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Analysis of the NFPA's January 2016 e-POWER auction

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- wholesale and retail energy market competition and change;
- regulation and public policy within both electricity and gas markets;
- electricity and gas market design, governance and business processes; and
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NFPA e-POWER Auction Analysis

January 2016

Headlines

The NFPA held its latest **e-POWER auction** on 26-28 January 2016. The auction included 40 commercial projects and accounted for 141MW of capacity, up 10MW from the January 2015 auction. This report analyses these commercial contracts only.

Headlines from the latest auction are:

- average prices achieved by projects were considerably lower when compared to previous auctions. The falls can be attributed to steep declines in wholesale power prices over the last 12 months. Going into the auction prices for summer 2016 baseload power were at £31.6/MWh, down 24% on a year earlier;
- with seasonal wholesale prices at their lowest levels since 2007, generators took different decisions on contract lengths in the auction. Decisions were based on a view of future wholesale prices;
- contracts were sold for lengths of six months (1 April 2016 to 30 September 2016 and 1 October 2016 to 31 March 2017) 12 months (1 April 2016 to 31 March 2017) and 13 months (1 March 2016 to 31 March 2017);
- this is a significant change in e-POWER auction structure, with previous auctions predominantly issuing contracts for the next six-monthly seasonal period (winter 2014-15, summer 2015, winter 2015-16);
- value retention for six month 1 April 2016 to 30 September 2016 contracts was 95.0%, down on the 98.2% recorded for the corresponding contracts in the January 2015 auction. Value retention for 12 month contracts was 96.9%;
- in terms of the technology split in the auction, wind and solar PV projects accounted for 42.5% (17 projects) of the commercial sites sold and achieved average value retention of 94.3% and 95.8% respectively. Value retention for the two technologies ranged from 86%-98%;
- landfill gas was the second most represented technology in the auction. It achieved an average retention value of 98.2%. This figure, along with high numbers for municipal waste and AD sites, indicates the continued demand for baseload generation sites by some suppliers in the e-POWER auctions; and
- 18 suppliers participated in the auction, consistent with numbers seen in previous seasonal auctions. The average number of bids per contract was 2.9 significantly lower than previous auctions. Reduced bidding liquidity could be due to the higher reserve prices set in the January 2016 auction, which forced suppliers to bid closer to market value in their initial bids. The higher reserves also meant that several suppliers did not bid at all.

Cornwall Energy comment

The January 2016 auction exhibited new trends for e-POWER auctions. Sharp reductions in wholesale prices have incentivised generators to choose different contract lengths in the auction, based on their view of future prices. New contract lengths indicate the flexibility demanded by generators, a trend increasing in the market with recent policy and market changes. Overall, value retention in the January 2016 auction was slightly lower than the previous three auctions at 96.4%.

For generators, 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, performance of commercial sites in the auction showed that value shares retained by generators through the e-POWER auction remain towards the upper end when compared with those that we are aware of through other routes to market.

1 Introduction

This short report analyses the results for commercial contracts in the January 2016 e-POWER auction completed on 28 January 2016. 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 summer 2016 baseload power price for six month contracts, at £31.6/MWh, and the annual April 2016 price for 12 month contracts, at £33.9/MWh, 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 varies by region, connection voltage, intermittency of technology, and whether it is included in the contract; and
- Balancing System Use of System charges (BSUoS) and transmission losses – because a distributed generator does not use the transmission system, distributed electricity generation can avoid associated costs such as BSUoS and transmission losses.

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 2016 to 30 September 2016 are summarised in Table 1 and compared with typical maximum values calculated on the days of the winter 2014-15, summer 2014 auctions and summer 2015 auctions¹.

¹ In the summer 16 auction, new annual and seven-month contracts were included. Separate power price valuations were made for these contracts.

Table 1: Typical maximum benchmark values of e-POWER auction elements

Element	Wholesale baseload power	Rocs	Lecs	GDUoS ²	BSUoS	Losses
Summer 2016 value (£/MWh)	£31.6	£45.0	n/a	£0-£10.6	£1.6	£0.4
Summer 2015 value (£/MWh)	£41.6	£44.0	£5.5	-£1.4 to +£7.3	£1.6	£0.4
Winter 2014-15 value (£/MWh)	£46.7	£44.5	£5.4	£0-£10.7	£1.5	£0.5
Summer 2014 value (£/MWh)	£47.5	£48.0	£5.4	£0-£6.9	£1.6	£0.5

2 January 2016 analysis

Overall, the January 2016 auction saw a drop in value retention against maximum benchmark values compared to the previous three auctions. The average value share retained by generators was 96.4% compared with 98.3% in summer 15, 97.9% in summer 14 and 97.8% in winter 14-15.

With seasonal wholesale prices at their lowest levels since 2007, generators took a number of different decisions on contract lengths in the auction. Decisions were based on a view of future wholesale prices. Value retention varied with different contract lengths in the auction:

- one site was auctioned for a bespoke period from 1 March 2016 to 31 March 2017, achieving a value retention of 98.0%;
- 14 sites were auctioned for the period 1 April 2016 to 30 September 2016, achieving an average value retention of 95.0%;
- 23 sites were auctioned for the period 1 April 2016 to 31 March 2017, achieving an average value retention 96.9% of market benchmark values; and
- two contracts were auctioned for the period 1 October 2016 to 31 March 2017, achieving an average value of 95.9%.

Differences in value retention between different contract lengths reflect the technology make-up of each grouping, with a higher proportion of baseload contracts opting for 12 month contracts in the auction and more intermittent (wind and hydro sites) contracting for six months. Baseload sites normally achieve higher value retention in auctions, as their ability to generate over peak periods makes them attractive to suppliers. Figure 1 below details average value retention with auction contract length.

² The notable changes and ranges of GDUoS are due to the site-specific nature of the benefit.

Figure 1: Contract length by technology and average value retention

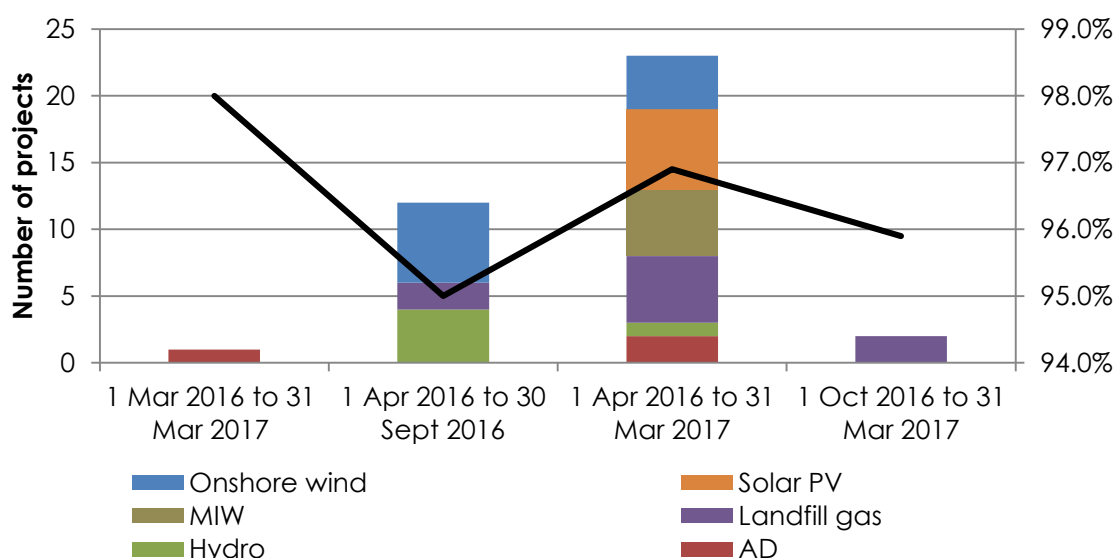


Table 2 shows the range of values achieved by different technologies against the typical maximum benchmark value.

Table 2: Number of sites achieving proportion of typical maximum

Technology	<90%	90%-95%	95%-100%	100%-105%	>105%
Anaerobic digestion (AD)			2	1	
Hydro	2	2	1		
Landfill gas (LFG)			8		1
Municipal waste (MIW)			4	2	
Solar PV	1	1	4		
Onshore wind		4	7		
Grand Total	3	7	26	3	1
Percent	7.5%	17.5%	65%	7.5%	2.5%

Broken down by technology:

The latest auction saw a significant change in the capacity mix of the auction.

- onshore wind power still remains the dominant technology. However, its share has fallen below a third to reach 27.5%. Wind sites achieved a mean price of £79.4/MWh, or 95.8% of each site's maximum benchmark value;
- solar PV's share of the market fell by seven percentage points to 15%. FiT solar sites achieved an average price of £39.0/MWh with value retention averaging 96.9%. RO solar sites achieved an average price of £122.1/MWh (2 Roc/MWh projects) with value retention at 96.9%. Two RO solar projects sold just their power in the auction. They achieved an

average price of £39.3/MWh (inclusive of embedded benefits) with average value retention at 88.9%,

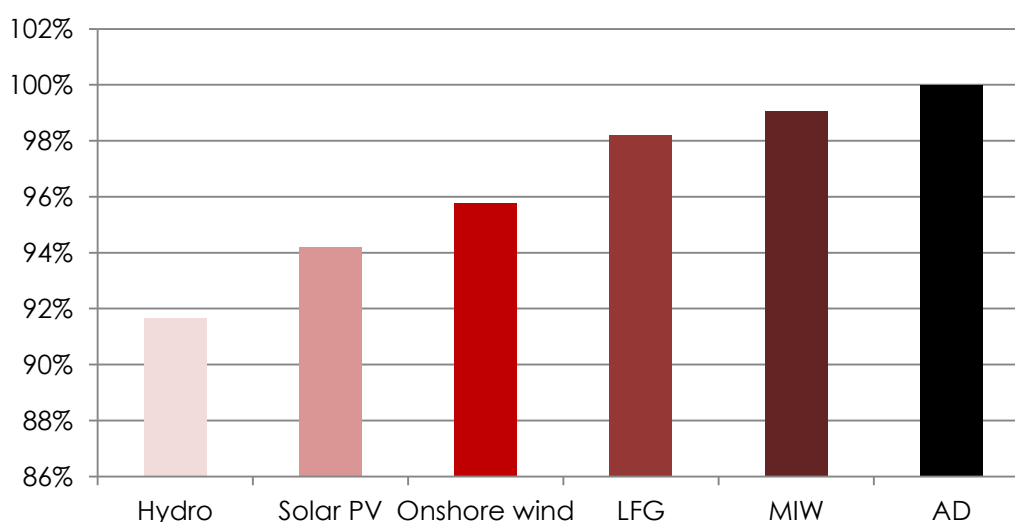
- landfill gas (LFG) saw the biggest gains in market share, achieving 22.5%. The technology’s average value retention was slightly lower this auction at 98.2%, compared to 101.6% in the January 2015 auction, at an average price of £80.4/MWh;
- municipal waste (MIW) took a 15% share of the auction, with 6 sites, and achieved a mean price of £37.0/MWh, or 99.1% of the benchmark value;
- anaerobic digestion (AD) achieved a 7.5% share of the auction. FiT AD sites achieved an average price of £39.9/MWh with value retention at 100.8%. RO AD sites achieved an average price of £126.5 (2 Roc/MWh projects) and average value retention of 98.6%; and
- hydro had 12.5% share of the market with an average price of £76.6/MWh, 98.3% of its benchmark value.

Table 3 and Figure 2 below detail average performance by technology.

Table 3: Average performance by technology³

Technology:	AD	Hydro	LFG	MIW	PV	Wind	Grand Total
Average %	100.1%	91.7%	98.3%	99.1%	94.3%	95.8%	96.4%

Figure 2: Average value retention by technology



³ To draw valid comparisons, average Roc project prices are analysed for 1 Roc/MWh projects in wind, landfill gas, and hydro technologies, 1.5 Rocs/MWh for biomass and 2 Rocs/MWh for AD. Value retention is compared across all sites

Value retention for sites also varied by support scheme as well as technology. FiT sites, usually more exposed to wholesale movements without the protection of more stable Roc values, achieved 98.9% of market benchmark value. This was higher than 1 Roc/MWh projects which achieved average value retention of 95.8%. Higher retention for FiT projects may indicate the simplicity of bidding on just wholesale power and embedded benefits and implicitly indicate supplier views on Roc values.

The number of commercial contracts in the auction has held relatively steadily, falling only by one compared to the 41 recorded in the summer 2015 auction. Continued high levels of contracts entering the auction are indicative of the increasing number of projects coming to market under the RO and FiT schemes. This is in light of early closure for onshore wind and solar under the RO, and a rush of projects accrediting to the FiT scheme before wide-ranging scheme changes and tariff reductions.

In terms of bidders on contracts, 182 suppliers competed in the auction for contracts, consistent with liquidity seen for commercial contracts in previous auctions. The average number of bids per site on commercial contracts was 2.9 and ranged from one to nine on individual sites. This was significantly lower than previous auctions, with the January 2015 auction averaging 11 bids per site. Reduced bidding liquidity could be due to the higher reserve prices set in the January 2016 auction, which forced suppliers to bid closer to market value in their initial bids. The higher reserves also meant that several suppliers did not bid at all.

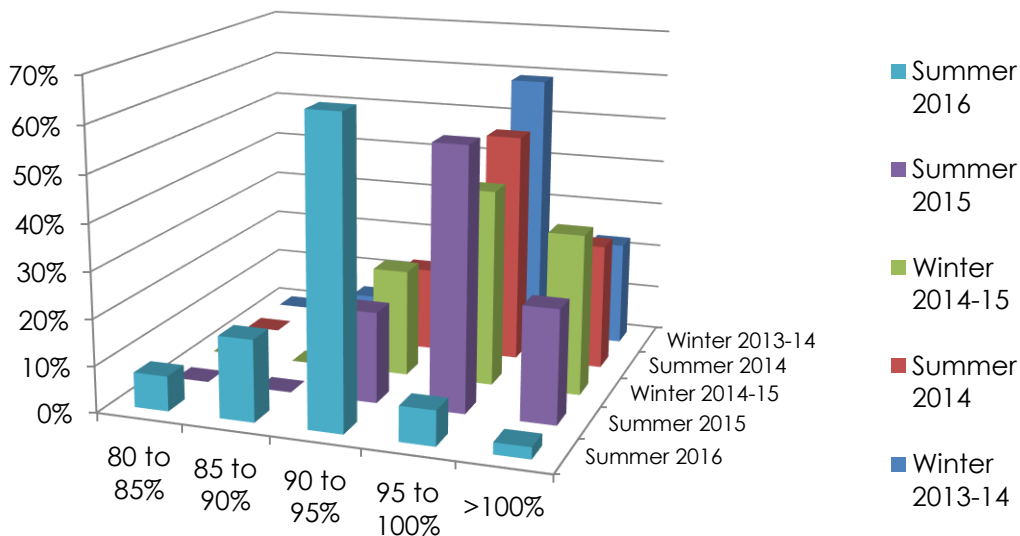
3 Comparison with previous auctions

Average prices achieved for commercial contracts are lower when compared to previous summer auctions and decreases have been driven by falling wholesale power prices.

Wholesale power prices usually show seasonal falls from winter to summer contracts, owing to decreased demand for power and space heating. However, falls over the last 12 months have been greater than just seasonal variation differences. Compared to prices at the start of the summer 2015 auction, wholesale prices have fallen 13% to 26 January 2016. Weaker power prices are indicative of wider commodity market trends, with gas and power prices at seven-year lows and coal and Brent crude oil prices at their lowest levels in a decade, owing to global oversupply. A chart displaying historical seasonal wholesale price movements can be found in Appendix 1.

When comparing the distribution of values achieved to previous auctions, performance in the summer 2016 showed a slightly less concentrated cluster when compared with figures from the summer 2015 and winter 2014-15 auction. The spread of the remaining contracts was slightly larger; however, more sites achieved 95%-100% of their value. Figure 3 shows this below.

Figure 3: Distribution of values achieved compared to maximum



At four, the number of contracts achieving more than their 100% of market benchmark value was lower than the previous auction. These sites were MIW, AD or LFG and this may be due to their ability to generate reliable baseload power.

Sites that can generate reliably during hours of peak demand (non-intermittent sites) are beneficial to suppliers as they can take advantage of higher peak prices (typically around £3/MWh-£4/MWh greater than baseload contracts). The higher values recorded for AD, landfill gas and biomass projects indicate this trend, which continues to be shown in the e-POWER auctions.

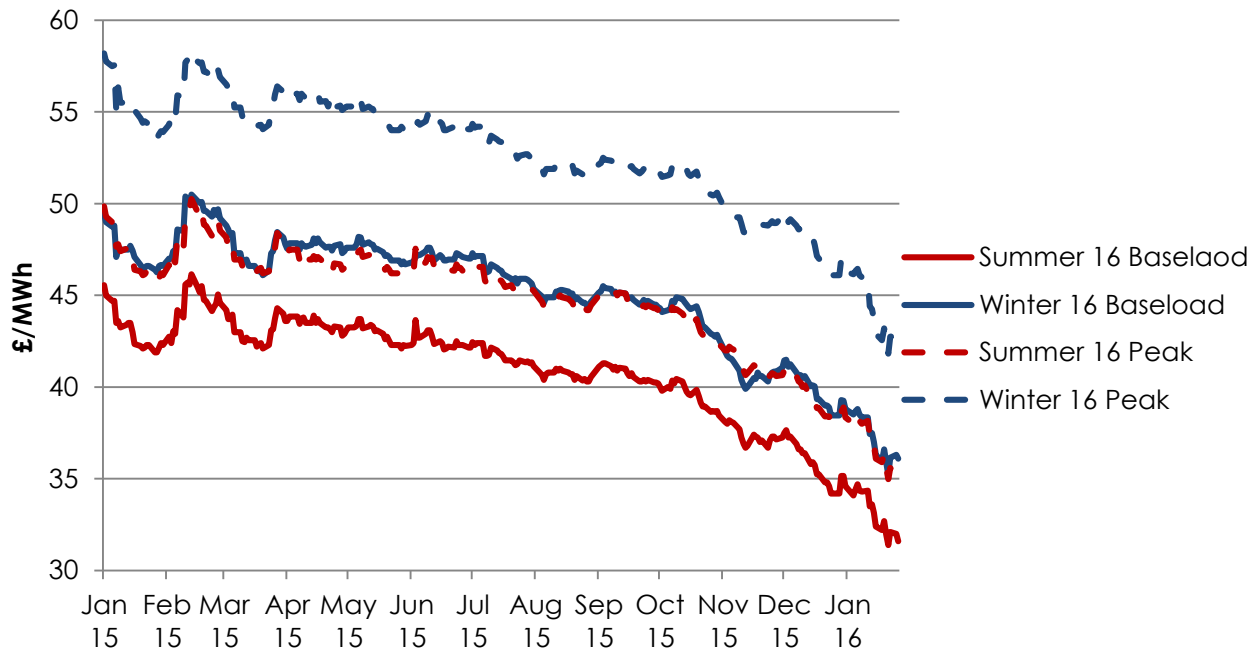
4 Cornwall Energy comment

The January 2016 auction exhibited new trends for e-POWER auctions. Sharp reductions in wholesale prices have incentivised generators to choose different contract lengths in the auction, based on their view of future prices. New contract lengths indicate the flexibility demanded by generators, a trend increasing the market with recent policy and market changes. Overall, value retention in the January 2016 auction was slightly lower than the previous three auctions, but remained close to recent e-POWER auction levels at 96.4%.

For generators, 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, performance of commercial sites in the auction showed that value shares retained by generators through the e-POWER auction remain towards the upper end when compared with those that we are aware of being achieved in other routes to market.

Appendix A: Trends in wholesale power prices

Table A-1: Wholesale power price movements



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