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Analysis of e-POWER's January 2017 auction

February 2017

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1 e-POWER Auction Analysis

1.1 Headlines

The latest e-POWER auction was held on 24 January 2017. The auction sold contracts of varying lengths for 36 commercial projects, accounting for 111.3MW of capacity. This report analyses these commercial contracts only.

Headlines from the latest auction are:

- Average prices in the January 2017[1] auction on a £/MWh basis were higher than the previous auction[2] with outturn FiT prices averaging £52.6/MWh (+12.7%) and 1 Roc projects averaging £93.8/MWh (+2.3%). Higher £/MWh values in this auction were due to both wholesale and Roc price valuation rises and increased value retention
- The January 2017 auction saw a rise in value retention against maximum benchmark values compared to the previous two auctions (July 2016 auction and January 2016 auction). The average value share retained by generators was 97.2% compared with 94.5% in July 2016 and 96.4% in January 2016
- 23 sites were auctioned for the period from 1 April 2017 to 30 September 2017, achieving an average value of 96.9%. 12 sites were auctioned for the period from 1 April 2017 to 31 March 2018, achieving an average value of 97.1%. One site was auctioned for the period from 1 February 2017 to 31 March 2018, achieving an average value of 104.5%
- The variation in contract length continued the trend of generators looking to manage their exposure to wholesale price volatility. The greater popularity of six month contracts, at 64% of the overall auction mix, may indicate generator views on wholesale pricing going into next winter
- FiT sites achieved on average 100.3% of market benchmark value. This was split between two AD FiT sites, which achieved average retention of 103.6% and a wind site that had a lower retention of 93.4%. Notably, rising wholesale prices and greater value retention saw the two AD projects achieve values above the Ofgem administered export rate for 2017/18. Previous auctions have seen lower values
- Roc projects achieved lower average value retention than their FiT counterparts, with 1 Roc/MWh projects achieving average value retention of 96.0%. Higher retention for FiT projects may indicate the simplicity of bidding on just wholesale power and embedded benefits
- However, average Roc project value retention at 96% was significantly higher than the previous three auctions. This could be an indication of more competitive bidding for Roc projects in light of increasing Roc value forecasts for CP15 (2016-17) and CP16 (2017-18)
- Baseload sites continued the trend of higher value retention, with Anaerobic Digestion (AD), Landfill gas (LFG) and Municipal waste (MIW) sites all achieving average value retention of 99.8% and above. For intermittent sites, onshore wind power had the highest number of sites in the auction (17), and achieved average value retention of 95.3%. Hydro sites achieved average value retention of 95.8% and solar PV 98.2%

[1] Note: 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

[2] The current auction contracts power for delivery mainly during summer, whereas the previous auction contracted for power for delivery mainly during winter. Winter prices are typically higher than summer, however wholesale prices have risen significantly since the previous auction

1.2 Cornwall Comment

The January 2017 auction continued the recent trends of rising £/MWh values for generator. This was due to both increased wholesale prices and an uptick in Roc price assumptions. Additionally, £/MWh outturn values were pushed upwards by higher value retention, with retention significantly higher than the previous two seasonal auctions at 97.2%. This auction also had a distinct trend of sites clustering towards the higher end of retention. All sites achieved value retention of above 90.0%. The majority of FiT sites achieved values above the Ofgem Administered Export Rate, demonstrating the continued recovery in wholesale prices and higher value retention in the auction.

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. However, analysis can be drawn with the auction data continuing to show a distinct split between non-intermittent and intermittent value retention rates. 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 January 2017 auction which were equivalent to market averages seen elsewhere.

2 Introduction

This short report analyses the results for the commercial contracts in the January 2017 e-POWER auction completed on 24 January 2017. It references the **maximum market benchmark value** a site could achieve as a £/MWh figure based on different potential sources of value. These sources of value include:

- Wholesale power price
  - for the purposes of the benchmark prices, this is calculated using the January (summer) 17 baseload power price for six month contracts, at £46.1/MWh, the annual April 2016 price for 12 month contracts, at £47.7/MWh, and bespoke contracts for an AD site auctioning for 1 February 2017 to 31 March 2018 at £47.7/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 April 2017 to 30 September 2017 are summarised in Figure 1 and are compared with typical maximum values for front season contracts on the days of recent auctions[3].

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

Element	Wholesale Baseload Power	Rocs	Lecs	GDUoS[4]	BSUoS	Losses
January 2017 value	£46.1	£45.0	n/a	-£0.6 to +£7.4	£1.6	£0.4
July 2016 value	£46.6	£45.0	n/a	-£0.6 to +£7.0	£1.6	£0.4
January 2016 value	£31.6	£45.0	n/a	£0 to £10.6	£1.6	£0.4
January 2015 value	£41.6	£44.0	£5.5	-£1.4 to +£7.3	£1.6	£0.4
August 2014 – November 2015 value	£46.7	£44.5	£5.4	£0 to £10.7	£1.5	£0.5

Source: e-POWER

[3]In the January 2016, July 2016 and January 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
[4] The notable changes and ranges of GDUoS are due to the site-specific nature of the benefit

3 January 2017 Analysis

3.1 Auction Summary

Overall, 36 commercial projects were contracted in the auction. This compares to 32 in the July 2016 auction and 40 in the January 2016 auction. The 36 sites totalled 111.3MW in capacity, with sites ranging in size from 0.1MW (hydro) to 19.5MW (hydro). The average size of project was 3.1MW.

Because of 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:

- 23 sites were auctioned for the period from 1 April 2017 to 30 September 2017, achieving an average value of 96.8%
- 12 sites were auctioned for the period from 1 April 2017 to 31 March 2018, achieving an average value of 97.1%
- One site was auctioned for the period from 1 February 2017 to 31 March 2018, achieving an average value of 104.5%

Differences in value retention between different contract lengths reflect the technology mix of each grouping, with only AD opting for a bespoke contract in the auction. Six month and twelve month contracts were dominated by onshore wind with other technologies including AD, hydro, LFG, MIW and solar PV. The AD site under the bespoke 1 February 2017 to 31 March 2018 contract had a particularly high level of value retention of 104.5%. An even higher level of value retention of 105.3% was seen at a MIW site under the 1 April 2017 to 30 September 2017 contract. In general, baseload sites normally achieve higher value retention in auctions, as their ability to generate over peak periods makes them attractive to suppliers.

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

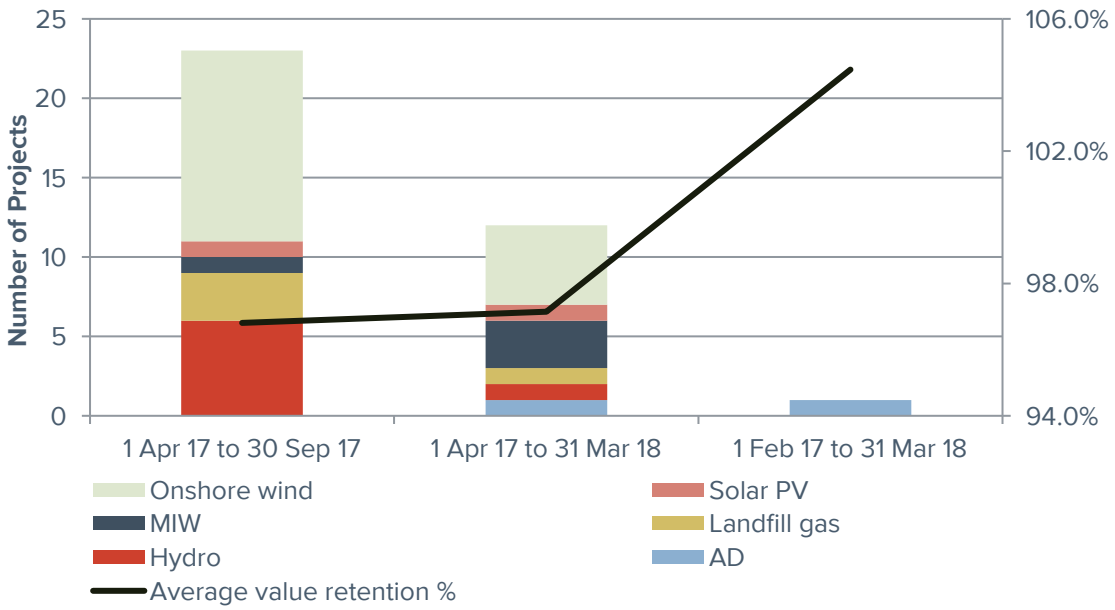


Figure 3 Number of Sites Achieving Proportion of Typical Maximum Benchmark Value

Technology	<90%	90%-95%	95%-100%	100%-105%	>105%
Anaerobic digestion (AD)	0	0	0	2	0
Hydro	0	4	2	1	0
Landfill gas (LFG)	0	0	3	1	0
Municipal waste (MIW)	0	1	0	2	1
Solar PV	0	0	1	1	0
Onshore wind	0	6	11	0	0
Total	0	11	17	7	1
Percent	0%	31%	47%	19%	3%

3.2 Broken Down by Technology

The latest auction saw a significant change in the capacity mix of the auction. There were no new technologies entering this auction, however the number of onshore wind sites and capacity levels have risen notably:

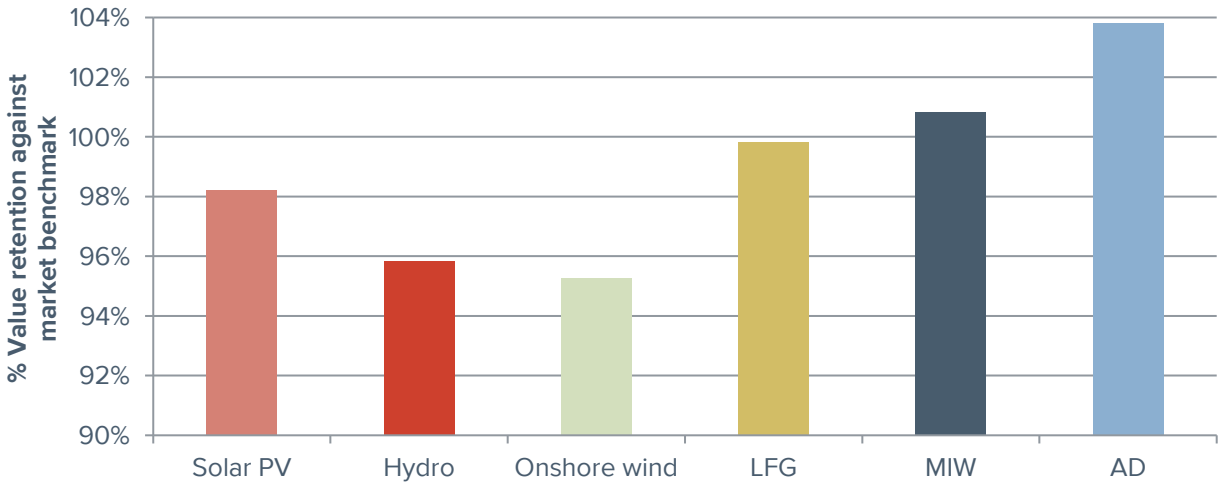
- Onshore wind power had the highest number of sites in the auction (17), which was also the case in the previous auction (ten sites). Its share of capacity rose to 31.4% (35MW), up from 15.8% in the previous auction. Wind sites achieved a mean price of £89.9/MWh, or 95.3% of each site's maximum value
- Municipal waste (MIW) had the highest share of capacity in the auction. Its share of capacity fell to 37.7% (four sites totalling 42MW), from 63.6% (three sites) in the previous auction. MIW remained the largest technology by capacity and achieved a mean price of £51.5/MWh, or 100.8% of the benchmark value
- Solar PV's share of capacity increased to 5.8% (6.4MW), compared to 3.4% in the previous auction. The two solar sites in the auction achieved an average price of £52.0/MWh, with value retention averaging 98.2%
- Landfill gas (LFG) share of the capacity in the auction rose to 4.6% (four sites totalling 5.1MW), compared to 2.0% (three sites) in the previous auction. The technology's average value retention was higher this auction at 99.8%, compared to 96.7% in the previous auction, at an average price of £97.8/MWh
- Anaerobic digestion (AD) achieved a 0.9% share of the auction (two sites totalling 1MW). Compared to 0.6% in the previous auction (three sites). FiT AD sites achieved an average price of £54.2/MWh, with value retention at 103.8%. No RO AD sites were present in this auction
- Hydro had a 19.6% share of the market (seven sites totalling 21.8MW), with an average price of £88.0/MWh, 95.8% of its benchmark value. Most hydro sites were 1 Roc/MWh projects.

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

Figure 4 Average value retention by technology

Technology	AD	Hydro	LFG	MIW	PV	Wind
Average %	103.8	95.8	99.8	100.8	98.2	95.3

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 100.3% of market benchmark value. This was split between two AD FiT sites, which achieved average retention of 103.6% and a wind site that had a lower retention of 93.4%. The difference could be due to the baseload nature of the AD projects which can achieve higher wholesale power and embedded benefit values.

Significantly, AD sites achieved an average price of £54.2/MWh, with both sites values above the 2017-2018 administered export rate of £50.3/MWh. The onshore wind site price was £49.5/MWh.

Roc projects achieved lower average value retention than their FiT counterparts. 1 Roc/MWh projects achieved average value retention of 96.0%. Higher retention for FiT projects may indicate the simplicity of bidding on just wholesale power and embedded benefits.

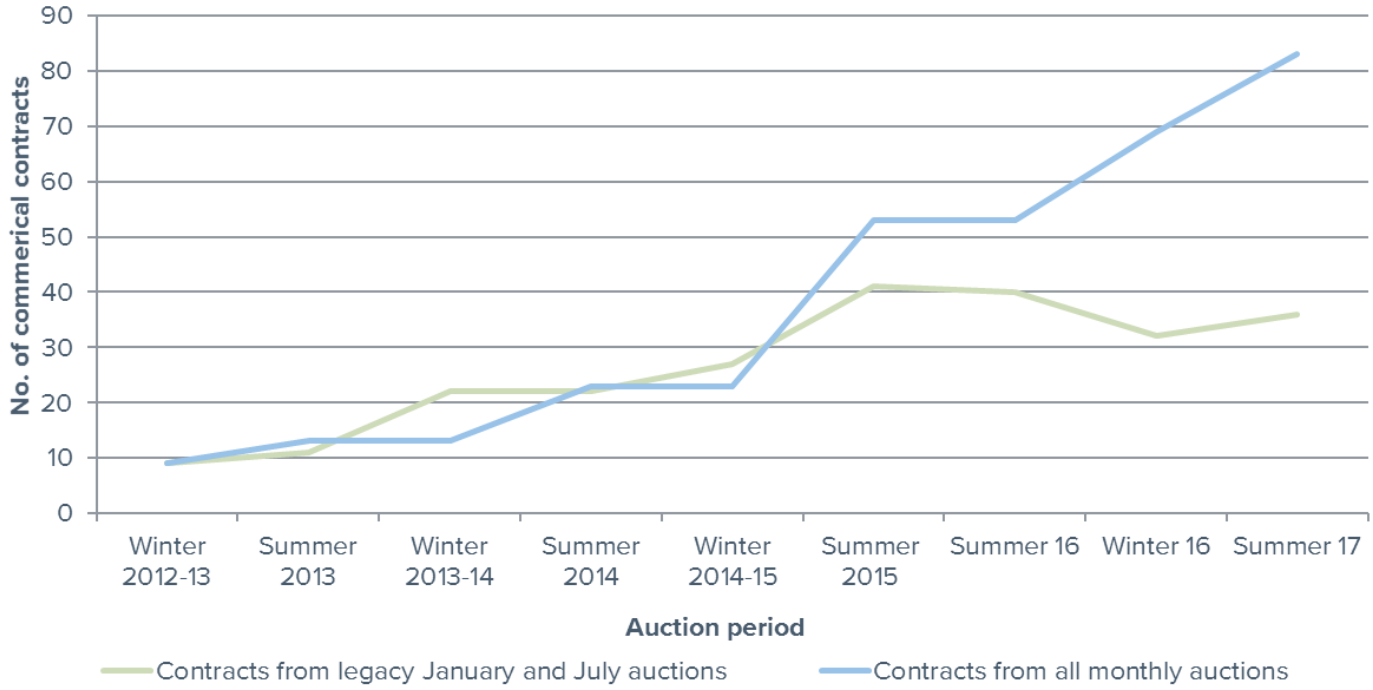
However, Roc project average value retention at 96.0% is an uplift on the July 2016 auction, where 1 Roc projects averaged 93.9%. Higher value retention in the latest auction aligns with market views of increasing Roc values for CP15 (2016-17) and CP16 (2017-18) compared to the July auction.

Other Roc projects just sold their power and other benefits in the auction. These sites achieved average value retention of 99.9% and were mainly made up of baseload sites.

The number of commercial contracts in the auction increased by 12.5% to 36 contracts, up from the 32 auctioned in the July 2016 auction. This has reversed the trend of falling numbers of sites in the legacy January and July auctions. Both the legacy e-POWER auctions and the other monthly auctions have seen increased participation from generators. e-POWER now auctions the power for 83 different 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



3.4 Comparison with Previous Auctions

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

Average value on a £/MWh basis was higher than the previous auction. Going into the auction, the front season baseload power price was £46.1/MWh, 1.1% lower than the value in July 2016 but 45.7% higher than its value in January 2016. Outturn £/MWh values were pushed higher in the January 2017 auction as value retention rose significantly. Rising Roc price forecasts may have also contributed to greater price assumptions.

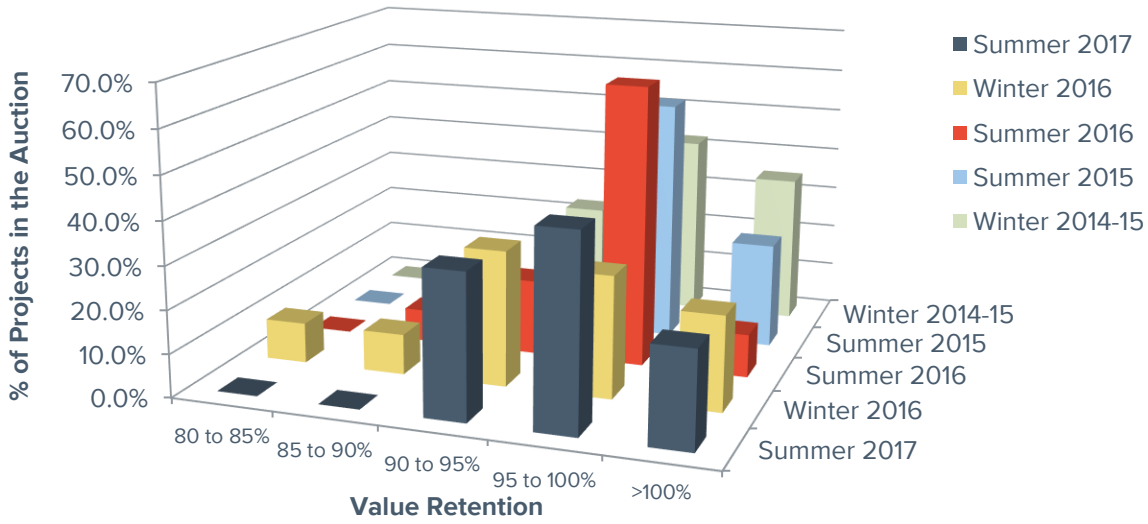
Wholesale power prices have risen from their seven-year lows of January 2016 owing to a slight recovery in commodity markets, notably oil and coal, exchange rate impacts following the UK's decision to vote to leave the European Union and a rise in gas prices towards the end of the year. Power prices have also increased in recent months, with occasional sharp peaks, following cold European weather forecasts, unforeseen nuclear outages in Germany and France as well as reductions in interconnector capacity which further reduced supply margins. Gas prices have risen sharply recently following cold European weather forecasts and further outages reducing withdrawals from Britain's largest gas storage site, Rough, which have been extended until 1 March 2017.

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 January 2017 auction shows increased clustering at the higher end of value retention. This auction shows more concentrated clustering of projects gaining 95%-100% value retention (44.4%) when compared to the previous auction (July 2016 at 28.1% of contracts), but less concentrated than January 2016 (65.0%) and January 2015 (56.1%). The spread of the remaining contracts had a slightly higher proportion of sites achieving 90%-95% and >100% value retention than in previous auctions.

The higher levels of clustering in this auction were primarily caused by average value retention rising above 90% for all sites. In previous auctions a significant proportion of sites gained retention values below 90%. Figure 7 below compares the distribution of value retention against market benchmark values for the January 2017 auction and previous seasonal auctions.

Figure 7 Distribution of Values Achieved Compared to Maximum



4 Appendix A

Figure 8 Wholesale Power Price Movements