cornwallenergy

NFPA e–Power Auction Analysis

Winter 2013-14

Headlines

The NFPA recently held its **e-Power auction** (9 to 11 July), with a total of 555MW of capacity auctioned (120 projects). The average price for **Roc-eligible sites was 10.81p/kWh and non-Roc-able sites saw an average of 5.53p/kWh** for power (and Lecs, where appropriate) generated during the period October 2013-March 2014.

This short report analyses the auction results and compares them against the past two auctions. The headlines include:

- the three technologies comprising 93% of all sites in the auction (landfill gas, wind and hydro) all performed excellently in the winter 2013-14 auction. The technologies achieved 97%-99% of typical maximum values;
- average prices achieved for each contract have generally increased when compared to winter 2012-13 and summer 2013. The majority of this increase is attributable to a jump in wholesale electricity prices—between 1 February and 11 July there was a £6.6/MWh increase in seasonal wholesale baseload power. This explains much of the variation, but it does not explain it all, as the majority of sites received contracts around £7.5/MWh higher (with landfill gas contracts almost £12/MWh greater) than the previous two auctions;
- the average number of bids per available contract in the auctions has remained consistent throughout the last three auctions, holding fairly constant at around 12 to 13 bids per contract. In this period the number of commercial contracts has more than doubled to 22; and
- overall, the winter 2013-14 auction continued the strong performance of recent auctions, with the vast majority of sites achieving over 95% of their typical maximum. This has been consistent throughout the last three auctions and, combined with a persistent level of around 12 to 13 bids per site, highlights the high demand for renewable energy contracts on the NFPA auctions.

1.1 Introduction

This short report focuses on the results of the winter 2013-14 e-Power auction completed on 11 July. The following analysis includes reference to the maximum theoretical value that a site could achieve in a £/MWh figure. This is a total of the maximum value for all factors contained within the contract that contribute to the revenue generating potential of a site.

These sources of value include:

- wholesale power price – for the purposes of the typical maximum value, this is calculated using the winter 2013-14 baseload power price on the final day of auction;
- green certificates – such as Renewables Obligation Certificates (Rocs) and Levy Exemption Certificates (Lecs). The level of these certificates awarded vary 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 figure as these are paid separately from the contract.

Typical maximum values of the above elements are summarised in Table 1.

Table 1: Typical maximum values of e-Power auction elements

Element	Wholesale baseload power	Rocs	Lecs	GDUoS	BSUoS	Losses
Value (£/MWh)	£54.9	£47.0	£5.2	£0.2-£3.8	£1.5	£0.5

1.2 Winter 2013-14 summary

The winter 2013-14 auction demonstrated strong performance, with sites achieving an average of 98.1% of typical maximum values. This builds on results in the previous two NFPA auctions for winter 2012-13 and summer 13 that achieved 98.0% and 95.9% of their typical maximum values respectively.

Table 2: Number of sites achieving proportion of typical maximum

Range	<=80%	80 to 85%	85 to 90%	90 to 95%	95 to 100%	>100%	Mean
Count	1	1	1	10	79	28	98.1%
Distribution	1%	1%	1%	8%	66%	23%	

Broken down by technology:

- the one legacy wave site continued to outperform expectations achieving £155.5/MWh or 144% of its typical maximum value (it only receives one Roc). This is due to the trophy value of wave technology;
- landfill gas, which comprises the majority of sites within the auction, achieved an average price of £109.2/MWh, or 99% of each site's typical maximum;
- hydro averaged 98% of maximum;
- wind achieved 97% of maximum; and
- municipal waste (MIW) generally performed well, however two low valued contracts (at £38.5/MWh and £48.0/MWh) dragged the total average down to 90% of theoretical maximum[1].

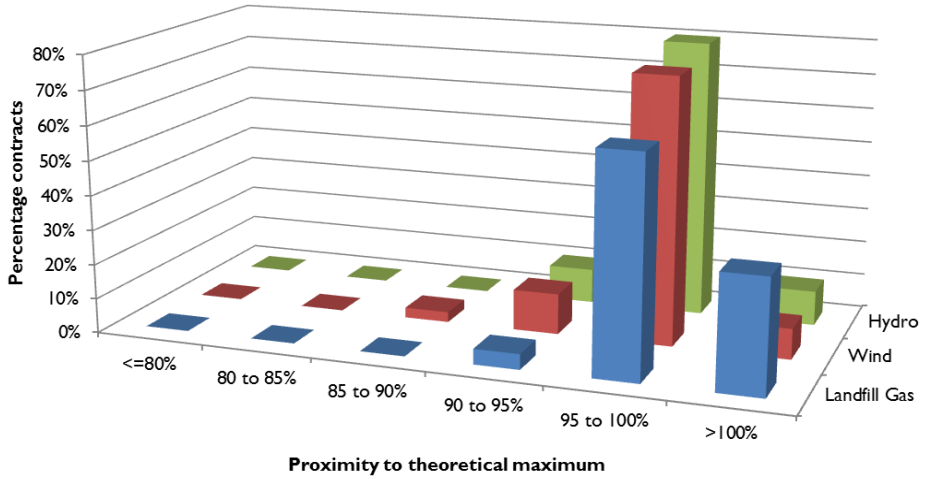
Table 3: Average performance by technology

Technology	MIW	Hydro	Biomass CHP	CHP	Wind	Landfill Gas	Wave
Average £/MWh	£53.6	£105.8	£121.0	£59.7	£104.7	£109.2	£155.5
Average % of max	90%	98%	92%	95%	97%	99%	144%
Number of sites	5	10	1	2	34	67	1

[1] Of the two poor performing sites one has not been producing for over a year due to a fire and the other is a new site with currently very intermittent generation.

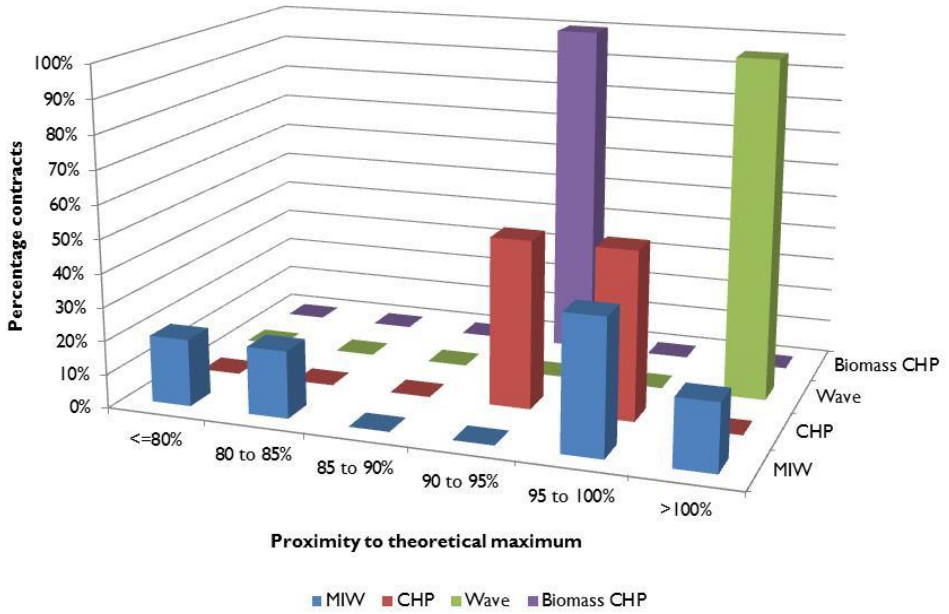
The three technologies comprising 93% of all sites in the auction (landfill gas, wind and hydro) all performed excellently in the winter 2013-14 auction. As the figure below reveals, 76% of wind and 80% of hydro sites achieved 95% to 100% of their theoretical maximum. A small proportion of sites fell either side of this for both technologies, and a single wind site achieved 85% to 90% of maximum[2]. Landfill gas performed very well, with 96% of sites achieving 95% of their theoretical maximum or above. A third of landfill gas sites achieved over 100% of their typical maximum.

Figure 1: Performance of landfill gas, wind and hydro



CHP and biomass CHP both performed well; the single biomass CHP site achieved 92% of its theoretical maximum and the two CHP sites gained 93% and 98% respectively of their maximum. As previously mentioned, the single wave site achieved 144% of its theoretical maximum.

Figure 2: Performance of remaining technologies

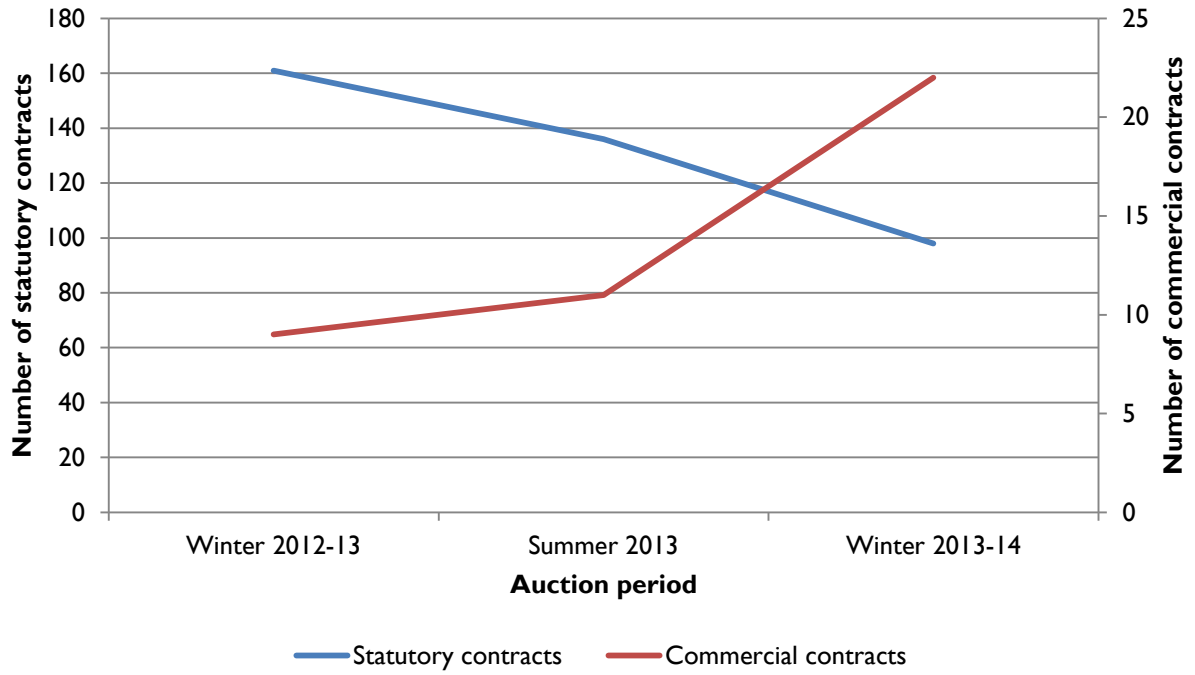


[2] The site has had on-going problems with its turbines.

The number of suppliers participating in the auction has increased on the previous two auctions. There were 17 suppliers taking part in the winter 2013-14 auction, compared to 14 in the winter 2012-13 auction and 13 in the summer 2013 auction.

The average number of bids per available contract in the auctions has remained consistent throughout the last three auctions, holding fairly constant at around 12 to 13 bids per contract. This level of liquidity and exposure is greater than a generator could achieve by comparing and negotiating short-term PPAs with suppliers[3]. The total number of contracts awarded in the auction has dropped 18% to 120. This decline is solely due to statutory NFFO contracts finishing. Many of these sites are owned by the Big Six and these sites are naturally picked up within their portfolio. For NFFO sites that are owned by independent generators, many continue post-NFFO to use the e-Power auction platform. This trend has been evidenced by the doubling of purely commercial sites from 11 in the January auction to 22 in the July auction (*see Figure 3*).

Figure 3: Statutory and commercial contracts



1.3 Comparison with winter 2012-13 and summer 2013

Average prices achieved for each contract have generally increased when compared to winter 2012-13 and summer 2013 (*see Table 4 below*). The majority of this increase is attributable to a jump in wholesale electricity prices – the summer 13 baseload contract was £48.3/MWh on the day of the summer 13 auction (1 February), whereas the winter 2013-14 baseload contract was £54.9/MWh on 11 July. While this £6.6/MWh increase explains much of the variation, it does not explain it all, as the majority of sites received contracts around £7.5/MWh higher (with landfill gas contracts almost £12/MWh greater) than the previous two auctions.

[3] Typically, short-term PPAs are offered at 85%-95% of full market value.

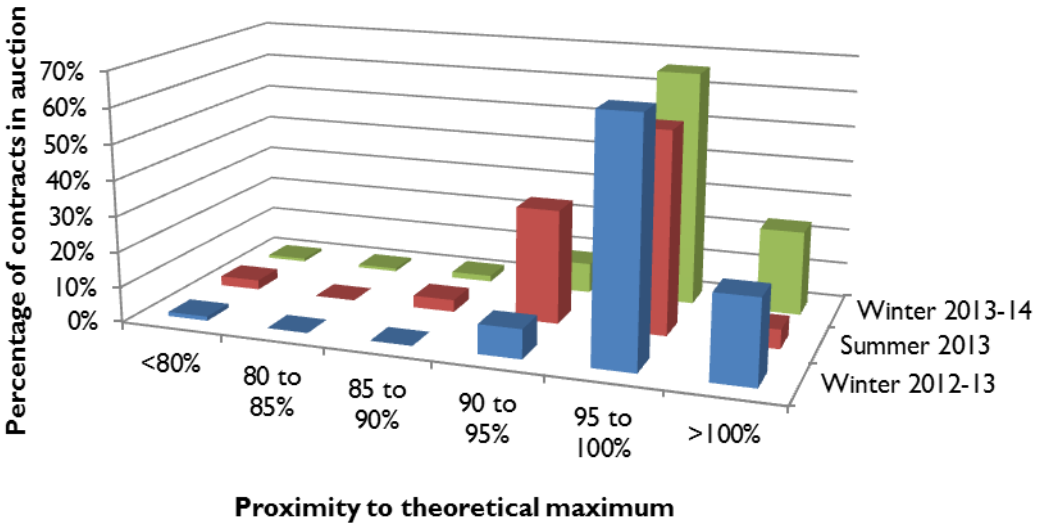
Table 4: Average prices achieved by each technology

Avg £/MWh contract	AD	CHP	Hydro	Landfill Gas	MIW	Wave	Wind	Biomass CHP
Winter 2012-13	£133.0	£53.4	£99.2	£97.9	£50.3	£99.5	£96.7	-
Summer 2013	-	£52.3	£98.0	£97.5	£51.3	£170.0	£96.8	-
Winter 2013-14	-	£59.7	£105.8	£109.2	£53.6	£155.5	£104.7	£121.0

When comparing the distribution of values achieved to previous auctions, performance in the winter 2013-14 auction was markedly similar to that of the winter 2012-13 auction (*see Figure 4 below*). At the previous winter auction the majority of sites (almost 70%) achieved 95% to 100% of their theoretical maximum, and around a quarter gained a value greater than 100% of their maximum. The majority of the remainder achieved 90%-95% of maximum.

For the summer 2013 auction, far fewer sites gained a value over 100% of their maximum, while many more achieved values around 95% of their theoretical maximum. The average capacity of sites awarded has remained relatively stable over the past three auctions at around 5MW.

Figure 4: Distribution of values achieved compared to maximum



Overall, the winter 2013-14 auction continued the strong performance of recent auctions, with the vast majority of sites achieving over 95% of their theoretical maximum. This has been consistent throughout the last three auctions and, combined with a persistent level of around 12 to 13 bids per site, highlights the high demand for renewable energy contracts on the NFPA auctions. The values achieved for generators are also considerably higher than the terms provided in typical short-term offtake PPA contracts, where achieving 98% of maximum value would be very difficult.

Sites that can generate during winter hours of peak demand (non-intermittent sites) are beneficial to suppliers as they can take advantage of higher peak prices (typically around £8/MWh greater than baseload contracts). A graph displaying historical seasonal wholesale price movements can be found in Appendix 1.

Appendix 1

Figure A1: Historical seasonal wholesale price movements (baseload and peak)