

# 291/13 : VALUE OF AVOIDED ACTIONS ANALYSIS FOR ACTION 284(07)

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<b>MEETING NAME</b>	BSC PANEL MEETING 291
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<b>Date of meeting</b>	13 June 2019
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<b>Paper number</b>	291/13
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<b>Owner/author</b>	Shadrack O. Nyarko
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<b>Purpose of paper</b>	Information
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<b>Classification</b>	Public
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<b>Summary</b>	The Panel requested further analysis of an event where the System Buy Price (SBP) was negative and the market was short. ELEXON identified the Settlement Period as the only instance since the introduction of BSC Modification <a href="#">P305</a> in November 2015. The analysis seeks to confirm what the value of avoided activations could have been. We note that there is no formal industry definition of an avoided activation at this time.
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## 1. Background

- 1.1 The Panel requested further insight into the instance of negative System Price when the market was short. ELEXON reported on this in the [System Price Analysis Report](#). This paper provides a view of the Bid Offer Acceptances (BOAs) on the day in relation to System Prices. This gives the information that could be used to determine the value of avoided activations. We note that there is no formal industry definition of an avoided activation at this time.
- 1.2 National Grid Electricity System Operator (NGESO) takes Offers to increase energy and Bids to decrease energy in the Balancing Mechanism. On 18 September 2018, Settlement Period 9, NGESO took 1,020MWh of buy actions to increase the level of energy on the system, and -931.32MWh of sell actions to decrease the level of energy on the system. After the BSC defined Tagging and Flagging processes had been undertaken, there were no remaining actions to set the System Price. In this circumstance the Market Index Price (MIP) is used, for the Settlement Period in question this set the System Price at -£6.25/MWh.

## 2. Analysis Overview

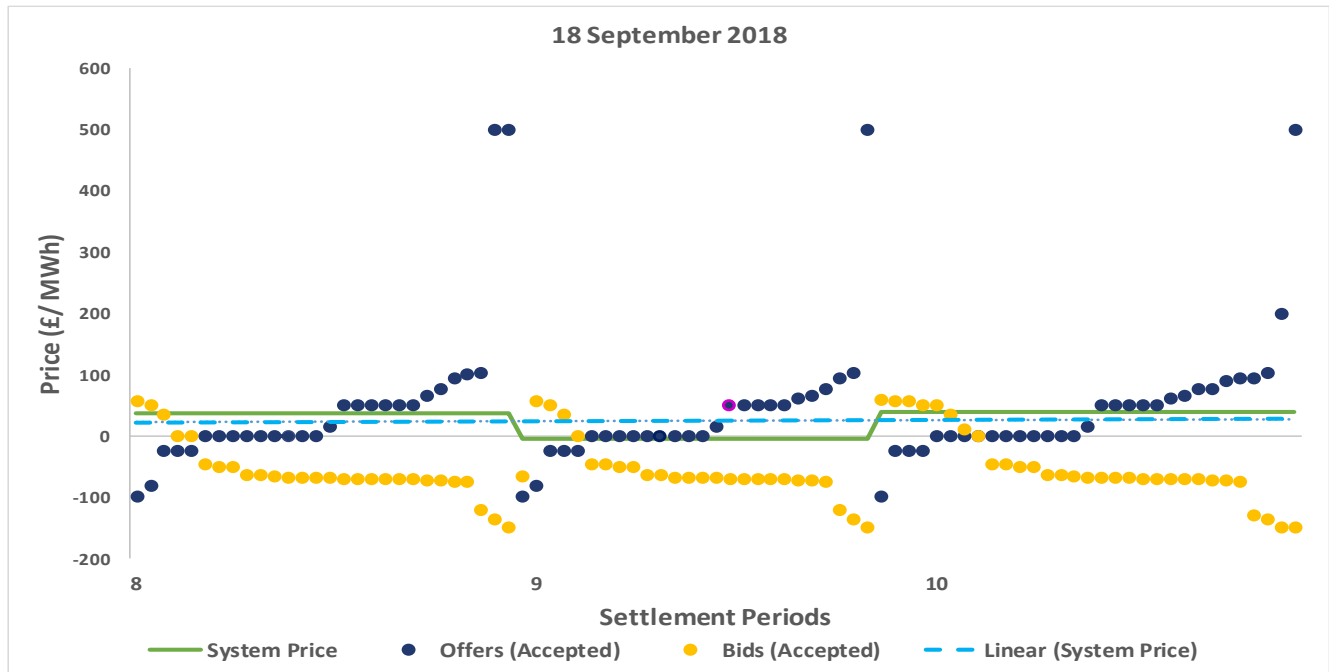
- 2.1 The analysis provides insight into the Bids and Offers in relation to System Prices.
- 2.2 The analysis focuses on Settlement Period 9, 18 September 2018; and then the full day to draw relevant comparisons.
- 2.3 Offers or Bids (typically  $\geq \text{£}9999$  or  $\leq -\text{£}9999$ ) are excluded as outliers.

## 3. Analysis of Results: 18 September 2018, Settlement Period 9

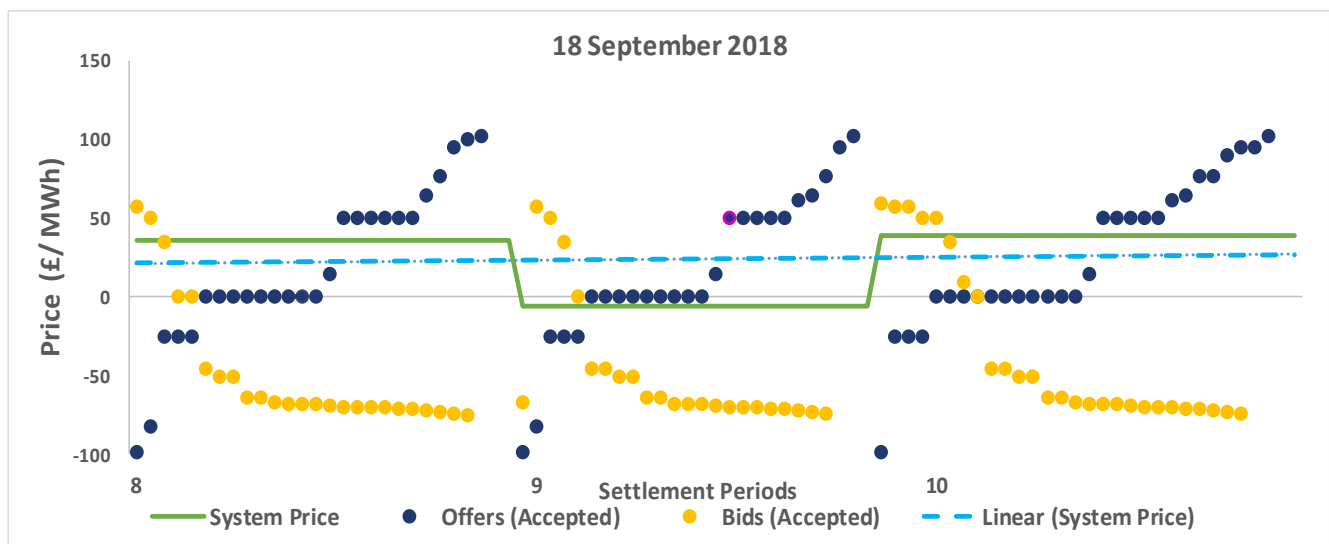
- 3.1 The graph below shows the Bid/Offer Acceptances and System Prices for Settlement Period 9 on 18 September 2018.

## 291/13 : VALUE OF AVOIDED ACTIONS ANALYSIS FOR ACTION 284(07)

**Graph 1a: Distribution of Bid Offer Acceptances (BOAs) and System Prices for Settlement Periods 8-10 on 18 September 2018**



**Graph 1b: (Graph 1a Scaled to +/-£150/MWh)**



**NB:**

- Next available Offers in the stack above linear extrapolated System Price of £37.14/MWh is £50/MWh

## 291/13 : VALUE OF AVOIDED ACTIONS ANALYSIS FOR ACTION 284(07)

- 3.2 Graph 1a above depicts the Bid Offer Acceptances (BOAs) and System Prices over Settlement Periods 8 to 10, indicating the trends respectively. The System Price for Settlement Period 9 was -£6.25/MWh. For Settlement Period 8 the System Price was £36.02/MWh and for Settlement Period 10, 38.26/MWh.
- 3.3 A possible price indication for Settlement Period 9 (rather than using the MIP) could be determined by a simple trend between Settlement Period 8 and Settlement Period 10; the System Price for Settlement Period 9 could therefore be extrapolated to £37.14/MWh. This is demonstrated by the Linear (System Price) in graph 1a above. The next available Offer in the stack above £37.14/MWh is £50/MWh (this is highlighted pink/blue (●) in graph 1a above).
- 3.4 The price differential between the next Offer Price in the stack and the 'Linear Extrapolated System Price' is £13/MWh (£50/MWh – £37/MWh).
- 3.5 A study of the Bid and Offer Prices for the three Settlement Periods (Settlement Period 8, Settlement Period 9, and Settlement Period 10) in Graph 1a show a similar pattern.
- 3.6 The 'spread' for the maximum Offer Price and the next in the stack is consistent for all three Settlement Periods. For Settlement Period 9, the highest Offer Price was £500/MWh, and the next Offer Price in the stack was £102.50/MWh.
- 3.7 The highest Bid Price for all three Settlement Periods was -£150/MWh. Settlement Period 9 had the highest average Bid Price, with an average of -£57.26/MWh.
- 3.8 Graph 1b is a scaled version (+/-£150/MWh) of Graph 1a for illustration purposes only.

**Table 1**

Volume and Prices for Settlement Periods 8-10			
	8	9	10
Buy Volume (MWh)	1,020	1,020	1,041
Sell Volume (MWh)	-1,109	-931	-1,140
System Price (£/MWh)	36.02	-6.25	38.26
Market Index Price (£/MWh)	-15.11	-6.25	-3.44

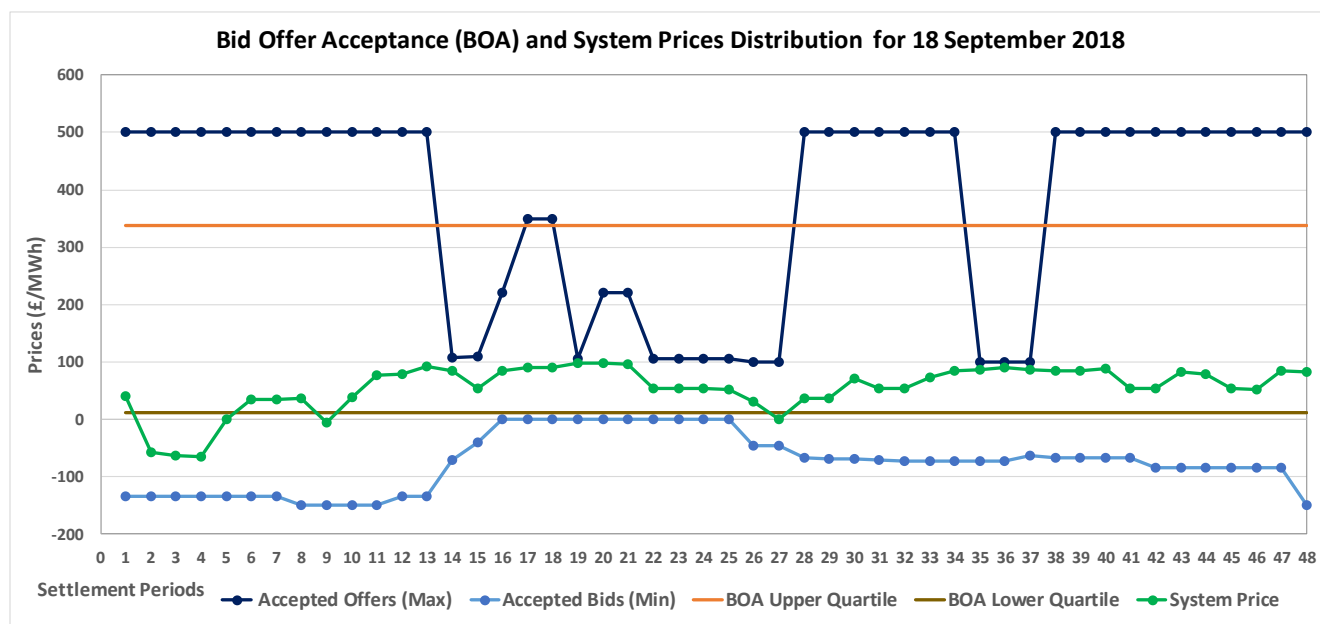
- 3.9 Table 1 above shows a summary of the Buy and Sell Volumes for Settlement Periods 8, 9 and 10.
- 3.10 Buy Volumes for all three Settlement Periods were similar, with Settlement Period 8 & Settlement Period 9 both having Buy Volumes of 1020MWh. Settlement Period 10 had a slightly higher Buy Volume of 1,041MWh.
- 3.11 The Market Index Price (MIP) set the System Price for Settlement Period 9.
- 3.12 The Market Index Prices for all three Settlement Periods varied, though all negative for the three Settlement Periods.

#### 4. Analysis Results: 18 September 2018 (Full Day)

- 4.1 Maximum Offer Price was £500/MWh; maximum System Price was £98/MWh
- 4.2 Minimum Bid Price -£150/MWh; minimum System Price was -£6.25/MWh
- 4.3 Average maximum Offer Prices were £377/MWh; average System Price was £55/MWh

# 291/13 : VALUE OF AVOIDED ACTIONS ANALYSIS FOR ACTION 284(07)

**Graph 2: Bid Offer Acceptance (BOA) and System Prices for 18 September 2018**



- 4.4 A study of the Bids and Offers across the whole day of 18 September 2018 as in Graph 2 shows that the highest Offer Prices were mostly during overnight Settlement Periods and late afternoon Settlement Periods. Other Settlements Periods (Settlement Periods 13-26; Settlement Periods 35-37) had much lower Offer Prices comparatively.
- 4.5 The Bid Prices were also highest overnight, with prices of -£135/MWh and above for Settlement Period 1-13 & Settlement Period 48.
- 4.6 Other Settlement Periods had Bid prices of less than -£100/MWh, while the morning peak to midday Settlement Periods had Bid Prices of zero (Settlement Period 16-25).
- 4.7 The System Prices were mostly within the Inter-Quartile Range (middle 50<sup>th</sup> Quartile) of the overall maximum Offer Prices and minimum Bid Prices for the day, except for Settlement Periods 2-4 & Settlement Periods 9.

## 5. Recommendations

- 5.1 We invite you to:
  - a) **NOTE** the information provided in this paper.

### For more information, please contact:

Shadrack Nyarko,

Senior Business Intelligence Analyst

[Shadrack.Nyarko@elexon.co.uk](mailto:Shadrack.Nyarko@elexon.co.uk)

020 7380 4304