STOR Market Information Report: Tender Round 22
(Short-Term Operating Reserve)

Introduction

This market report is produced after each tender round and is designed to give existing and potential STOR participants an overall view of the tenders received in tender round 22 (TR22). The report provides details of tendered utilisation and availability prices and National Grid's consequent forward contracted position; together with further details on the type and dynamics of the tendered plant. For further information regarding this product, frequently asked questions or how and when to tender please consult the STOR section found on the National Grid Balancing Services information website:

http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/short-term-operating-reserve/

Furthermore, information on the use of the STOR service can be seen at monthly resolution in the Monthly Balancing Services Statement or annually in the Procurement Guidelines Report, found on the National Grid Balancing Services information website:

http://www2.nationalgrid.com/uk/Industry-information/electricity-transmission-operational-data/

http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Report-explorer/Services-Reports/

In assessing the benefit of a STOR tender, the value and costs of that tender are considered. The forecast cost of an accepted tender will reflect expected availability costs and utilisation costs which incorporate the Minimum Non Zero Time (MNZT) of the unit and Minimum Utilisation Period (MUP) for non-BM providers. The tender assessment further considers the response time, the location and the reliability of the tendered unit. The latest assessment principles can be found on the STOR section of the Balancing Services website:

http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=29290

This report is divided into two sections:

- Section 1 provides a summary of tendered and accepted volumes and price information across STOR seasons in 2014/15 (Year 8) and 2015/16 (Year 9). The data is broken down by response time and Flexible or Committed service providers.
- Section 2 provides an overview of the total contracted position for each season in Years 8 and 9 from TR22 and previous tender rounds.

This report is under continuous review and improvement, if you have any comments or suggestions of information you would like to see in future issues of this report, please contact your account manager or STOR service leads: Claire.Gumbley@nationalgrid.com and Owen.Zambuko@nationalgrid.com

Section 1.1 Submitted and Accepted Volumes

As National Electricity Transmission System Operator (NETSO), National Grid maintains an Operating Reserve Requirement (ORR) from 4 hours ahead of time to real time, to take account of demand forecast errors, plant losses and market imbalance. The ORR is met by headroom on market synchronised machines, additional actions taken by National Grid via the Balancing Mechanism (BM) and contracted reserve products. STOR is a contracted reserve product and as such STOR tenders can make up a finite proportion of the ORR. The amount of contracted STOR required is determined by the size of the ORR which changes due to forecast market length, market provided headroom, volume of intermittent generation and demand forecast errors. The proportion of the ORR met by STOR is determined by considering the technical system requirements and also the forecast cost of alternatives versus the cost of the tendered STOR units.

The tenders are assessed in accordance with the STOR Assessment Principles[*], which, amongst other things, consider availability prices (£/MW/h), utilisation prices (£/MWh), response times and geographical location. The accepted tenders are selected such that the total costs of maintaining the ORR and operating the system are lower than without the selection of those tenders.

STOR Volumes Procured by National Grid

National Grid aims to procure STOR tenders such that a minimum of 1800MW of contracted STOR is made available throughout the STOR seasons. The daily and seasonal optimal STOR MW level varies due to real-time and seasonal pressures on the system, but National Grid typically aims to achieve approximately 2200-2300MW of STOR available where economic to do so. This optimal STOR level can include STOR units with a response time greater than 20 minutes if the economics of those units are sufficient. A unit's tendered response time and price are, and will remain, key factors in the assessment of STOR tenders.

National Grid manages the optimal STOR MW level at a daily resolution through the week-ahead Flexible STOR assessment, refining the available portfolio in response to the forecast conditions for the week-ahead. In order to achieve the optimal level at the week-ahead stage, National Grid examines historic availability profiles from Committed and Flexible providers to help determine the volume of STOR tenders to procure at the tri-annual tender round.

For seasons 8.1 and 8.2 National Grid has reduced its ORR and hence the optimal level of STOR for these seasons has reduced to 2200MW. National Grid has also increased its forecast of availability levels from Committed and Flexible units for the immediate seasons. This will result in contracted levels for season 8.1 and 8.2 lower than in previous years. At this stage it has not been determined if these assumptions will continue for the remaining seasons of year 8.

Premium Flexible STOR

As a consequence of the competitive STOR market, Flexible providers who tender and are accepted early in the tender round calendar, have been suffering from being undercut at later tender opportunities and thus being rejected at the week ahead stage, failing to receive any contract revenue. National Grid has worked with the market to produce a development which will provide some security to this sector of the market. Thus from this tender round forward there is an additional STOR option of Premium Flexible service.

As with the Flexible option, this is open to non-BM participants and for accepted tenders provides the option to tender in their availability for the week ahead on the preceding Friday. Within the Invitation to Tender Pack for STOR Tender Round 22 National Grid has defined "premium windows" for each season and if, at the week ahead stage, a successful Premium Flexible STOR provider offers availability during these premium windows National Grid guarantees to accept the offered availability for the whole day at the week ahead assessment[†]. This essentially offers the Premium Flexible units protection from being undercut in subsequent tender rounds where they offer availability to National Grid in the windows of greatest value to National Grid. As a result of offering this additional security and accepting the additional risk, National Grid applies a devaluation to these tenders when compared to traditional Flexible tenders during the main tender assessment. Under this contract option providers also have the ability to request secondary assessment (at the main tender assessment stage) as a standard Flexible tender should their tender be rejected as a premium tender due to the devaluation.

[*] http://www.nationalgrid.com/NR/rdonlyres/7B8CA1AB-4964-4965-B5A2-126C8C202A11/40677/STOR_Assessment_Principles.pdf

[†] A minimum of 85% of daily tendered premium window availability will be accepted where the premium window is offered at the week ahead stage. See the STOR Frequency Asked Questions document available from the STOR service link on page 1 for further details

The STOR assessment principles, which are available via the link on page 1, describe the differences in the assessment of Premium Flexible tenders compared to standard tenders. However in brief, a forecast of the level of availability is used to reduce the alternative availability cost used in the calculation of cost benefits. The definition of the alternative availability cost is slightly modified to be the minimum of the forecast cost of creating reserve via the BM or the cost of alternative firm contract options available for the same time period within this tender round.

Tenders Received in TR22

On Market Day for TR22 (17th January 2014), National Grid received tenders from 40 separate companies for 199 different units across the two years. This includes 18 new units from three existing aggregators and two units from a new provider. These new units would represent a potential maximum of 142MW of capacity if they were all fully available at the same time. Two tenders were returned without assessment due to being received late.

Year 8 (2014/15)

This tender round was the final tender opportunity for seasons 8.1 and 8.2, 1682MW and 1663MW were tendered for these seasons respectively in addition to the 2220MW and 2218MW already contracted for these seasons. Two units with response times greater than 20 minutes were tendered for seasons 1 and 2 only (88MW). The volume of tenders received for the winter seasons of year 8 is lower than normally seen at this tender opportunity with some companies opting not to offer availability for all seasons. National Grid has previously stated in the MIR for TR21 that we appreciate tenders that cover the full year in order to contract efficiently the required MW to meet the optimal level across all seasons. We have also observed some units tendering prices considerably higher than the bulk of the market for the winter season alone.

There has been a relatively high take up of the new Premium Flexible product opportunity; of the 476MW of non-Committed tenders for season 8.1, approximately one third is Premium Flexible. For season 8.5 this proportion increases to two thirds.

Year 9 (2015/16)

This tender round was the first opportunity to tender for year 9 aside from the long term contracts available in tender rounds 10-12 in 2010. 24 companies tendered 119 units for seasons in year 9. This represents up to 2088MW if all were available concurrently. As with the later seasons in year 8 this demonstrates a significant volume of units have yet to tender for year 9. We have also observed a number of tendering strategies for year nine with some units opting not to tender for the winter seasons and other units offering significantly higher prices than the bulk of the market. Of the Non-Committed tenders received for year nine ~78-85% were for the Premium Flexible option.

The STOR Marketplace Continues to be Competitive and Heavily Subscribed

The maximum volume of MW tendered for STOR for the immediate seasons ahead has dropped in comparison to the winter seasons of year 7 but is still slightly higher than for the first two seasons of year 7. See Figure 1 for details. Excluding long term tenders and one off speculative tenders this represents ~1500MW of tendered STOR volume not being successful.

Successful Tenders in TR22

Year 8 (2014/15)

For Year 8 seasons 1 and 2, the combined capacity of tenders in TR22 along with the STOR already procured in previous tender rounds would result in having a level of STOR availability that would exceed the optimal STOR level. Thus, the tenders that were accepted in TR22 were those that demonstrated the most cost-beneficial prices up to a level that would provide sufficient MW to deliver the optimal STOR level for these seasons. Using the new lower optimal STOR level of 2200MW for these seasons, we have accepted a total of 439MW for season 1, comprising 172MW of Committed (including long notice units) and 267MW of Flexible and Premium Flexible units with similar levels for season 2.

For the remaining seasons in year 8, we have accepted higher volumes of tenders than for seasons 1 and 2 whilst leaving some volume available for the remaining tender opportunities. As can be seen in Figure 1 and Table 1 there is approximately 300-500MW of capacity remaining to contract for in seasons 3-6.

Premium Flexible in Year 8

For seasons 1 and 2 one tender was accepted as Premium Flexible (based on its cost benefit after devaluation) whilst 16 tenders were rejected as premium but accepted as Flexible tenders following secondary assessment. A further 11 units were rejected as Premium Flexible and also rejected as Flexible after secondary assessment because their cost benefit was too low even without the premium devaluation. Seven units were rejected as Premium Flexible and did not request secondary assessment; none of these units would have been accepted as Flexible, if they had elected secondary assessment, due to their cost benefits being too low.

For seasons 3 and 4, no units were accepted as Premium, 19 units requested secondary assessment as Flexible units, 11 were accepted and 8 were rejected. 5 units were rejected as premium and did not request secondary assessment but they would still not have been accepted due to their prices.

For season 5 and 6, of 41 premium tenders, 5 were accepted as Premium, 22 units requested secondary assessment of which 13 were accepted and 9 were rejected. Of the remaining 14 units that were rejected as Premium Flexible without secondary assessment, only one would have been successful if it had selected secondary assessment.

Year 9 (2015/16)

Even with the reduced volumes tendered for year 9, when considered alongside the existing long term contracts, there is sufficient volume to almost entirely meet the optimal requirement for the majority of year 9. However, we have accepted between 793MW and 950MW across the season based on the forecast cost benefits of these units. This leaves significant volumes still to contract in the remaining tender opportunities over the next 18 months.

Premium Flexible in Year 9

For season 1, 26 tenders for the Premium Flexible service were received, 17 were accepted as Premium Flexible units and one unit was rejected as Premium Flexible but accepted as Flexible following secondary assessment. The remaining eight units were all rejected as Premium Flexible units, however, had they selected secondary assessment they would have been accepted as Flexible units.

For season 3, there were 23 Premium Flexible tenders, 14 accepted as Premium units 1 rejected as Premium Flexible but accepted as Flexible. The remaining 8 units were rejected but would have been accepted as a standard Flexible tender.

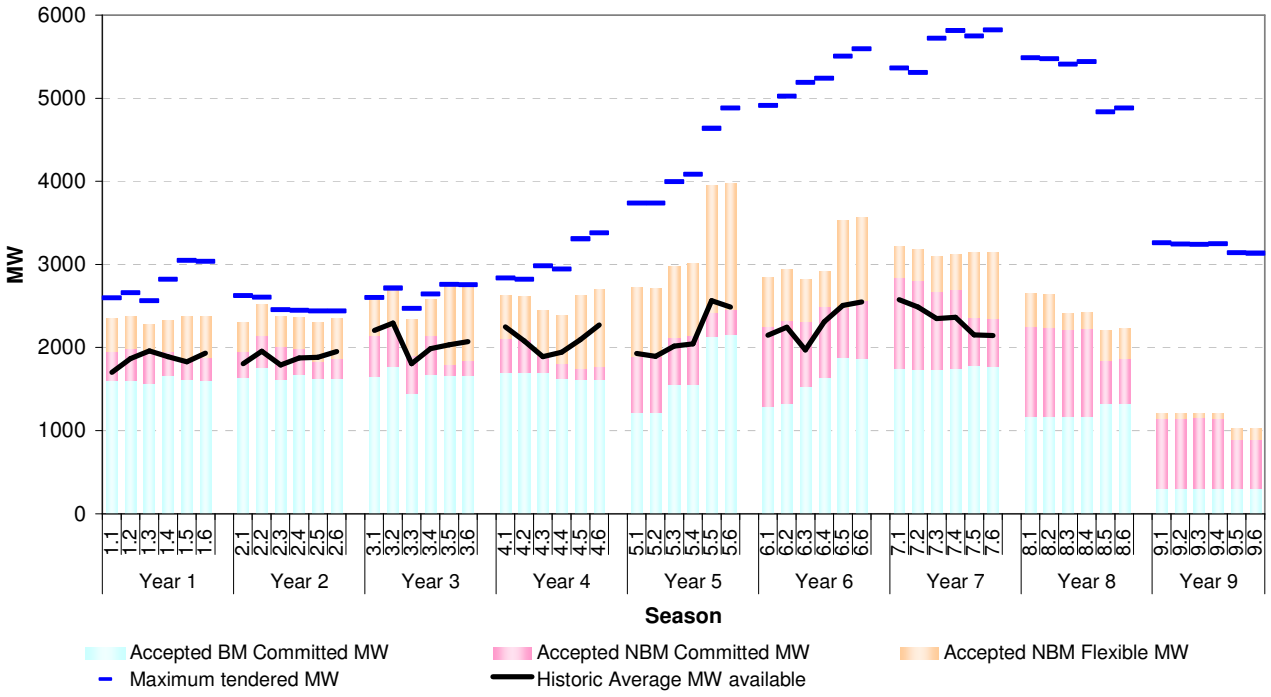
For season 5, there were 33 premium tenders received, 17 were accepted as Premium Flexible units, 6 were rejected but accepted as Flexible units and the remaining 10 were all rejected, two were assessed as Flexible units and were still rejected whilst the remaining 8 did not select secondary assessment but would have been accepted if they had.

Figure 1 gives a breakdown of the accepted Flexible and Committed MW per season since the start of the STOR service. Premium Flexible tenders are included in the Flexible category for the purpose of this chart. The blue line represents the sum of the maximum tendered MW from unique units from any tender round for each season. For seasons with tender rounds still to come, this figure will increase if units that thus far have not tendered for that season, tender in. The black line on the chart represents the outturn average availability for each season (where available).

Please note this chart contains data from previous tender rounds up to and including TR22.

Figure 1

Breakdown of Accepted Flexible and Committed MW per season



Tables 1 and 2 show the total number of MW rejected or accepted together with their respective volume weighted availability and utilisation prices for Year 8 and Year 9. The table is split into Flexible (including Premium Flexible) or Committed units with response time less than or equal to 20 minutes, and units (Flexible or Committed) with response time greater than 20 minutes.

Please note these tables contain data from previous tender rounds up to and including TR 22. Years 8 and 9 were available to tender for in tender rounds 10-12 through the long term tender options. These rows are highlight on the tables below.

Table 1 Year 8 Summary

Season		8.1			8.2			8.3			8.4			8.5			8.6		
Service Type		C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C
Total Minimum Requirements MW		1800			1800			1800			1800			1800			1800		
TR 10 Rejected MW (LONG TERM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TR 10 Accepted MW (LONG TERM)		68	0	0	68	0	0	68	0	0	68	0	0	68	0	0	68	0	0
TR 11 Rejected MW (LONG TERM)		424	0	0	420	0	0	422	0	0	424	0	0	426	0	0	426	0	0
TR 11 Accepted MW (LONG TERM)		116	0	0	116	0	0	116	0	0	116	0	0	116	0	0	116	0	0
TR 12 Rejected MW (LONG TERM)		587	0	0	583	0	0	585	0	0	587	0	0	589	0	0	589	0	0
TR 12 Accepted MW (LONG TERM)		273	0	0	271	0	0	272	0	0	273	0	0	274	0	0	274	0	0
TR 19 Rejected MW		1638	134	0	1638	134	0	1617	134	0	1632	134	0	1357	238	0	1467	214	0
TR 19 Accepted MW		591	0	0	577	0	0	582	0	0	580	0	0	605	14	0	602	14	0
TR 20 Rejected MW		1681	40	0	1686	40	0	1740	40	0	1670	40	0	1370	228	0	1630	168	0
TR 20 Accepted MW		607	136	0	621	138	0	621	116	0	623	116	0	318	122	0	362	118	0
TR 21 Rejected MW		1162	20	88	1163	20	82	1217	8	84	1240	8	86	712	292	0	1057	177	0
TR 21 Accepted MW		424	0	0	414	8	0	424	0	0	434	0	0	264	91	0	264	91	0
TR 22 Rejected MW		1034	209	0	1026	200	0	1040	216	0	1062	216	0	658	233	0	736	182	0
TR 22 Accepted MW		84	267	88	84	265	88	139	79	0	140	79	0	196	243	0	178	227	0
sub Total Rejected MW		6526	403	88	6516	394	82	6621	398	84	6615	398	86	5112	991	0	5905	741	0
sub Total Accepted MW		2163	403	88	2151	411	88	2222	195	0	2234	195	0	1841	470	0	1864	450	0
Total Accepted MW		2654			2650			2417			2429			2311			2314		
Average Rejected Availability Price (£/MW/h)	TR 10 (LT)	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	TR 11 (LT)	£ 19.32	£ -	£ -	£ 19.28	£ -	£ -	£ 19.30	£ -	£ -	£ 19.32	£ -	£ -	£ 19.33	£ -	£ -	£ 19.33	£ -	£ -
	TR 12 (LT)	£ 12.26	£ -	£ -	£ 12.25	£ -	£ -	£ 12.26	£ -	£ -	£ 12.26	£ -	£ -	£ 12.27	£ -	£ -	£ 12.27	£ -	£ -
	TR 19	£ 5.63	£ 6.73	£ -	£ 5.63	£ 6.73	£ -	£ 5.64	£ 6.73	£ -	£ 5.64	£ 6.73	£ -	£ 5.55	£ 6.28	£ -	£ 5.58	£ 6.28	£ -
	TR 20	£ 4.16	£ 3.31	£ -	£ 4.16	£ 3.31	£ -	£ 4.19	£ 3.31	£ -	£ 4.28	£ 3.31	£ -	£ 4.35	£ 4.34	£ -	£ 4.33	£ 3.98	£ -
	TR 21	£ 3.01	£ 2.94	£ 1.10	£ 3.01	£ 2.94	£ 1.10	£ 3.04	£ 3.00	£ 1.35	£ 3.08	£ 3.00	£ 1.35	£ 3.47	£ 3.54	£ -	£ 3.10	£ 3.00	£ -
	TR 22	£ 2.45	£ 1.98	£ -	£ 2.45	£ 2.04	£ -	£ 2.51	£ 2.06	£ -	£ 2.49	£ 2.04	£ -	£ 9.59	£ 2.54	£ -	£ 3.04	£ 2.41	£ -
Average Accepted Availability Price (£/MW/h)	TR 10 (LT)	£ 7.00	£ -	£ -	£ 7.00	£ -	£ -	£ 7.15	£ -	£ -	£ 7.15	£ -	£ -	£ 7.45	£ -	£ -	£ 7.45	£ -	£ -
	TR 11 (LT)	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -
	TR 12 (LT)	£ 11.51	£ -	£ -	£ 11.51	£ -	£ -	£ 11.51	£ -	£ -	£ 11.51	£ -	£ -	£ 11.52	£ -	£ -	£ 11.52	£ -	£ -
	TR 19	£ 4.00	£ -	£ -	£ 3.99	£ -	£ -	£ 3.99	£ -	£ -	£ 3.98	£ -	£ -	£ 3.98	£ 4.00	£ -	£ 3.99	£ 4.00	£ -
	TR 20	£ 3.86	£ 3.59	£ -	£ 3.91	£ 3.58	£ -	£ 3.90	£ 3.62	£ -	£ 4.39	£ 3.62	£ -	£ 5.00	£ 3.74	£ -	£ 5.07	£ 3.65	£ -
	TR 21	£ 1.83	£ -	£ -	£ 1.83	£ 1.50	£ -	£ 1.86	£ -	£ -	£ 1.86	£ -	£ -	£ 1.27	£ 0.50	£ -	£ 1.27	£ 0.50	£ -
	TR 22	£ 0.51	£ 0.42	£ 0.80	£ 0.51	£ 0.42	£ 0.80	£ 0.86	£ 0.72	£ -	£ 0.86	£ 0.72	£ -	£ 0.95	£ 1.09	£ -	£ 0.94	£ 1.02	£ -
Average Rejected Utilisation Price (£/MWh)	TR 10 (LT)	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	TR 11 (LT)	£ 187	£ -	£ -	£ 185	£ -	£ -	£ 186	£ -	£ -	£ 187	£ -	£ -	£ 190	£ -	£ -	£ 191	£ -	£ -
	TR 12 (LT)	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -
	TR 19	£ 198	£ 155	£ -	£ 199	£ 155	£ -	£ 199	£ 155	£ -	£ 199	£ 155	£ -	£ 208	£ 152	£ -	£ 204	£ 152	£ -
	TR 20	£ 207	£ 187	£ -	£ 207	£ 187	£ -	£ 206	£ 187	£ -	£ 210	£ 187	£ -	£ 216	£ 157	£ -	£ 210	£ 164	£ -
	TR 21	£ 200	£ 134	£ 90	£ 199	£ 134	£ 90	£ 196	£ 140	£ 90	£ 195	£ 140	£ 90	£ 206	£ 159	£ -	£ 205	£ 150	£ -
	TR 22	£ 195	£ 131	£ -	£ 195	£ 131	£ -	£ 195	£ 133	£ -	£ 195	£ 133	£ -	£ 224	£ 141	£ -	£ 216	£ 144	£ -
Average Accepted Utilisation Price (£/MWh)	TR 10 (LT)	£ 350	£ -	£ -	£ 350	£ -	£ -	£ 350	£ -	£ -	£ 350	£ -	£ -	£ 360	£ -	£ -	£ 360	£ -	£ -
	TR 11 (LT)	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -
	TR 12 (LT)	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -
	TR 19	£ 162	£ -	£ -	£ 163	£ -	£ -	£ 163	£ -	£ -	£ 163	£ -	£ -	£ 162	£ 168	£ -	£ 163	£ 168	£ -
	TR 20	£ 152	£ 136	£ -	£ 151	£ 134	£ -	£ 151	£ 130	£ -	£ 151	£ 130	£ -	£ 143	£ 136	£ -	£ 139	£ 138	£ -
	TR 21	£ 183	£ -	£ -	£ 184	£ 150	£ -	£ 183	£ -	£ -	£ 183	£ -	£ -	£ 236	£ 145	£ -	£ 236	£ 145	£ -
	TR 22	£ 170	£ 142	£ 90	£ 170	£ 142	£ 90	£ 161	£ 155	£ -	£ 161	£ 155	£ -	£ 216	£ 143	£ -	£ 223	£ 145	£ -

Average Prices are Weighted by MW Volume and Hours Tendered

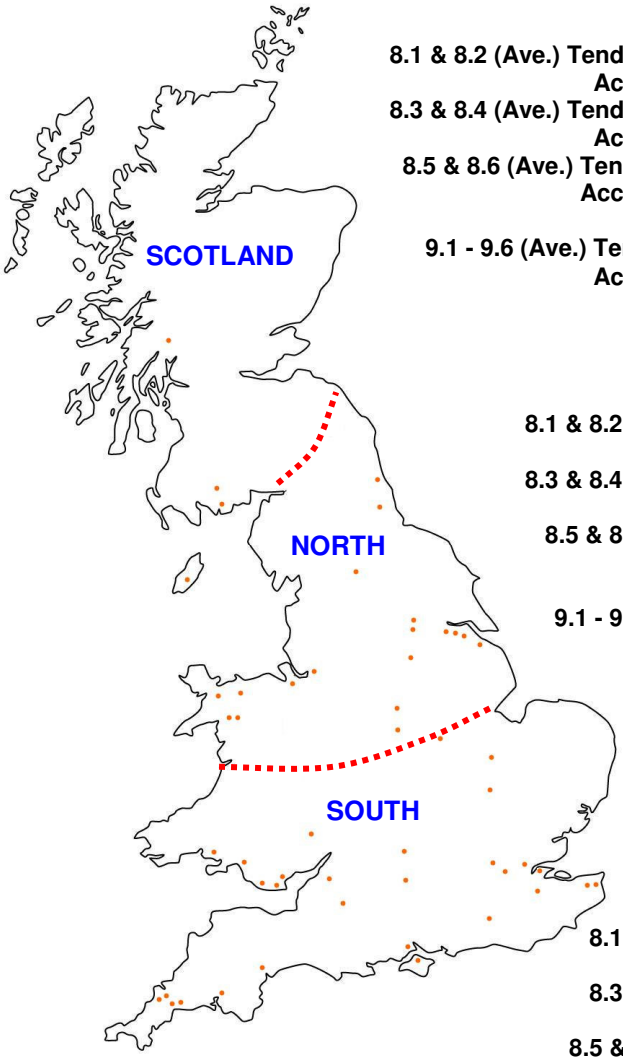
Table 2 Year 9 Summary

Season		9.1			9.2			9.3			9.4			9.5			9.6		
Service Type		C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C	C <20mins	F <20mins	>20mins F or C
Total Minimum Requirements MW		1800			1800			1800			1800			1800			1800		
TR 10 Rejected MW (LONG TERM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TR 10 Accepted MW (LONG TERM)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TR 11 Rejected MW (LONG TERM)		424	0	0	420	0	0	422	0	0	424	0	0	426	0	0	426	0	0
TR 11 Accepted MW (LONG TERM)		116	0	0	116	0	0	116	0	0	116	0	0	116	0	0	116	0	0
TR 12 Rejected MW (LONG TERM)		587	0	0	583	0	0	585	0	0	587	0	0	589	0	0	589	0	0
TR 12 Accepted MW (LONG TERM)		273	0	0	271	0	0	272	0	0	273	0	0	274	0	0	274	0	0
TR 22 Rejected MW		1063	75	0	1051	75	0	1056	75	0	1061	75	0	1079	92	0	1074	92	0
TR 22 Accepted MW		764	186	0	769	181	0	769	172	0	767	172	0	506	286	0	508	286	0
sub Total Rejected MW		2074	75	0	2054	75	0	2063	75	0	2072	75	0	2094	92	0	2089	92	0
sub Total Accepted MW		1153	186	0	1156	181	0	1157	172	0	1156	172	0	896	286	0	898	286	0
Total Accepted MW		1339			1337			1329			1328			1182			1184		
Average Rejected Availability Price (£MWh)	TR 10 (LT)	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	TR 11 (LT)	£ 19.32	£ -	£ -	£ 19.28	£ -	£ -	£ 19.30	£ -	£ -	£ 19.32	£ -	£ -	£ 19.33	£ -	£ -	£ 19.33	£ -	£ -
	TR 12 (LT)	£ 12.26	£ -	£ -	£ 12.25	£ -	£ -	£ 12.26	£ -	£ -	£ 12.26	£ -	£ -	£ 12.27	£ -	£ -	£ 12.27	£ -	£ -
	TR 22	£ 8.26	£ 3.75	£ -	£ 8.26	£ 3.75	£ -	£ 8.26	£ 3.75	£ -	£ 8.26	£ 3.75	£ -	£ 10.16	£ 3.97	£ -	£ 8.57	£ 3.97	£ -
Average Accepted Availability Price (£MWh)	TR 10 (LT)	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	TR 11 (LT)	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -	£ 11.00	£ -	£ -
	TR 12 (LT)	£ 11.51	£ -	£ -	£ 11.51	£ -	£ -	£ 11.51	£ -	£ -	£ 11.51	£ -	£ -	£ 11.52	£ -	£ -	£ 11.52	£ -	£ -
	TR 22	£ 3.77	£ 2.29	£ -	£ 3.76	£ 2.27	£ -	£ 3.77	£ 2.24	£ -	£ 4.16	£ 2.24	£ -	£ 4.58	£ 2.85	£ -	£ 4.57	£ 2.84	£ -
Average Rejected Utilisation Price (£MWh)	TR 10 (LT)	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	TR 11 (LT)	£ 187	£ -	£ -	£ 185	£ -	£ -	£ 186	£ -	£ -	£ 187	£ -	£ -	£ 190	£ -	£ -	£ 191	£ -	£ -
	TR 12 (LT)	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -	£ 222	£ -	£ -
	TR 22	£ 206	£ 160	£ -	£ 206	£ 160	£ -	£ 206	£ 160	£ -	£ 206	£ 160	£ -	£ 205	£ 164	£ -	£ 205	£ 164	£ -
Average Accepted Utilisation Price (£MWh)	TR 10 (LT)	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	TR 11 (LT)	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -	£ 224	£ -	£ -
	TR 12 (LT)	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -	£ 206	£ -	£ -
	TR 22	£ 161	£ 147	£ -	£ 160	£ 148	£ -	£ 160	£ 151	£ -	£ 160	£ 151	£ -	£ 159	£ 155	£ -	£ 159	£ 155	£ -

Average Prices are Weighted by MW Volume and Hours Tendered

Figure 2 presents the number of units and the total MW tendered and accepted, averaged either for a pair of seasons or for all six seasons in the case of year 9, with respect to the location in Great Britain. For instance, in the south of England region for seasons 9.1 to 9.6, an average of 39 units were tendered offering an average total of 946MW of capacity, of which an average of 16 units were accepted which represents an average total of 98MW of capacity. The orange dots on the map indicate the approximate location of the tenders (not including sites located in more than one region).

Figure 2 Map of Great Britain



SCOTLAND

8.1 & 8.2 (Ave.) Tendered: 7 Units, 136 MW
Accepted: 0 Units, 0 MW
8.3 & 8.4 (Ave.) Tendered: 7 Units, 136 MW
Accepted: 0 Units, 0 MW
8.5 & 8.6 (Ave.) Tendered: 4 Units, 39 MW
Accepted: 3 Units, 33 MW

9.1 - 9.6 (Ave.) Tendered: 1 Units, 6 MW
Accepted: 1 Units, 6 MW

NORTH

8.1 & 8.2 (Ave.) Tendered: 29 Units, 471.5 MW
Accepted: 12 Units, 250.5 MW
8.3 & 8.4 (Ave.) Tendered: 22 Units, 333.5 MW
Accepted: 7 Units, 104 MW
8.5 & 8.6 (Ave.) Tendered: 21 Units, 295 MW
Accepted: 8 Units, 115 MW

9.1 - 9.6 (Ave.) Tendered: 22 Units, 662 MW
Accepted: 18 Units, 465 MW

SOUTH

8.1 & 8.2 (Ave.) Tendered: 41 Units, 825 MW
Accepted: 10 Units, 91.5 MW
8.3 & 8.4 (Ave.) Tendered: 38 Units, 807 MW
Accepted: 7 Units, 60.5 MW
8.5 & 8.6 (Ave.) Tendered: 24.5 Units, 640 MW
Accepted: 4.5 Units, 147 MW

9.1 - 9.6 (Ave.) Tendered: 39 Units, 946 MW
Accepted: 16 Units, 98 MW

MULTIPLE LOCATIONS (Aggregated sites)

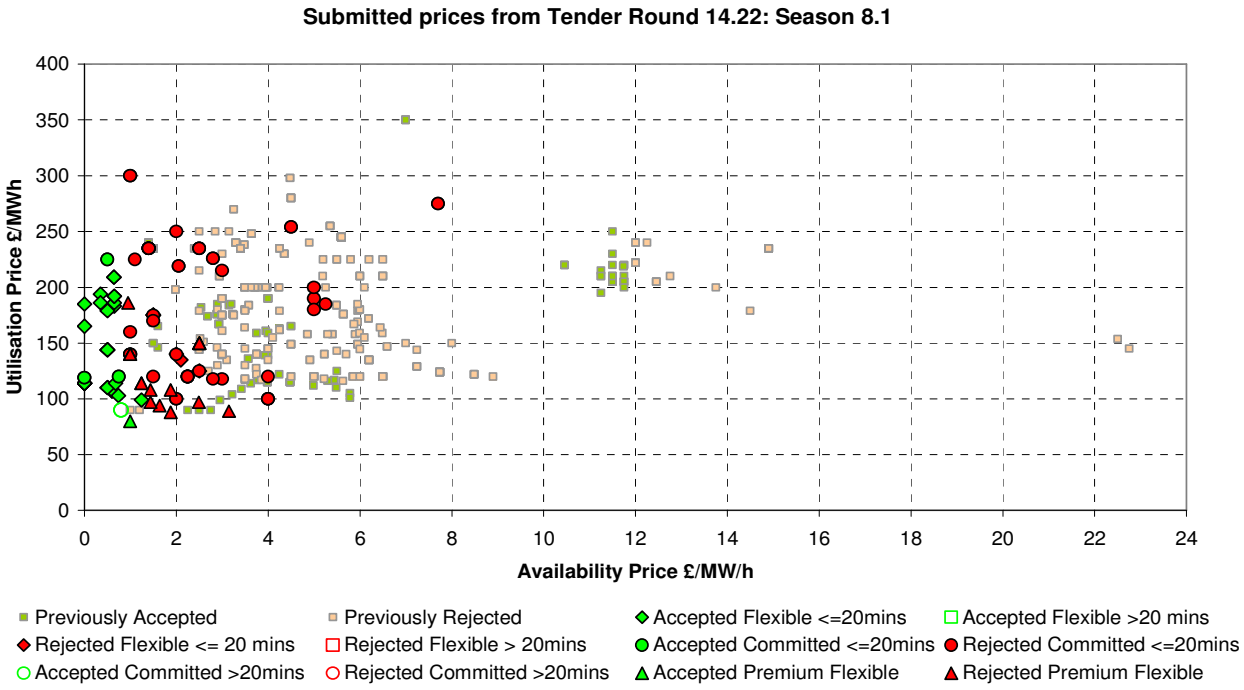
8.1 & 8.2 (Ave.) Tendered: 33.5 Units, 2406 MW
Accepted: 15 Units, 96 MW
8.3 & 8.4 (Ave.) Tendered: 28 Units, 209 MW
Accepted: 8 Units, 54 MW
8.5 & 8.6 (Ave.) Tendered: 47 Units, 352.5 MW
Accepted: 12.5 Units, 137 MW

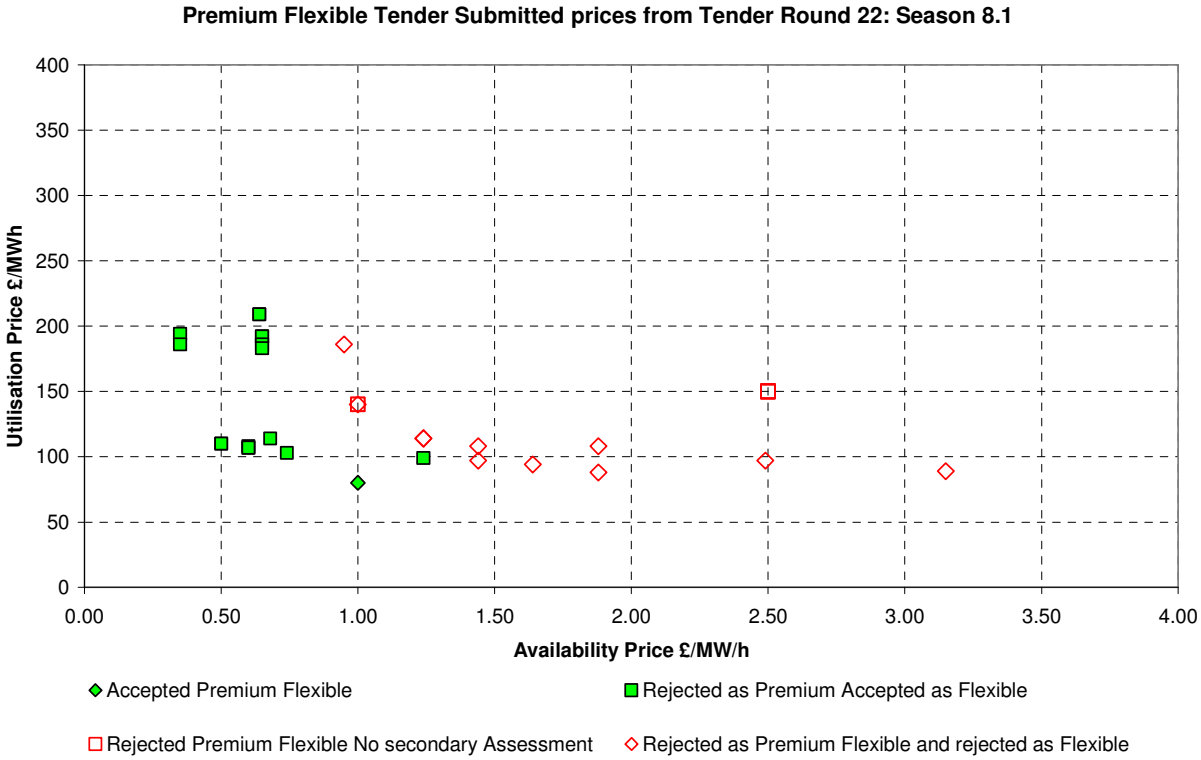
9.1 - 9.6 (Ave.) Tendered: 52 Units, 424 MW
Accepted: 40 Units, 325 MW

Section 1.2 Prices

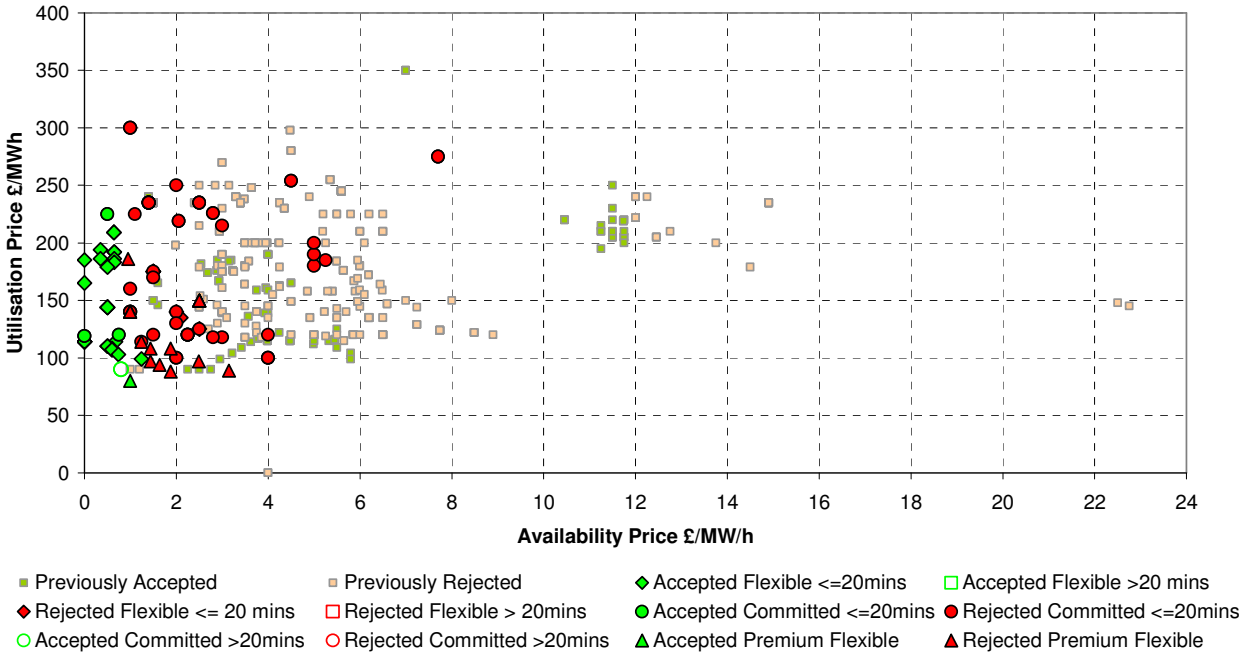
Figures 3 and 4 below show scatter plots of availability and utilisation price for each tender and for each season. The data is broken down into response time groups of >20 mins or <=20 mins, Flexible or Committed service and accepted or rejected tenders. These charts also display any units accepted as Premium Flexible, or rejected as Premium Flexible if they were not then assessed as Flexible. If a unit was rejected as Premium Flexible and then assessed as Flexible, they are represented on the chart as normal Flexible tenders. These charts also depict the accepted and rejected tenders from previous tender rounds. Additional plots displaying only the Premium Flexible tenders are included for clarity.

Figure 3 Year 8 Availability and Utilisation price charts

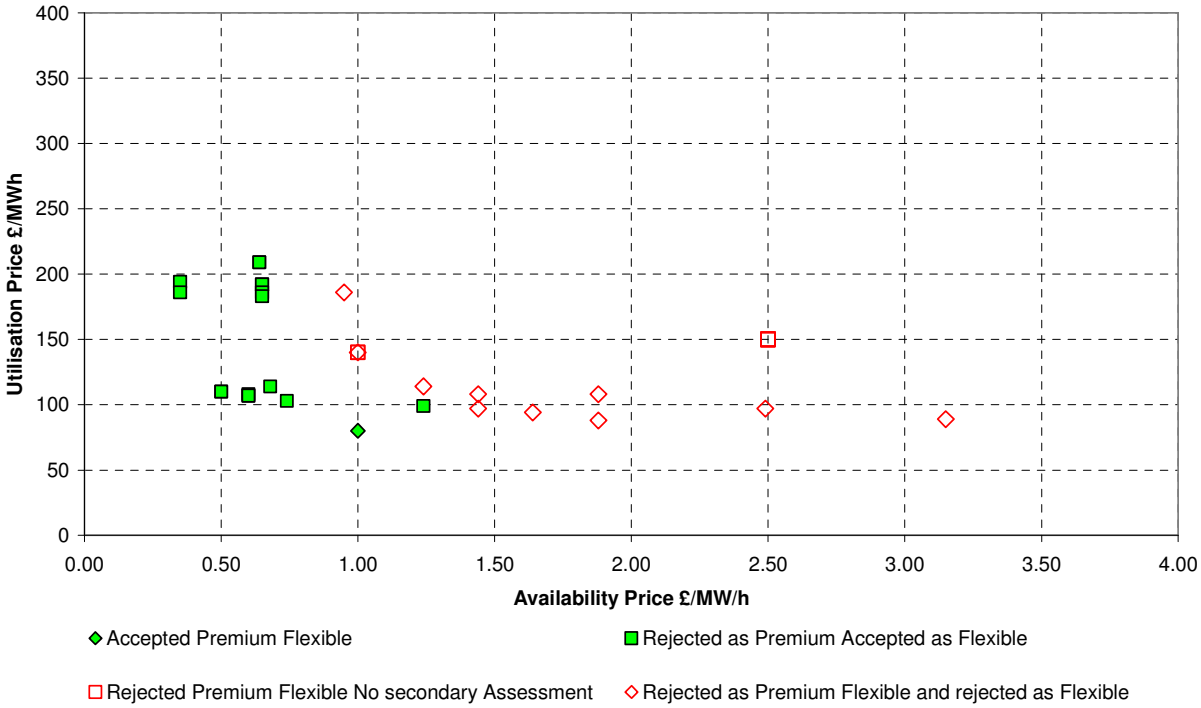




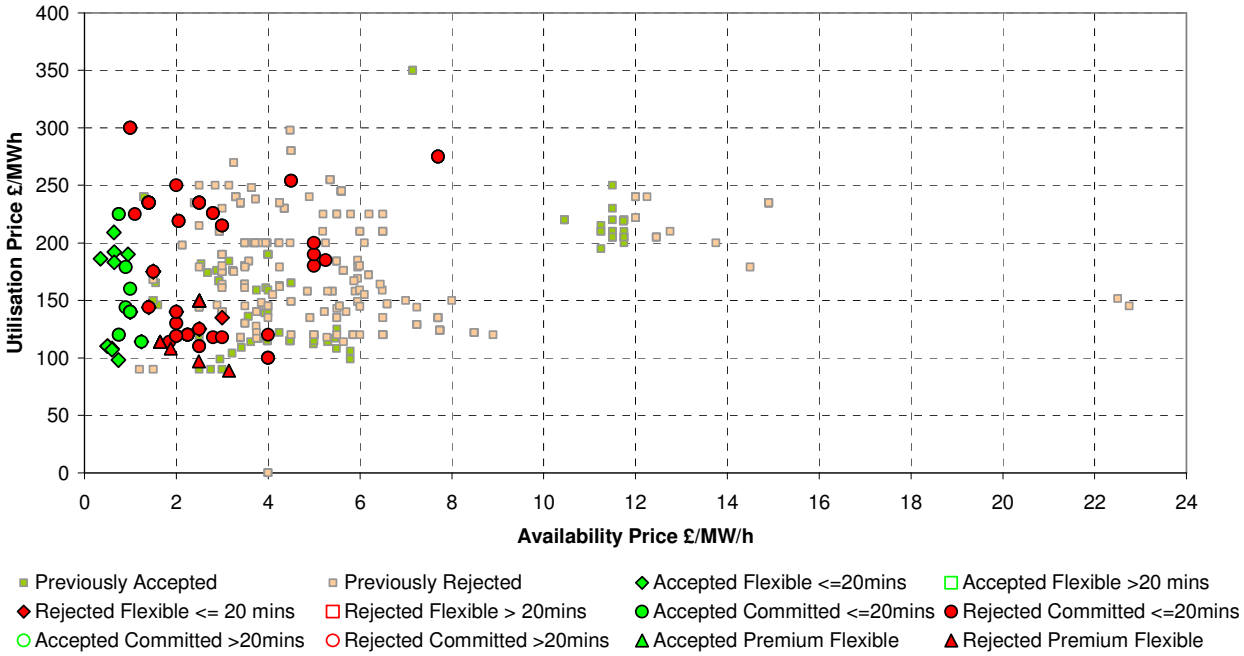
Submitted prices from Tender Round 14.22: Season 8.2



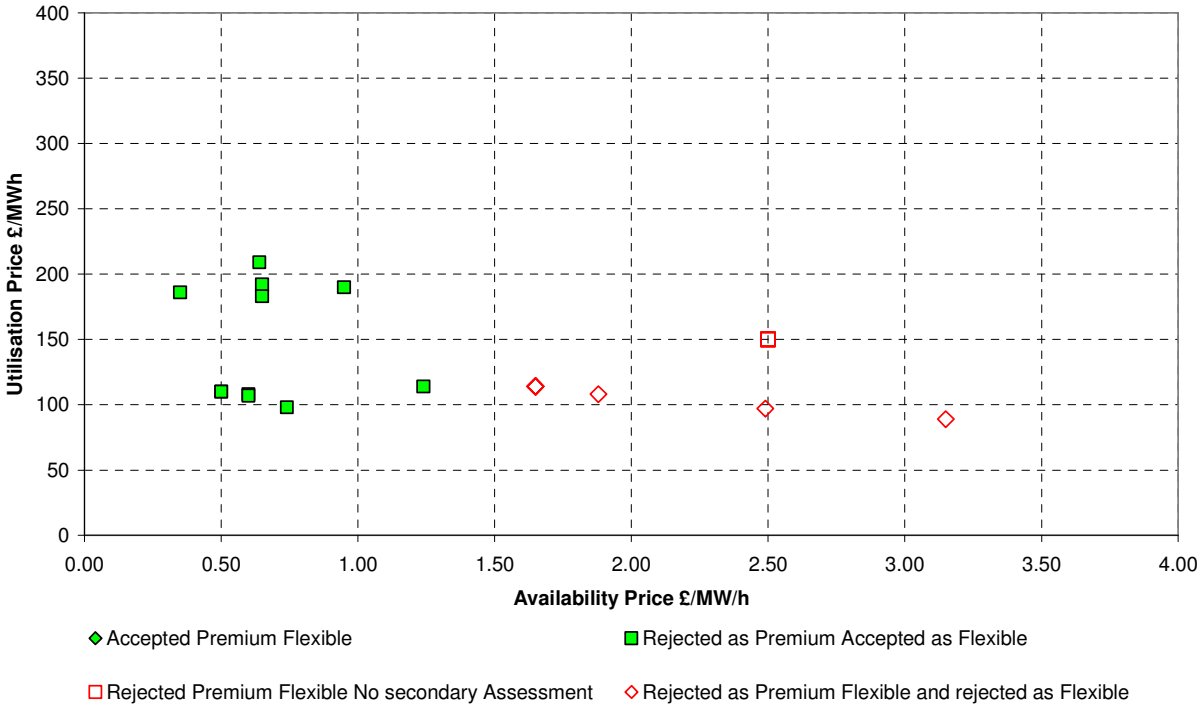
Premium Flexible Tender Submitted prices from Tender Round 22: Season 8.2



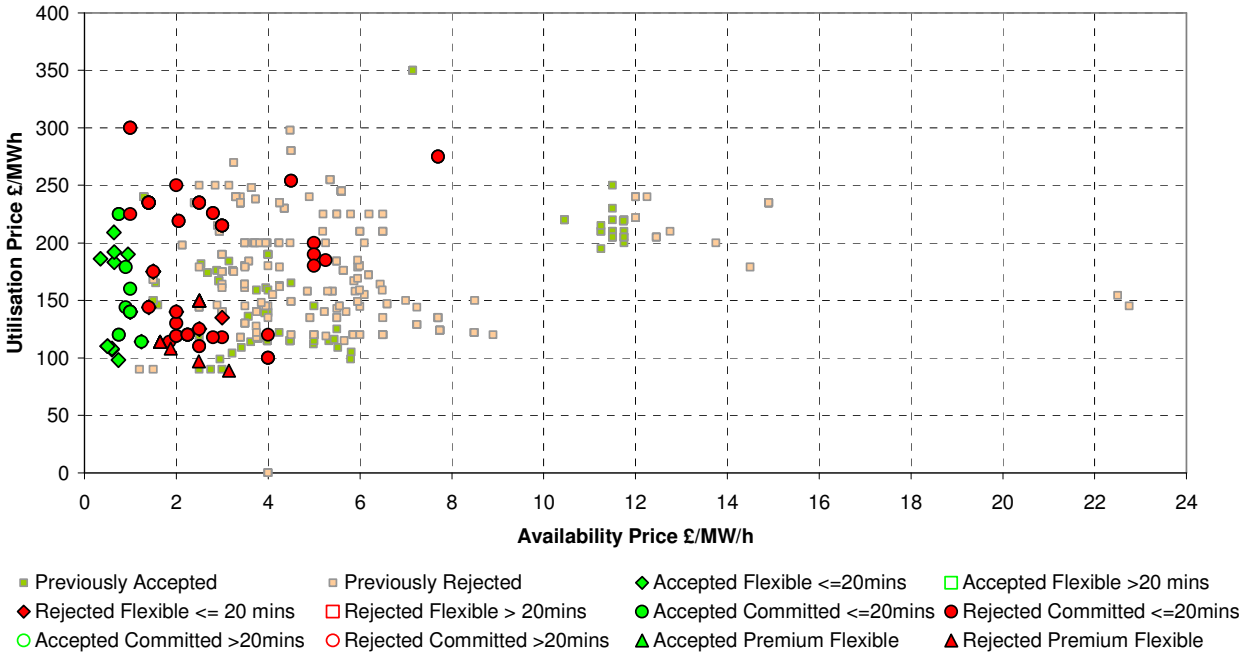
Submitted prices from Tender Round 14.22: Season 8.3



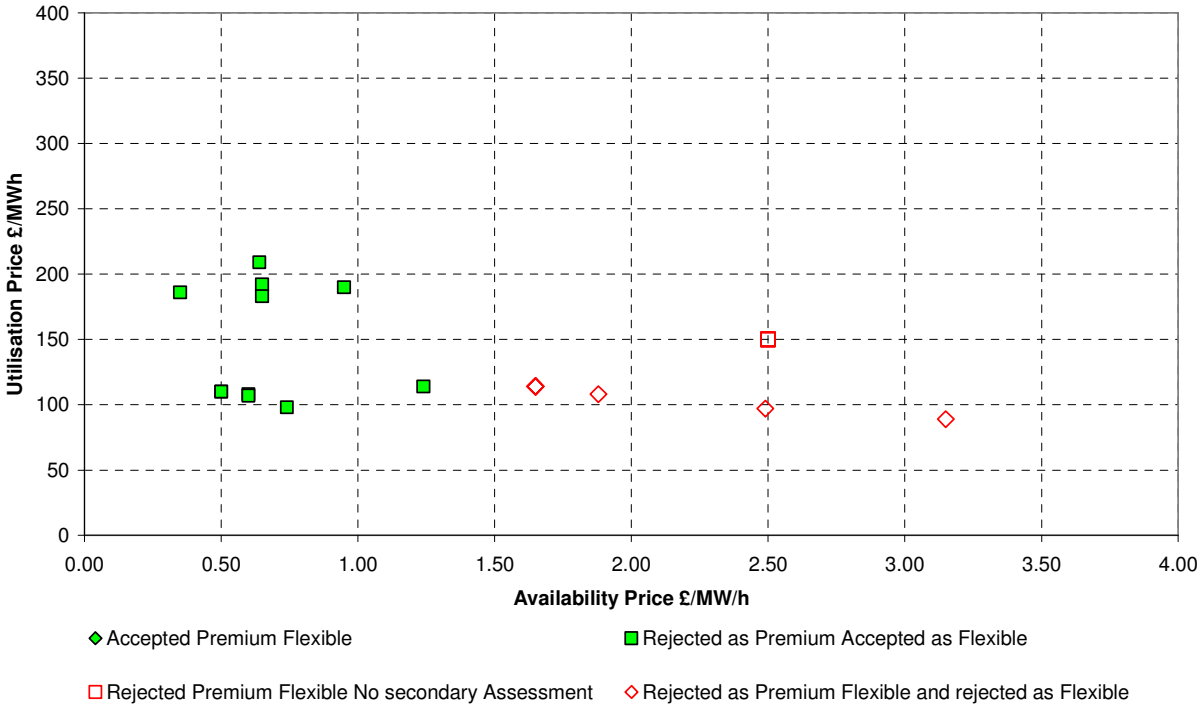
Premium Flexible Tender Submitted prices from Tender Round 22: Season 8.3



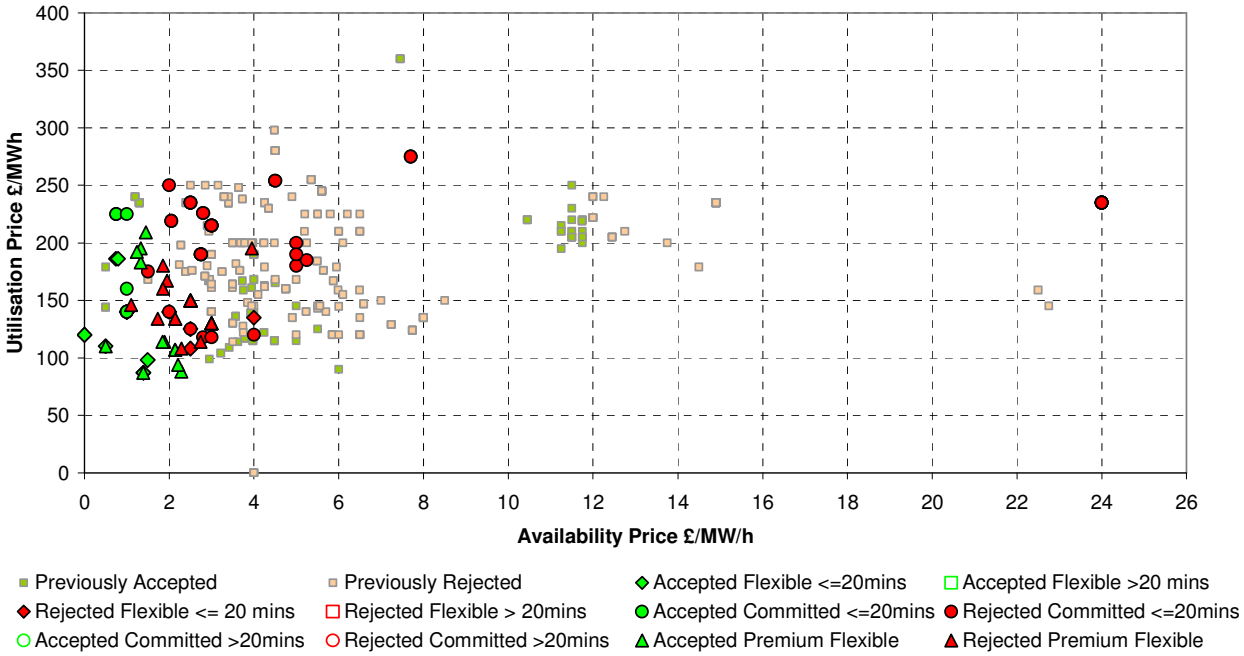
Submitted prices from Tender Round 14.22: Season 8.4



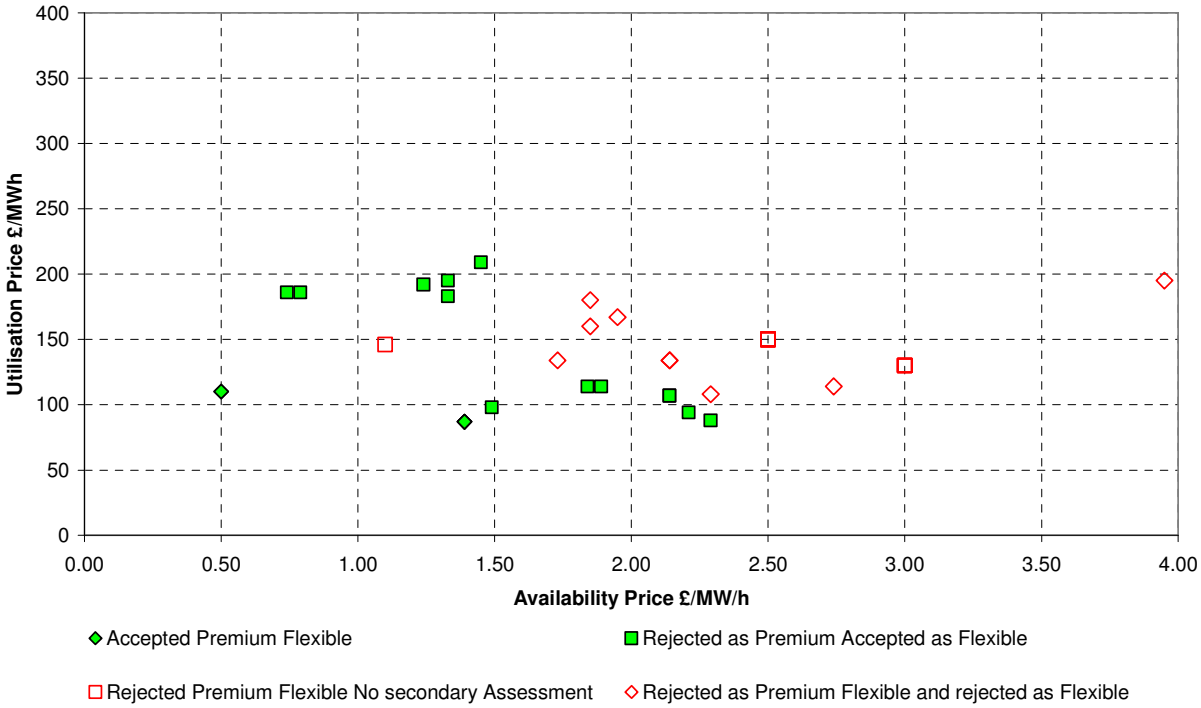
Premium Flexible Tender Submitted prices from Tender Round 22: Season 8.4



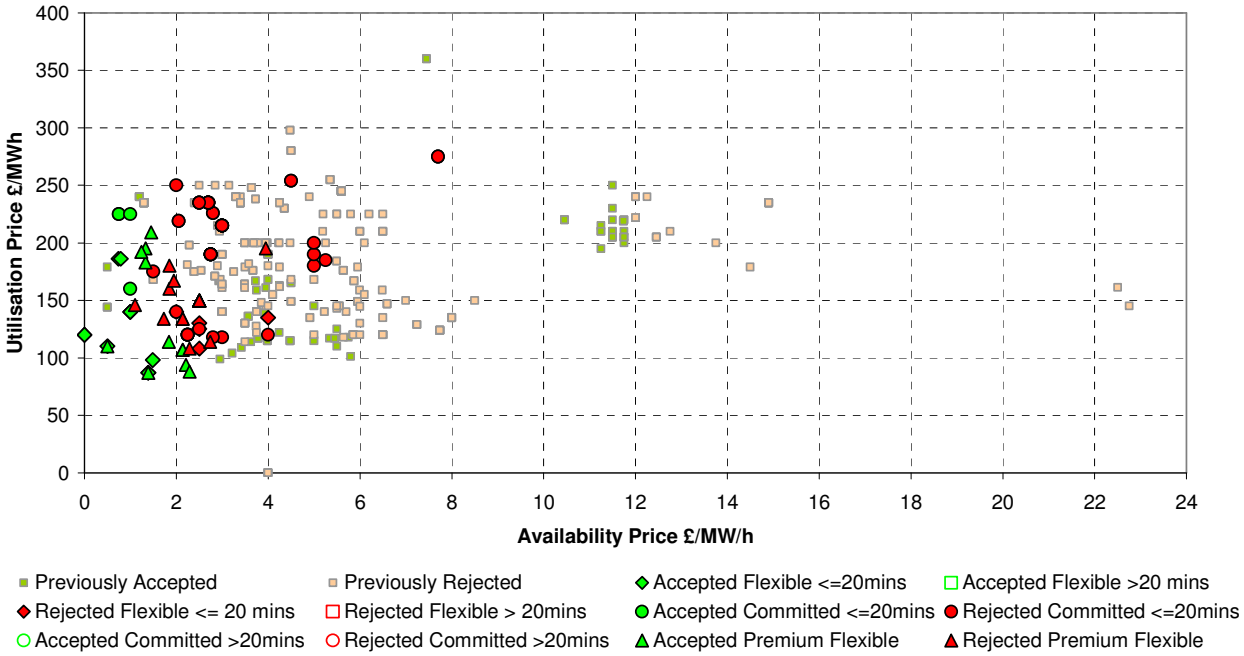
Submitted prices from Tender Round 14.22: Season 8.5



Premium Flexible Tender Submitted prices from Tender Round 22: Season 8.5



Submitted prices from Tender Round 14.22: Season 8.6



Premium Flexible Tender Submitted prices from Tender Round 22: Season 8.6

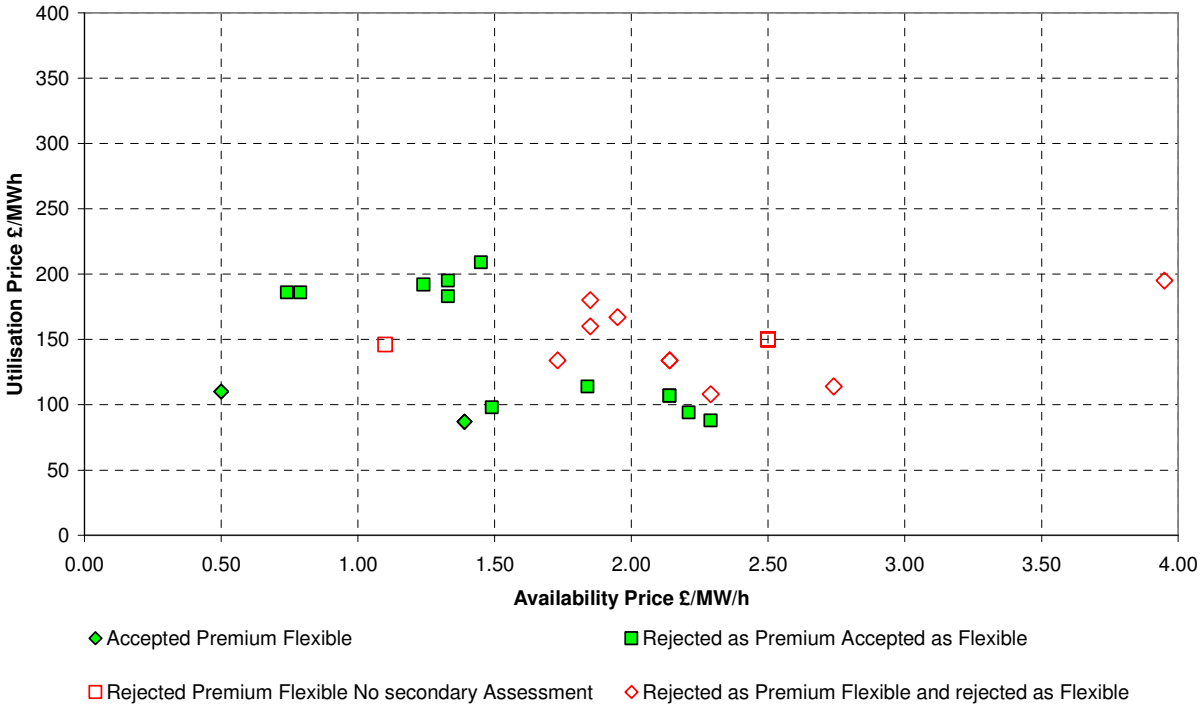
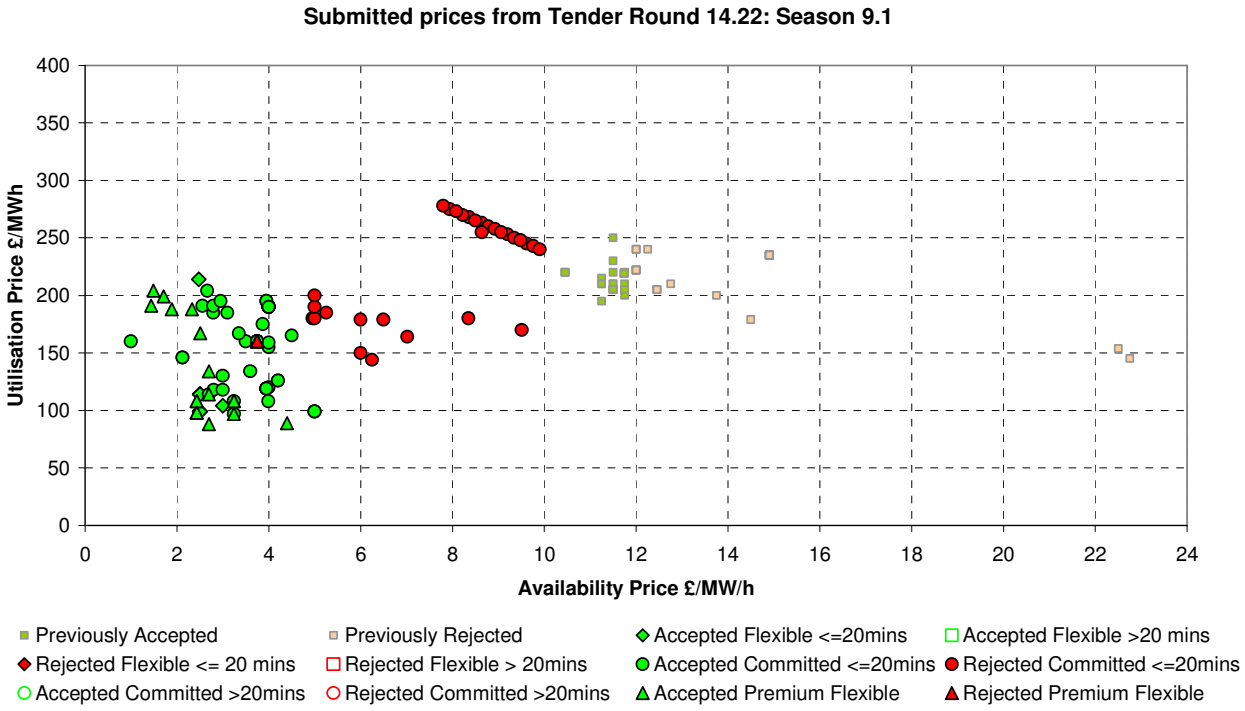
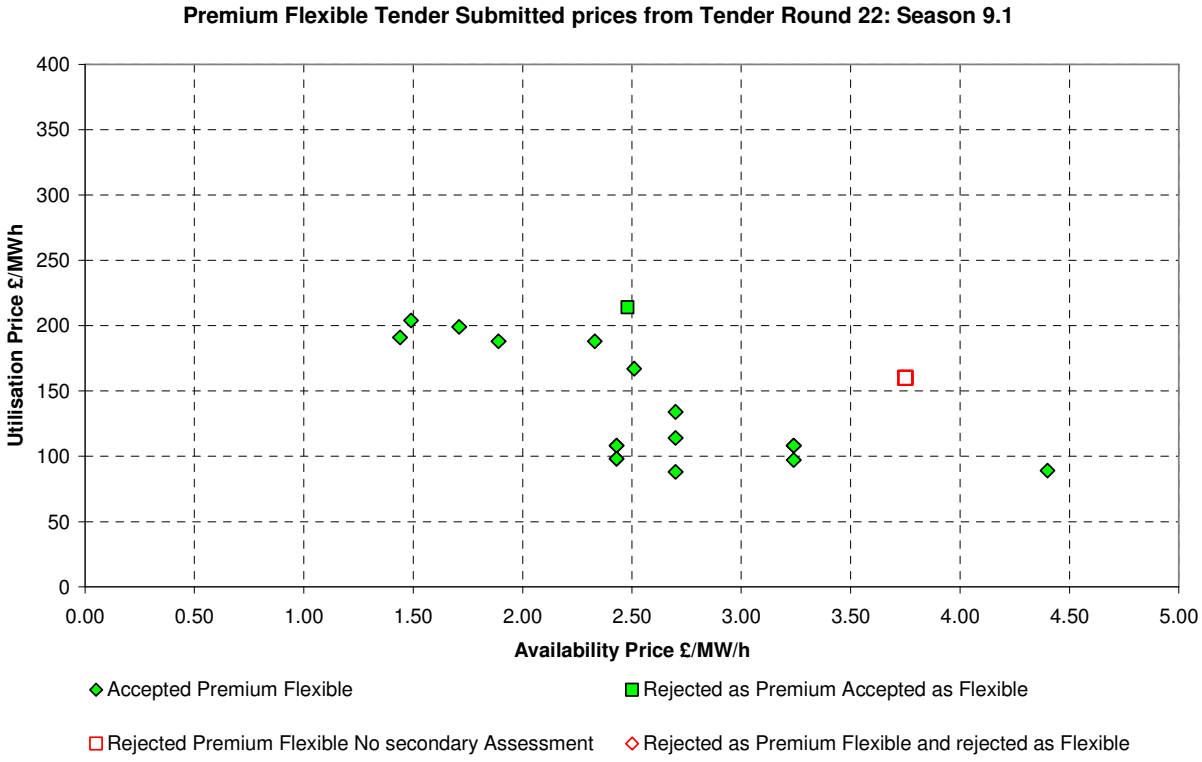
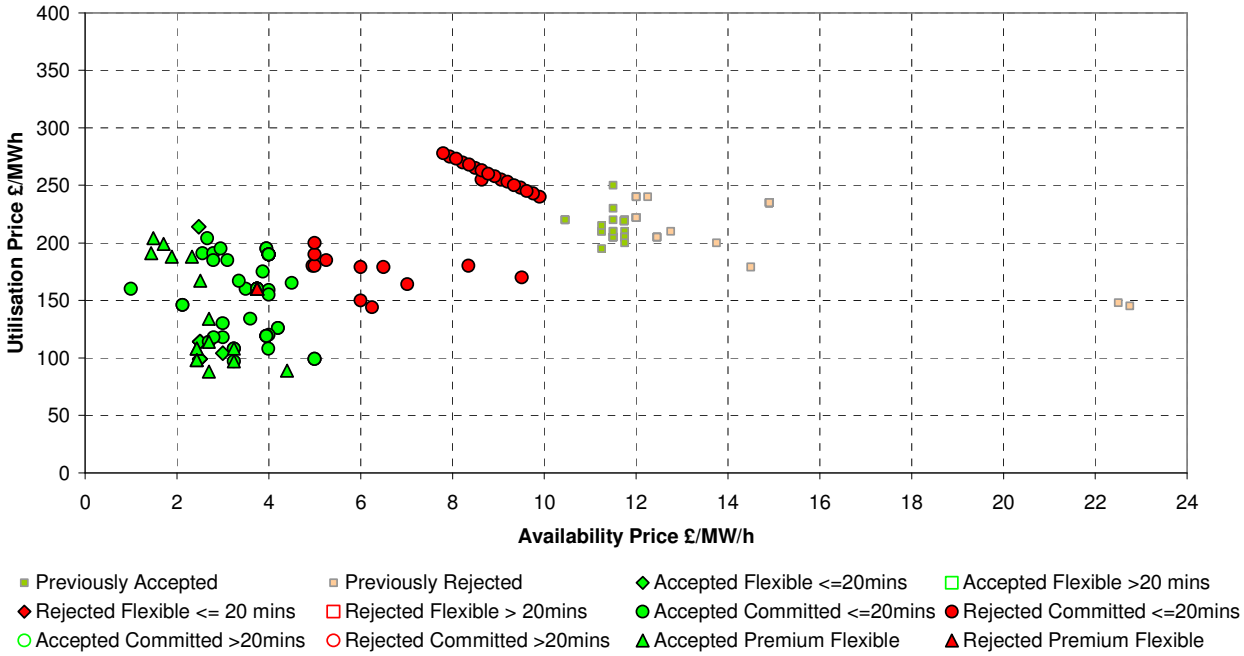


Figure 4 Year 9 Availability and Utilisation price charts

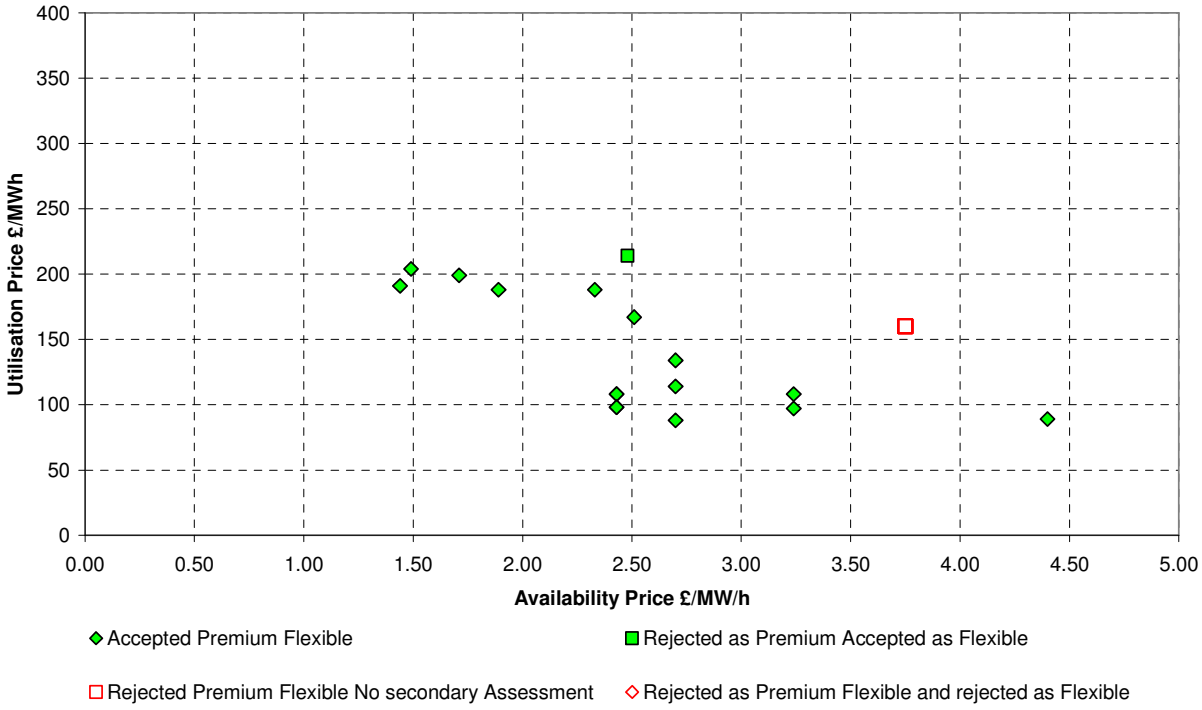




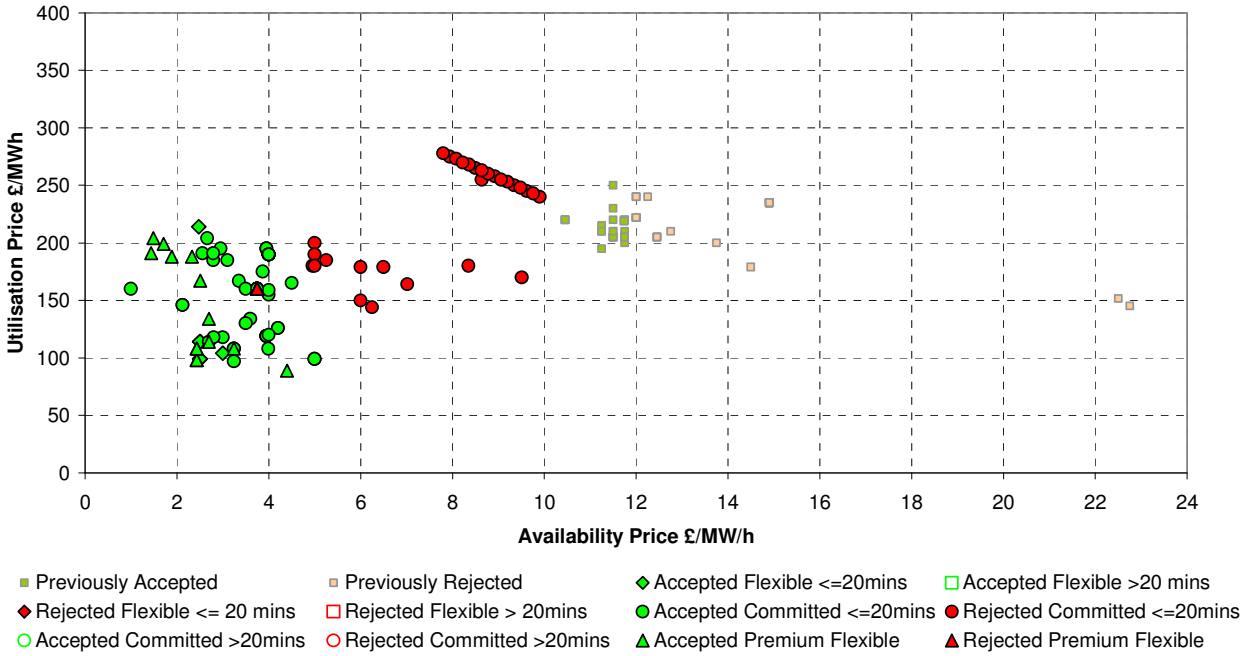
Submitted prices from Tender Round 14.22: Season 9.2



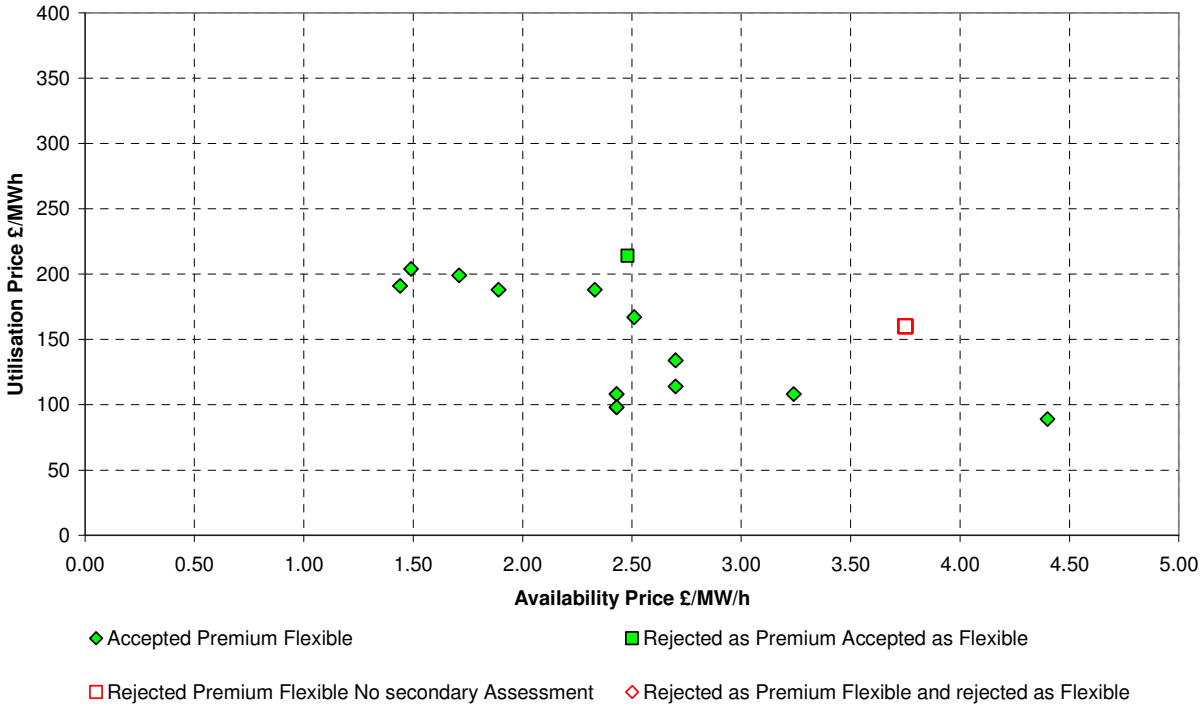
Premium Flexible Tender Submitted prices from Tender Round 22: Season 9.2



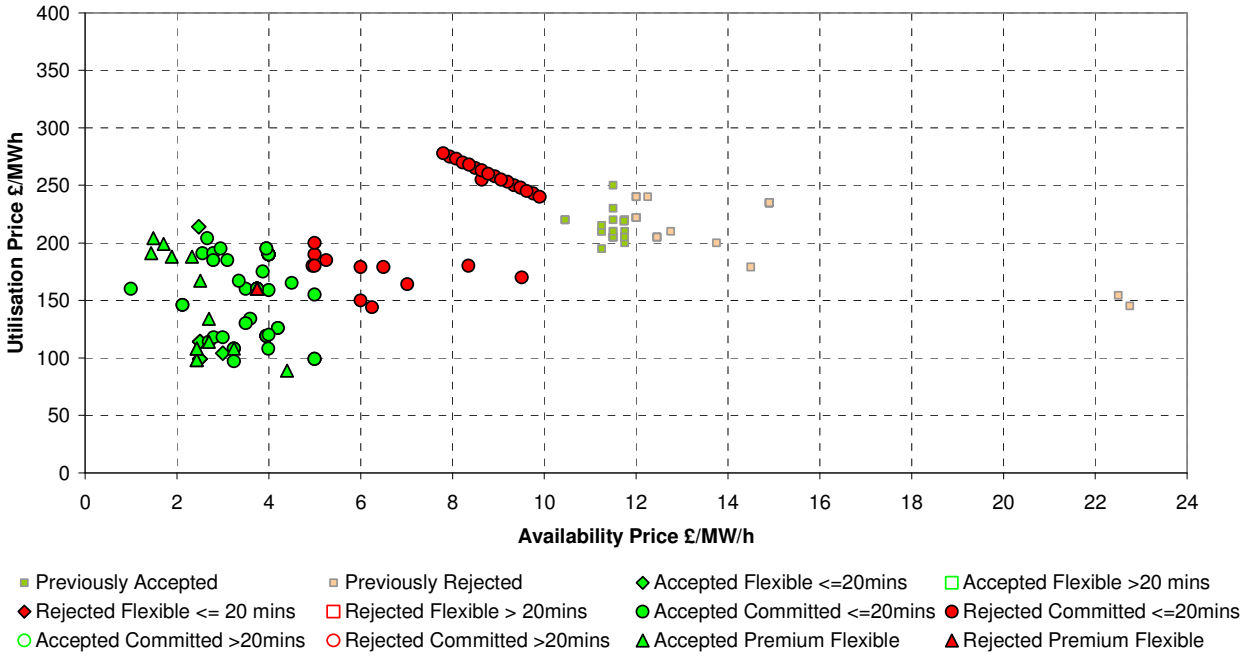
Submitted prices from Tender Round 14.22: Season 9.3



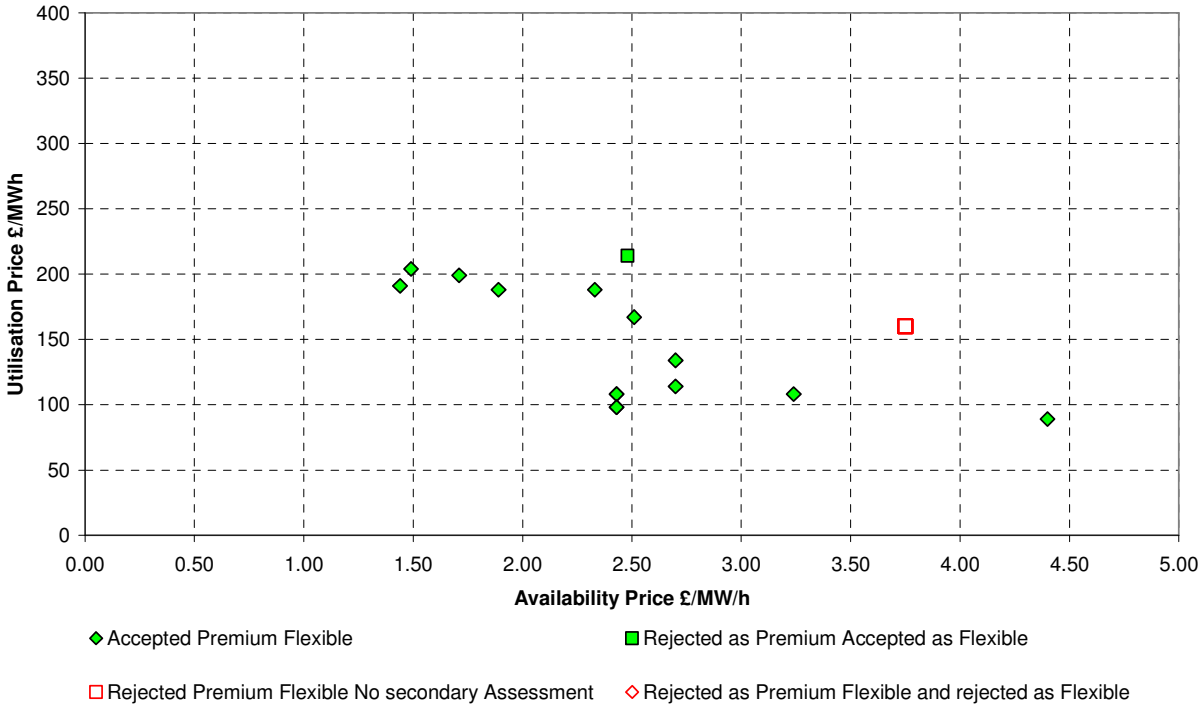
Premium Flexible Tender Submitted prices from Tender Round 22: Season 9.3



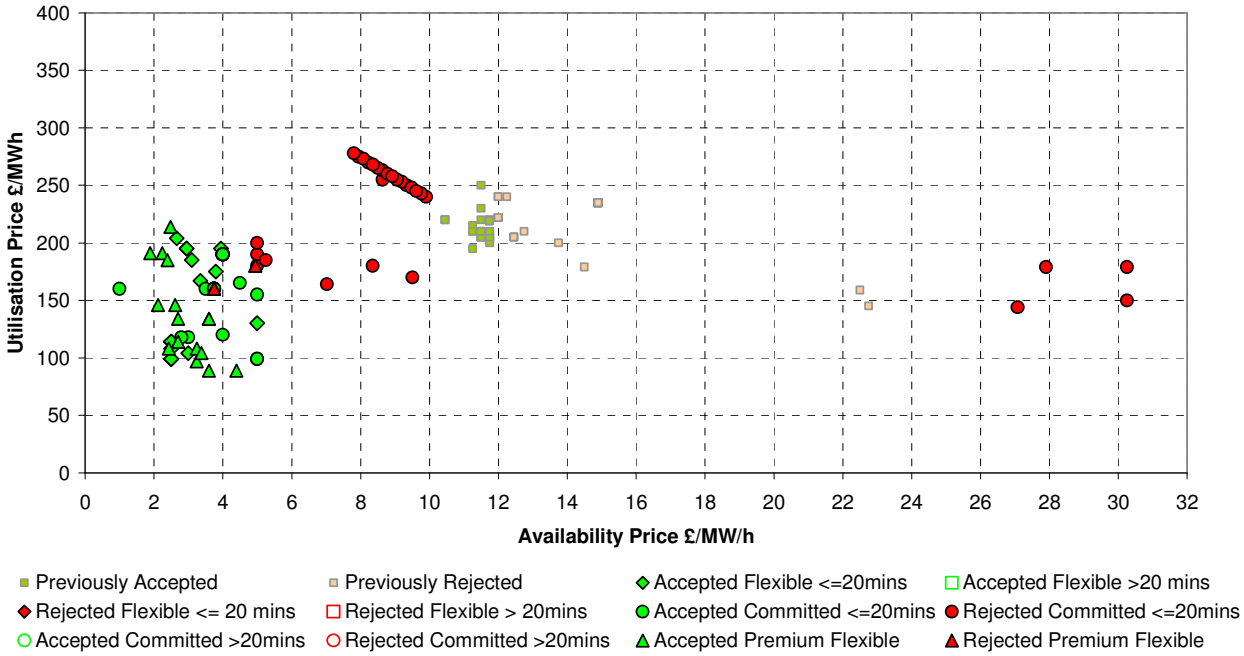
Submitted prices from Tender Round 14.22: Season 9.4



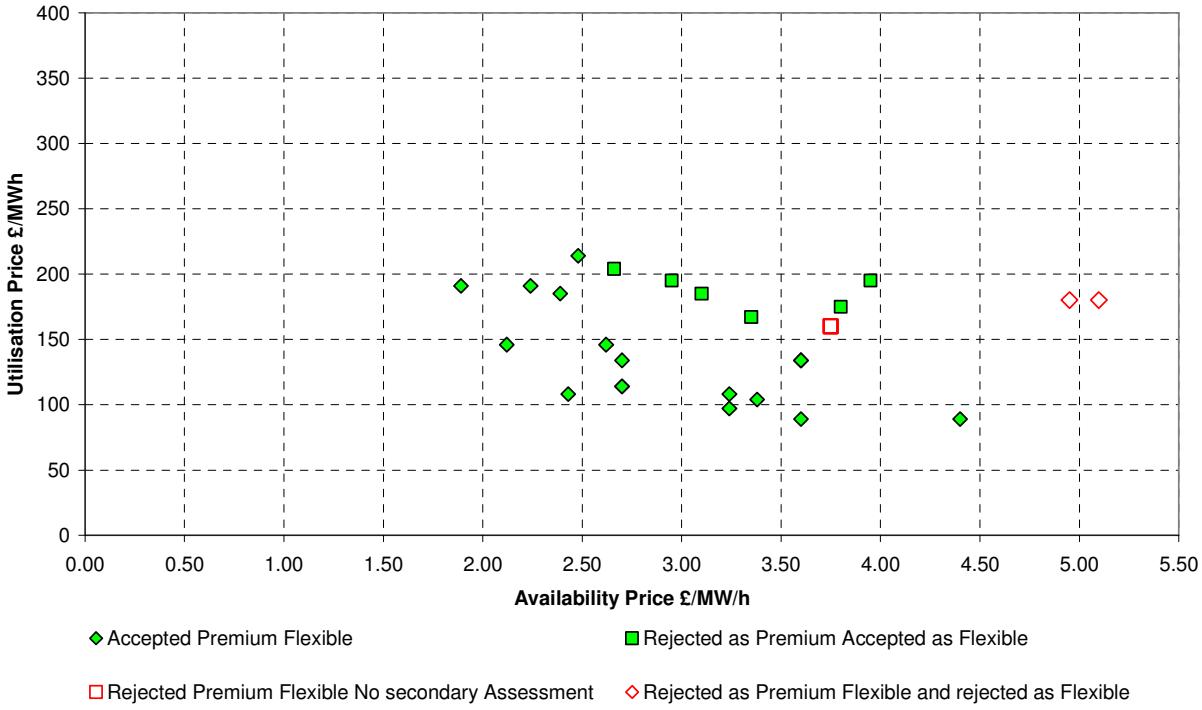
Premium Flexible Tender Submitted prices from Tender Round 22: Season 9.4



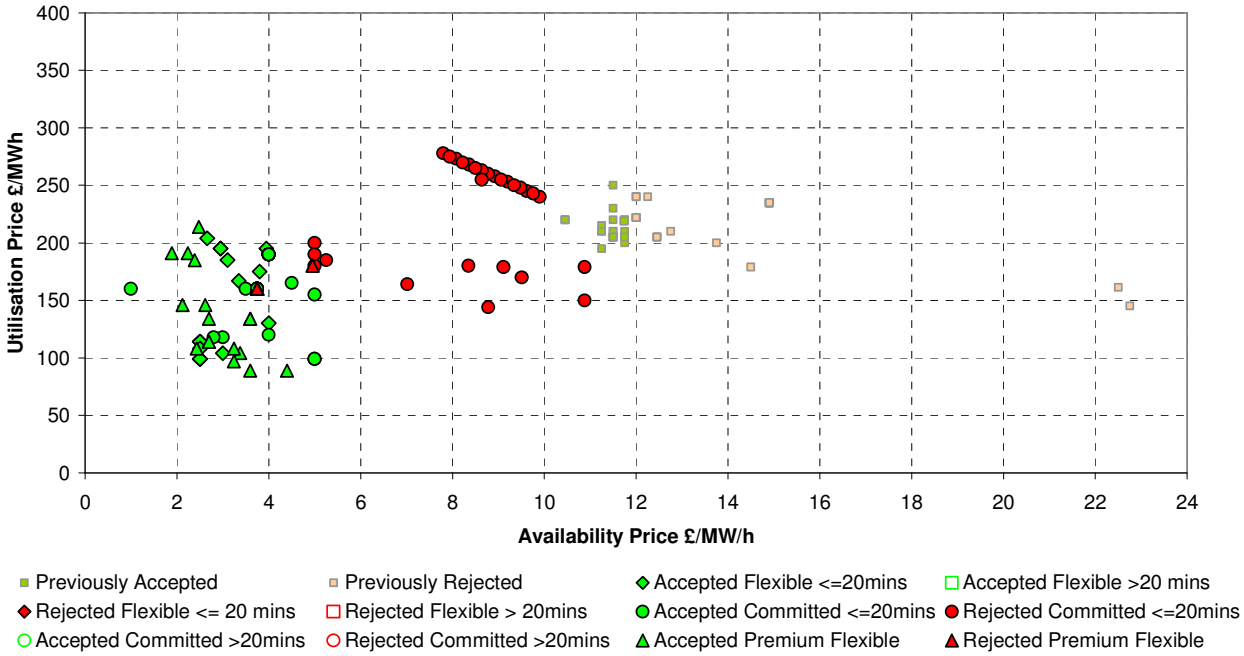
Submitted prices from Tender Round 14.22: Season 9.5



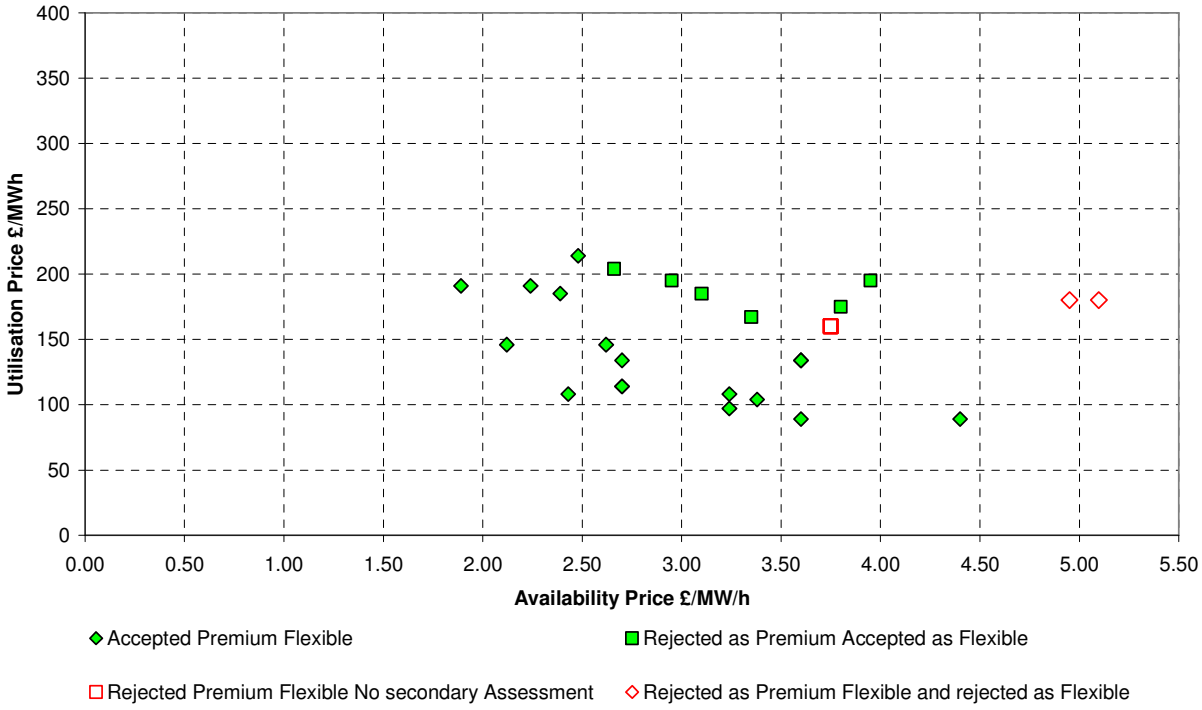
Premium Flexible Tender Submitted prices from Tender Round 22: Season 9.5



Submitted prices from Tender Round 14.22: Season 9.6



Premium Flexible Tender Submitted prices from Tender Round 22: Season 9.6



Section 1.3 MW Capacity

Figures 5 and 6 exhibit cumulative graphs. In these graphs the total accepted MW from previous tender rounds, up to and including the results from TR22, have been stacked according to two categories: **Figure 5a & 5b** is ranked according to utilisation price and **Figures 6a & 6b** according to the response time of the unit. **The utilisation prices have had indexation applied (seasonal and annual) these are final for season 8.1 but may change for the remaining seasons. Please note that the charts in this section include MW from Flexible units, which may not be available at all times. Also note that the charts contain data from previous tender rounds up to and including TR22.**

Figure 5a: Cumulative MW by Utilisation Price for Year 8

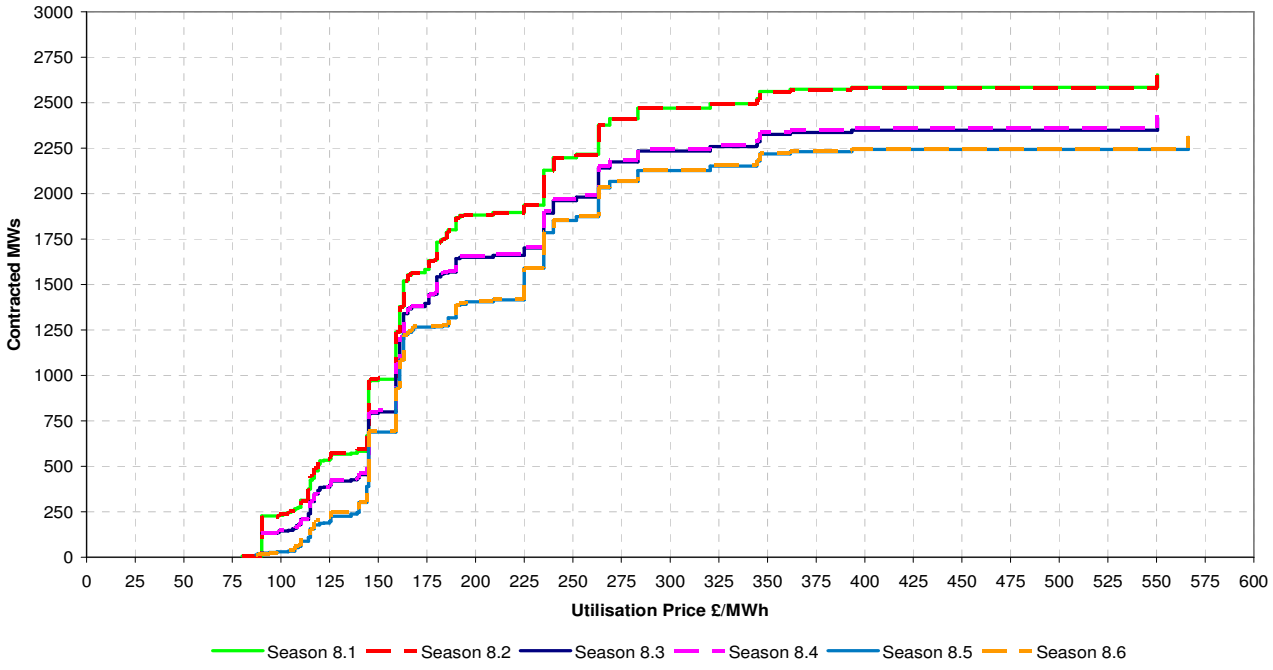


Figure 5b: Cumulative MW by Utilisation Price for Year 9

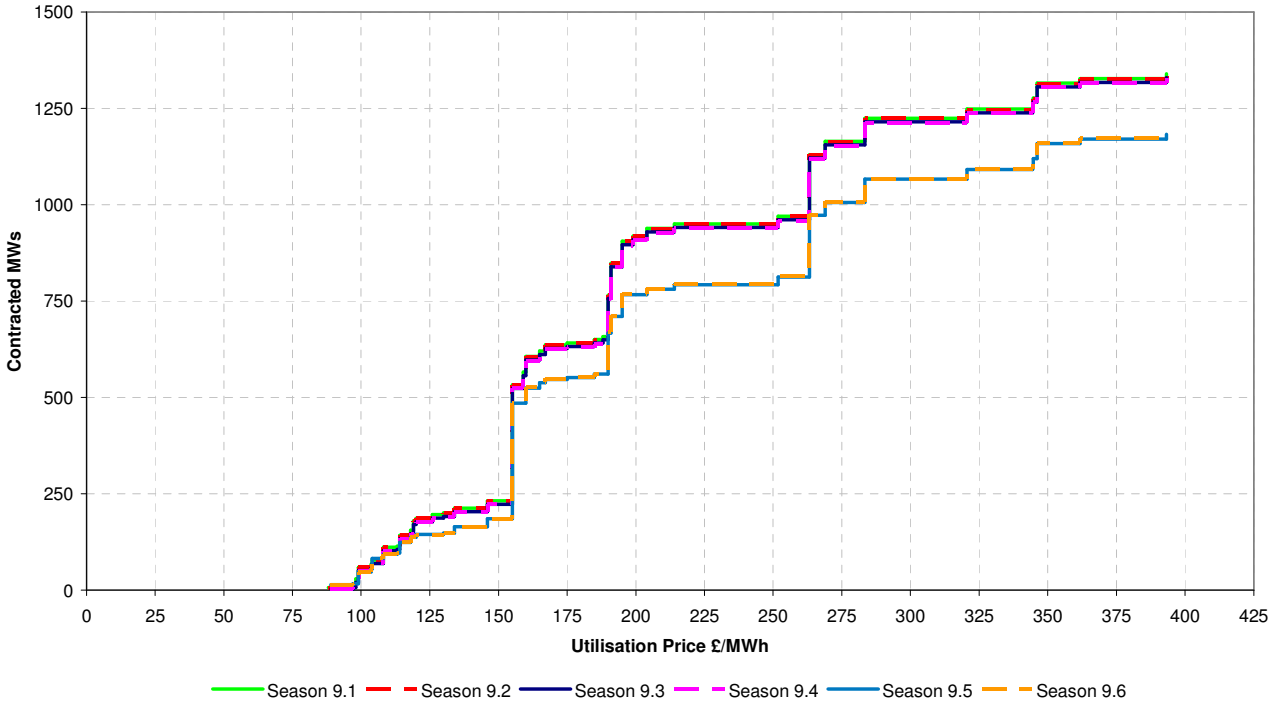


Figure 6b illustrates that for seasons 8.1 and 8.2 approximately 850MW of STOR is contracted with a response time of 10 minutes or less.

Figure 6a: Cumulative MW by Response Time for Year 8

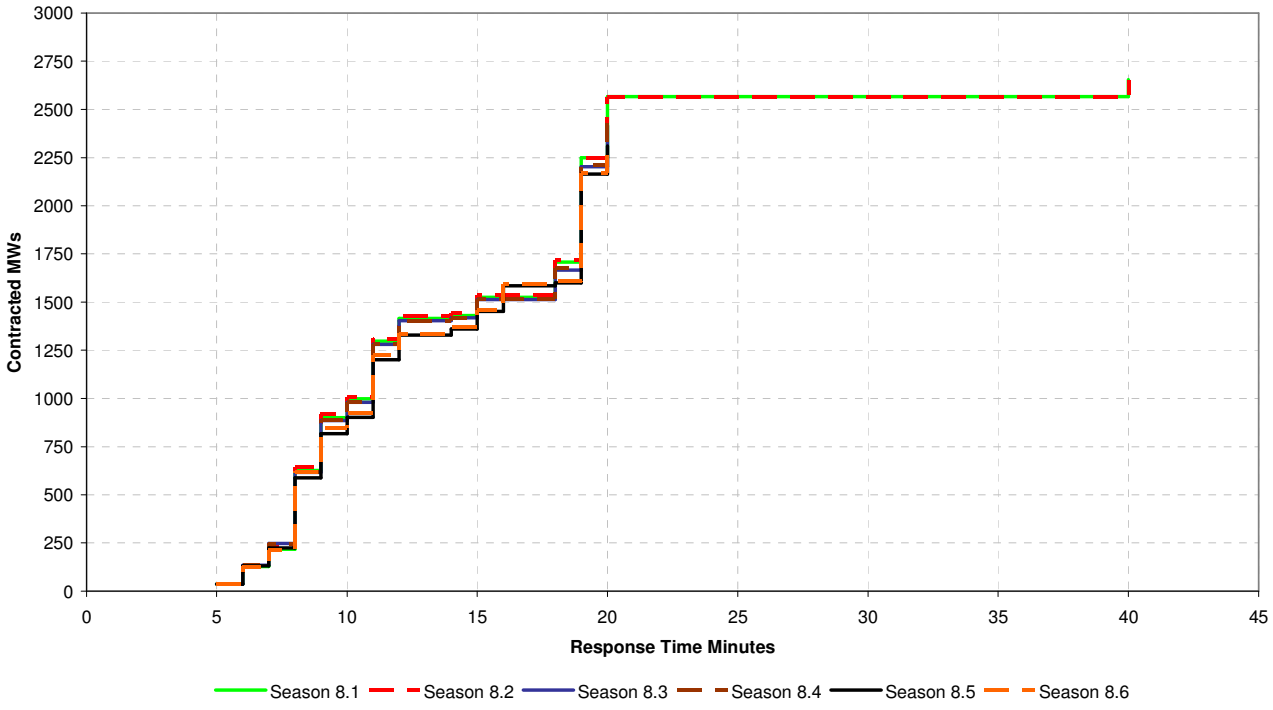
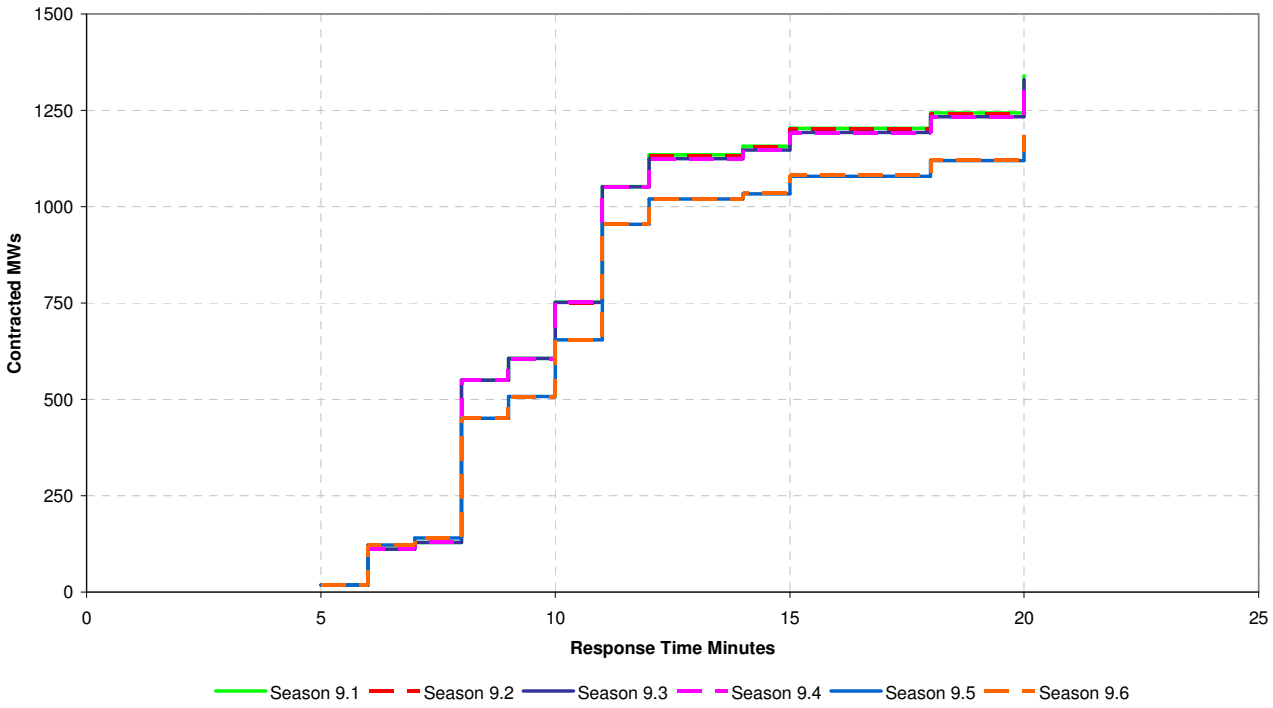


Figure 6b: Cumulative MW by Response Time for Year 9

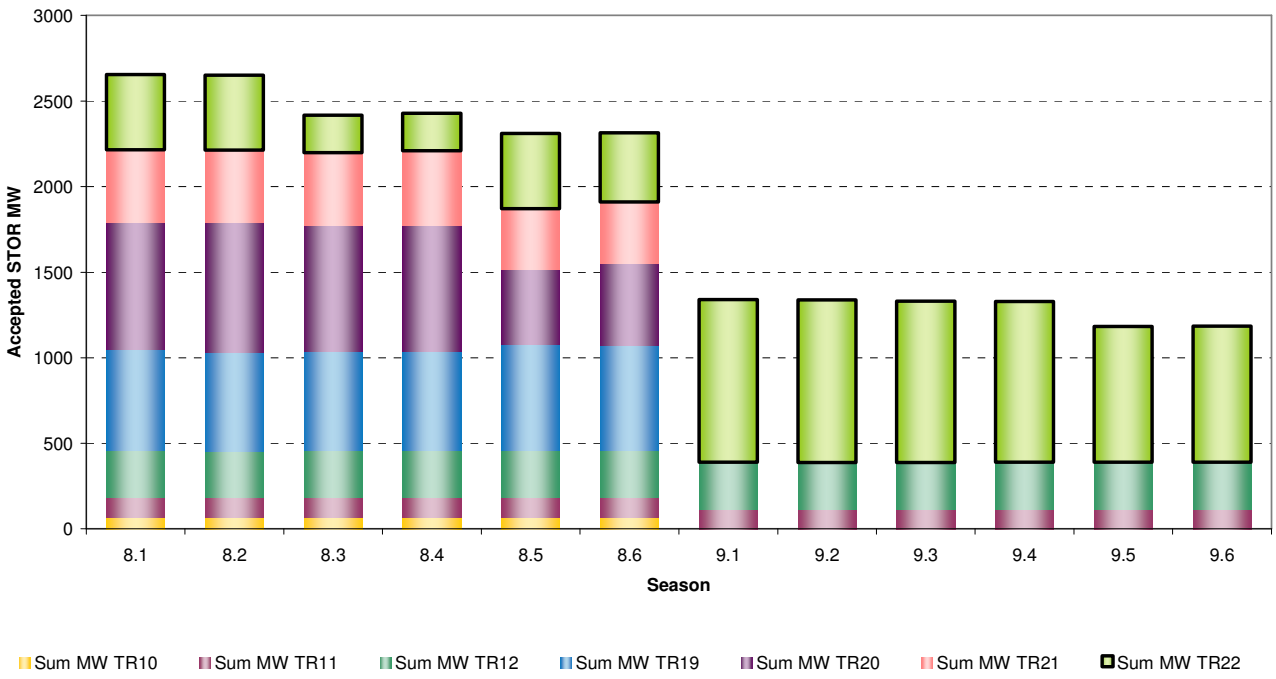


Section 2 Total Contracted Position

Figure 7 shows the breakdown of accepted volumes from all previous tender rounds across the seasons of Years 8 and 9. The table accompanying Figure 7 below displays the same data in table format split by Committed or Flexible.

Figure 7 Year 8 and 9 summaries by tender round

Please note this figure contains data from previous tender rounds up to and including TR21.



	Season	8.1		8.2		8.3		8.4		8.5		8.6	
	Service Type	C	F	C	F	C	F	C	F	C	F	C	F
Accepted MW	TR10 (LT)	68		68		68		68		68		68	
	TR11 (LT)	116		116		116		116		116		116	
	TR12 (LT)	273		271		272		273		274		274	
	TR19	591		577		582		580		605	14	602	14
	TR20	607	136	621	138	621	116	623	116	318	122	362	118
	TR21	424		414	8	424		434		264	91	264	91
	TR22	172	267	172	265	139	79	140	79	196	243	178	227
	Total	**2251**	**403**	**2239**	**411**	**2222**	**195**	**2234**	**195**	**1841**	**470**	**1864**	**450**

	Season	9.1		9.2		9.3		9.4		9.5		9.6	
	Service Type	C	F	C	F	C	F	C	F	C	F	C	F
Accepted MW	TR10 (LT)	0	0	0	0	0	0	0	0	0	0	0	0
	TR11 (LT)	116		116		116		116		116		116	
	TR12 (LT)	273		271		272		273		274		274	
	TR22	764	186	769	181	769	172	767	172	506	286	508	286
	Total	**1153**	**186**	**1156**	**181**	**1157**	**172**	**1156**	**172**	**896**	**286**	**898**	**286**

Appendix 1: Terminology and Definitions

High level description of STOR:

STOR is designed to give National Grid sufficient Operating Reserve to replace sudden generation losses, or unpredictable changes in demand between four hours ahead of real time and real time and requires a large proportion of units to be available within 20 minutes. STOR also recognises that other potential reserve providers who cannot meet the 20 minute response time criteria can still be of value in meeting our reserve requirement. Hence a key aspect of the definition of the STOR product is that it extends the maximum response time to 240 minutes to allow alternative providers to participate. How value is placed on these units by National Grid is different to the sub 20 minute notice units as the longer notice units compete mainly with alternative options available in the Balancing Mechanism with equivalent response times. Location, reliability and utilisation parameters are also important elements of the STOR assessment.

The Committed service applies to all providers who wish to make themselves available for all required windows nominated by National Grid. Both BM and NBM providers can tender for this service. The Flexible service applies only to NBM providers and allows the provider to make the unit available or unavailable for particular windows. This availability is assessed on a week-ahead basis and providers are notified if their service is required or not. It is at the discretion of National Grid whether a unit is accepted or rejected at the week-ahead stage and this decision will be based on the same assessment principles as the main tender assessment. The increased accuracy of the week-ahead forecast means that some factors may have more importance such as location if specific constraint issues are forecast. Both Services attract an availability payment paid on a £/MW/h basis when available within defined windows and an utilisation payment on delivery of STOR MW when instructed by National Grid paid on a £/MWh basis.

A summary of the STOR service can be found on our website at the following link:

http://www.nationalgrid.com/NR/rdonlyres/083D0D9C-1A33-4336-8FA3-1A69DCC1C903/60303/TR20_General_Description.pdf

Appendix 2:

Accepted and Rejected Tenders TR22: A list of information containing prices, response time, location and unit type of all accepted and rejected tenders from this tender round, previously found in the appendix to the market information reports, can now be downloaded, in spreadsheet format, from the tender and reports section of the National Grid Balancing Services webpage:

http://www.nationalgrid.com/uk/Electricity/Balancing/services/STOR/

Appendix 3: Season Reference

The following tables summarise the season information for the current year (Year 8) and the following year (Year 9).

Seasons 2014/15

Season	Dates	WD Start Time	WD End Time	NWD Start Time	NWD End Time	Hours/Day Type WD	Hours/Day Type NWD	Total
1	05:00 on Tuesday 1st Apr 2014 - 05:00 on Monday 28th Apr 2014	07:00	13:30	10:00	14:00	209	32.5	241.5
		19:00	22:00	19:30	22:00			
2	05:00 on Monday 28th Apr 2014 - 05:00 on Monday 18th Aug 2014	07:30	14:00	09:30	13:30	1081	126	1207
		16:00	18:00	19:30	22:30			
		19:30	22:30					
3	05:00 on Monday 18th Aug 2014 - 05:00 on Monday 22nd Sep 2014	07:30	14:00	10:30	13:30	348	36	384
		16:00	21:30	19:00	22:00			
4	05:00 on Monday 22nd Sep 2014 - 05:00 on Monday 27th Oct 2014	07:00	13:30	10:30	13:30	330	32.5	362.5
		16:30	21:00	17:30	21:00			
5	05:00 on Monday 27th Oct 2014 - 05:00 on Monday 2nd Feb 2015	07:00	13:30	10:30	13:30	931.5	127.5	1059
		16:00	21:00	16:00	20:30			
6	05:00 on Monday 2nd Feb 2015 - 05:00 on Wednesday 1st Apr 2015	07:00	13:30	10:30	13:30	550	60	610
		16:30	21:00	16:30	21:00			
						3449.5	414.5	3864

Season	WD	NWD
1	22	5
2	94	18
3	29	6
4	30	5
5	81	17
6	50	8

Total Hours	3864

Seasons 2015/16

Season	Dates	WD Start Time	WD End Time	NWD Start Time	NWD End Time	Hours/Day Type WD	Hours/Day Type NWD	Total
1	05:00 on Wednesday 1st Apr 2015 - 05:00 on Monday 27th Apr 2015	07:00	13:30	10:00	14:00	199.5	32.5	232
		19:00	22:00	19:30	22:00			
2	05:00 on Monday 27th Apr 2015 - 05:00 on Monday 24th Aug 2015	07:30	14:00	09:30	13:30	1150	133	1283
		16:00	18:00	19:30	22:30			
		19:30	22:30					
3	05:00 on Monday 24th Aug 2015 - 05:00 on Monday 21st Sep 2015	07:30	14:00	10:30	13:30	276	30	306
		16:00	21:30	19:00	22:00			
4	05:00 on Monday 21st Sep 2015 - 05:00 on Monday 26th Oct 2015	07:00	13:30	10:30	13:30	330	32.5	362.5
		16:30	21:00	17:30	21:00			
5	05:00 on Monday 26th Oct 2015 - 05:00 on Monday 1st Feb 2016	07:00	13:30	10:30	13:30	920	135	1055
		16:00	21:00	16:00	20:30			
6	05:00 on Monday 1st Feb 2016 - 05:00 on Friday 1st Apr 2016	07:00	13:30	10:30	13:30	561	67.5	628.5
		16:30	21:00	16:30	21:00			
						3436.5	430.5	3867

Season	WD	NWD
1	21	5
2	100	19
3	23	5
4	30	5
5	80	18
6	51	9

Total Hours	3867