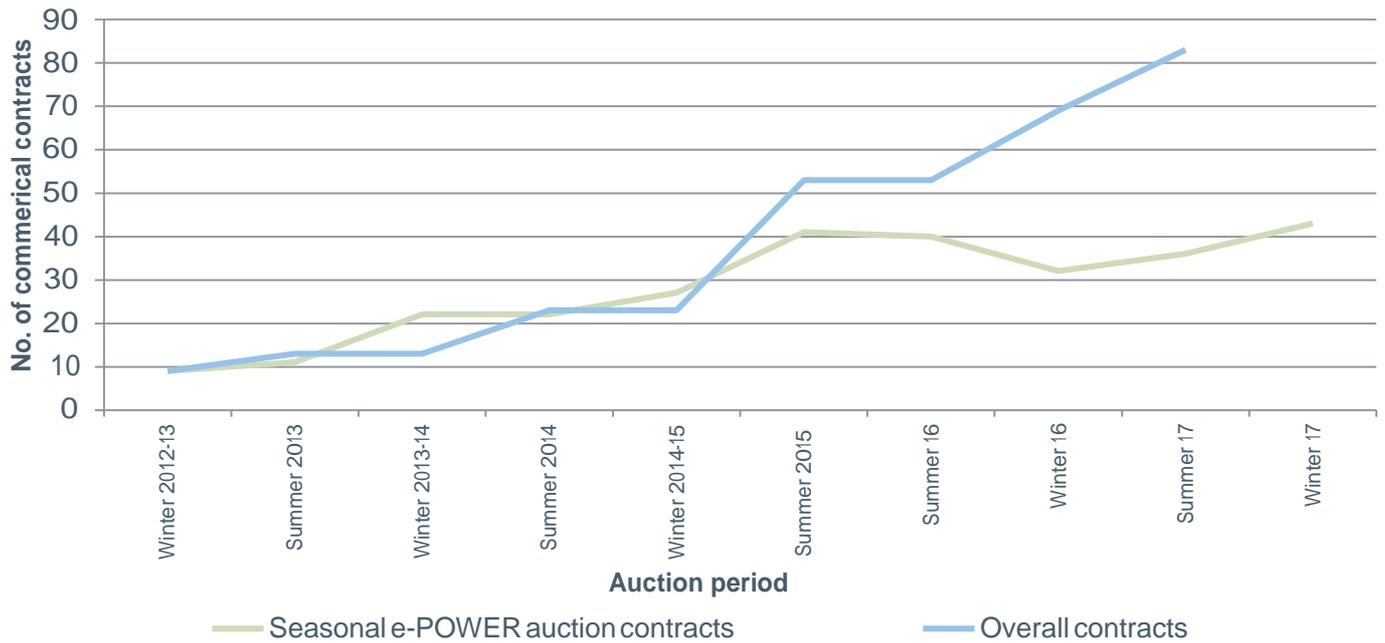
The sharp uplift in value retention for Roc projects is likely due to rising Roc prices values for Compliance Period (CP) 16 which runs from April 2017 to March 2018. A forecast undersupplied market for this period has seen traded Roc prices surge recently to values well above the £45.0/Roc benchmark set in the auction. The shortness of the market and the high recycle values expected for CP16 could have meant suppliers were more aggressive in their bidding to secure Rocs for compliance.

3.4 Auctioned contract numbers

The number of commercial contracts in the auction increased by 34% to 43 contracts, up from 36 in the previous auction. Following on from the previous auction, this has continued to reverse the trend of falling numbers of sites in the January and July auctions. Both the legacy e-POWER auctions and the other monthly auctions have seen increased participation from generators.

Figure 6 below details the trends of contracts to be auctioned at the legacy January and July auctions as well as the other monthly auction.

Figure 6 Trends in the Number of Commercial Contracts



3.5 Comparison with Previous Auctions

The July 2017 auction saw a rise in value retention against maximum benchmark values compared to the previous three auctions. The average value share retained by generators was 100.8%, compared to 97.2% in January 2017, 94.5% in July 2016 and 96.4% in January 2016.

Average value on a £/MWh basis was higher than the previous auction, at £81.6/MWh compared to £79.8/MWh in the previous auction. Going into the auction, the front season baseload power price was £46.1/MWh, the same as the value in the January 2017 auction, but 1.1% lower than the value in the July 2016 auction.

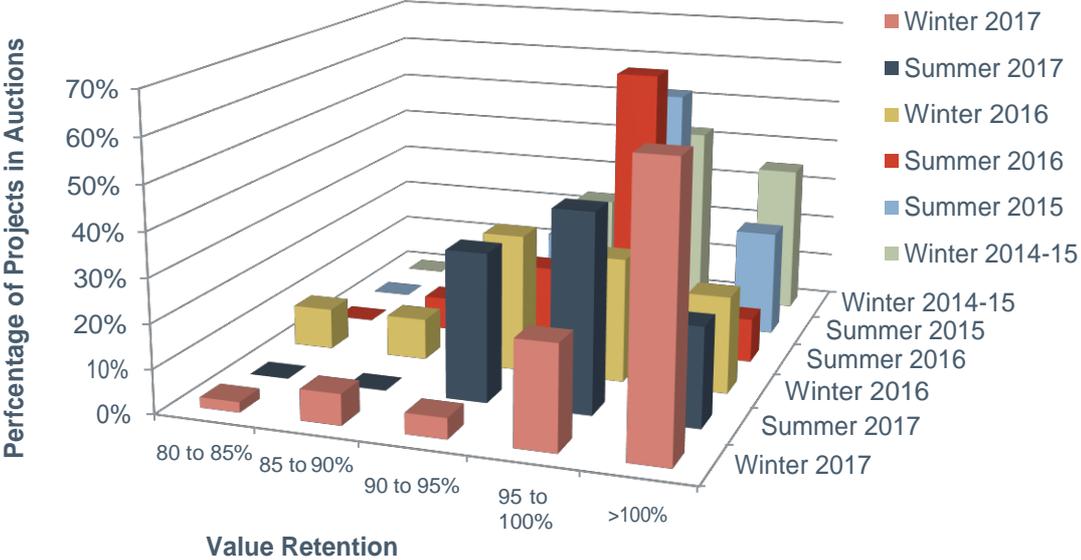
Outturn £/MWh values were pushed higher in the January 2017 and July 2017 auction as value retention rose significantly. Rising Roc price forecasts also contributed to greater price assumptions.

At the start of this year, wholesale power prices had risen from their seven-year lows of January 2016 owing to a slight recovery in commodity markets, notably oil and coal, exchange rate impacts following the UK’s decision to vote to leave the European Union. However, since January, power prices have steadily declined, following falls in the gas, oil and coal markets. Gas prices have steadily declined, following oil prices downwards and high renewables output leading to low demand for gas-fired power generation. Near-term power contracts have also been pushed down by record high levels of renewables generation.

A chart displaying historical seasonal wholesale prices can be found in Appendix A.

When comparing the distribution of values achieved compared to previous auctions, performance in the July 2017 auction shows increased clustering at the higher end of value retention, with 62.8% of projects achieving value retention of over 100%. In the previous auction, only 22.2% of projects achieved value retention over 100%.

Figure 7 Distribution of Values Achieved Compared to Maximum



4 Appendix A

Figure 8 Wholesale Power Price Movements

