

STOR Market Information Report: TR 11 (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 11. The report provides details of tendered utilisation and availability prices and National Grid's resultant forward contracted position; together with further details on the type, size and dynamics of the tendered plant. For further information regarding this product or how and when to tender please consult the tender and reports section on found on the National Grid Balancing Services information website:

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

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://www.nationalgrid.com/uk/Electricity/Balancing/Summary/>
<http://www.nationalgrid.com/uk/Electricity/Balancing/transmissionlicensestatements/PG/>

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. The tender assessment further considers the reliability, the location and the response times of the tendered unit. The latest assessment principles can be found on the STOR section of the Balancing Services website:

http://www.nationalgrid.com/NR/ronlyres/7B8CA1AB-4964-4965-B5A2-126C8C202A11/40677/STOR_Assessment_Principles.pdf

This report is divided into 3 sections:

- Section 1 provides a summary of tendered and accepted volumes and price information across seasons in year 4 and 5. The data is broken down by response time and flexible or committed service providers.
- Section 2 provides an overview of tenders received for seasons beyond year 5.
- Section 3 provides an overview of the total contracted position for each season in year 4 and 5 from TR11 and previous tender rounds.

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Section 1.1 Submitted and Accepted Volumes

At the close of TR11 National Grid had received 172 tenders from 20 companies for STOR contracts in 2010/11 across 99 units and 48 tenders from 5 companies across 28 units for 2011/12. The tenders for seasons beyond year 5 are described in **section 2**.

National Grid secures a proportion of its reserve requirement via STOR tenders. The tenders are assessed on availability prices, utilisation prices, response times, historic reliability and geographical location. The accepted tenders are selected such that the total costs of securing the reserve and operating the system are lower than without the selection of those tenders. For seasons 4.3 and 4.4 National Grid has accepted 200-300MW less than in previous seasons due to the economics of tenders received compared to the alternative of procuring reserve in the Balancing Mechanism (BM). The combination of a large amount of new commissioning generation and lower demand brought about by the recession has contributed to lower prices in the BM. In total 59 units were accepted for 2010/11 and the remaining tenders were rejected only 2 tenders were accepted for year 5.

Table 1 and 2 below show the total number of MWs tendered and accepted together with their respective availability and utilisation prices for year 4 and year 5.

Table 1 Year 4 Summary

Season	4.1			4.2			4.3			4.4			4.5			4.6			
	BM - C	NBM - C	NBM - F	BM - C	NBM - C	NBM - F	BM - C	NBM - C	NBM - F	BM - C	NBM - C	NBM - F	BM - C	NBM - C	NBM - F	BM - C	NBM - C	NBM - F	
TR 8 Tendered MW	532	-	-	532	-	-	532	-	-	532	-	-	532	-	-	532	-	-	
TR 8 Accepted MW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TR 9 Tendered MW	922	332	-	922	315	-	922	272	-	887	285	-	887	21	-	887	21	-	
TR 9 Accepted MW	922	55	-	922	51	-	922	8	-	887	8	-	887	8	-	887	8	-	
TR 10 Tendered MW	788	496	574	782	482	579	786	411	292	706	405	319	677	61	257	676	63	257	
TR 10 Accepted MW	788	349	519	782	342	524	634	84	215	554	67	227	645	27	224	644	29	224	
TR 11 Tendered MW	-	-	-	-	-	-	152	471	463	152	487	488	32	106	555	32	118	613	
TR 11 Accepted MW	-	-	-	-	-	-	152	106	319	152	111	343	32	30	82	32	30	80	
sub Total Tendered MW	2242	828	574	2236	797	579	2392	1154	755	2277	1177	807	2128	188	812	2127	202	870	
sub Total Accepted MW	1710	404	519	1704	393	524	1708	198	534	1593	186	570	1564	65	306	1563	67	304	
Total Accepted MW	2633			2621			2440			2349			1935			1934			
Average Submitted Availability Price (£MWh)	TR8	10.75	-	-	10.75	-	-	10.75	-	-	10.93	-	-	10.93	-	-	10.93	-	-
	TR9	£10.15	£9.25	-	£10.15	£9.27	-	£10.15	£10.24	-	£10.23	£10.24	-	£10.94	£10.75	-	£10.94	£10.75	-
	TR10	£9.63	£8.74	£7.83	£9.62	£8.77	£7.86	£9.83	£8.89	£8.41	£9.75	£8.90	£8.57	£9.72	£10.72	£8.65	£9.72	£10.65	£8.73
	TR11	-	-	-	-	-	-	£9.52	£7.81	£8.98	£9.52	£7.86	£8.99	£9.70	£9.44	£8.40	£9.70	£9.65	£8.60
Average Accepted Availability Price (£MWh)	TR8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TR9	£10.15	£9.25	-	£10.15	£9.27	-	£10.15	£10.24	-	£10.23	£10.24	-	£10.94	£10.75	-	£10.94	£10.75	£10.75
	TR10	£9.63	£8.91	£7.77	£9.62	£8.95	£7.81	£9.55	£9.46	£7.82	£9.40	£9.72	£8.03	£9.61	£8.94	£8.52	£9.61	£8.91	£8.60
	TR11	-	-	-	-	-	-	£9.52	£9.50	£8.65	£9.52	£9.62	£8.66	£9.70	£9.71	£9.20	£9.70	£9.71	£9.19
Average Submitted Utilisation Price (£MWh)	TR8	£305.72	-	-	£305.72	-	-	£305.72	-	-	£305.72	-	-	£305.72	-	-	£305.72	-	-
	TR9	£272.72	£244.36	-	£272.72	£244.18	-	£272.72	£242.49	-	£271.52	£242.55	-	£271.52	£285.29	-	£271.52	£285.29	-
	TR10	£303.25	£221.81	£250.68	£303.30	£222.28	£252.32	£305.27	£217.12	£252.39	£315.86	£217.60	£238.93	£318.45	£246.07	£256.71	£318.52	£249.37	£254.77
	TR11	-	-	-	-	-	-	£200.00	£180.48	£223.84	£200.00	£180.22	£221.74	£220.00	£203.87	£188.06	£220.00	£205.51	£190.49
Average Accepted Utilisation Price (£MWh)	TR8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TR9	£272.72	£254.47	-	£272.72	£254.04	-	£272.72	£249.50	-	£271.52	£249.50	-	£271.52	£269.50	-	£271.52	£269.50	-
	TR10	£303.25	£222.41	£242.08	£303.30	£222.63	£243.87	£320.91	£249.23	£255.99	£336.68	£246.42	£241.81	£321.35	£270.74	£258.93	£321.43	£276.21	£257.01
	TR11	-	-	-	-	-	-	£200.00	£241.70	£223.11	£200.00	£240.81	£222.52	£220.00	£221.67	£230.88	£220.00	£221.67	£230.84

* Average Prices are Weighted by MW Volume and Hours Tendered

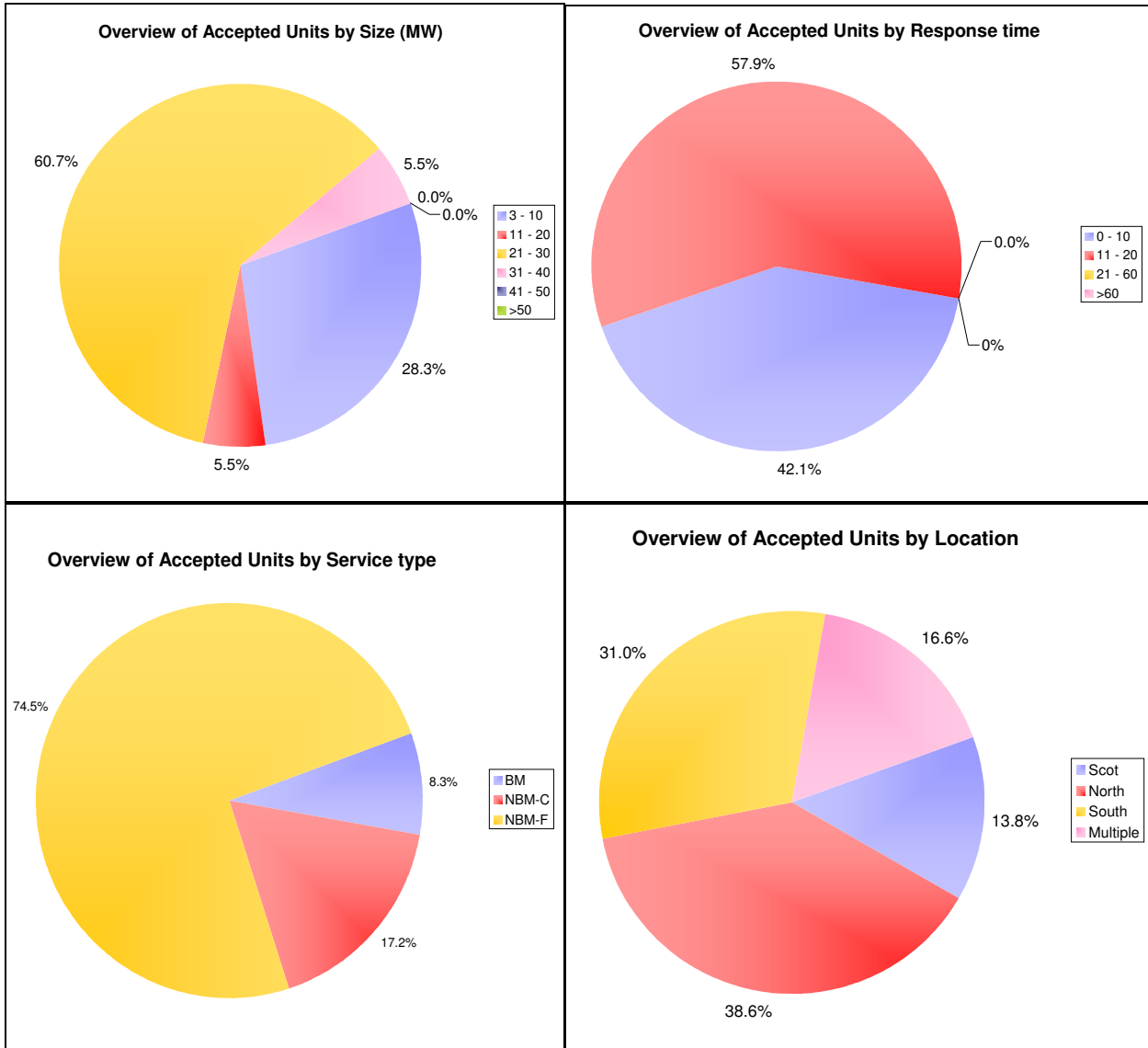
Table 2 Year 5 Summary

Season Service Type		5.1			5.2			5.3			5.4			5.5			5.6		
		C - BM	C - NBM	F - NBM	C - BM	C - NBM	F - NBM	C - BM	C - NBM	F - NBM	C - BM	C - NBM	F - NBM	C - BM	C - NBM	F - NBM	C - BM	C - NBM	F - NBM
TR 9 Tendered MW		90	-	-	90	-	-	90	-	-	90	-	-	90	-	-	90	-	-
TR 9 Accepted MW		90	-	-	90	-	-	90	-	-	90	-	-	90	-	-	90	-	-
TR 10 Tendered MW		164	24	-	164	22	-	164	23	-	164	24	-	164	25	-	164	25	-
TR 10 Accepted MW		68	-	-	68	-	-	68	-	-	68	-	-	68	-	-	68	-	-
TR 11 Tendered MW		672	52	60	668	50	60	668	57	60	672	63	60	672	129	-	672	135	-
TR 11 Accepted MW		-	8	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
sub Total Tendered MW		926	76	60	922	72	60	922	80	60	926	87	60	926	154	0	926	160	0
sub Total Accepted MW		158	8	0	158	8	0	158	0	0	158	0	0	158	0	0	158	0	0
Total Accepted MW		166			166			158			158			158			158		
Average Submitted Availability Price (£MWh)	TR 9	8.00	-	-	8.00	-	-	8.00	-	-	8.00	-	-	15.20	-	-	15.20	-	-
	TR 10	£10.92	£14.00	-	£10.92	£14.00	-	£10.98	£14.00	-	£10.98	£14.00	-	£11.11	£15.00	-	£11.11	£15.00	-
	TR 11	£13.11	£12.23	£10.45	£13.11	£12.28	£10.45	£13.11	£12.64	£10.45	£13.11	£12.92	£10.45	£13.11	£12.15	-	£13.11	£12.27	-
Average Accepted Availability Price (£MWh)	TR 9	£8.00	-	-	£8.00	-	-	£8.00	-	-	£8.00	-	-	£15.20	-	-	£15.20	-	-
	TR 10	£7.00	-	-	£7.00	-	-	£7.15	-	-	£7.15	-	-	£7.45	-	-	£7.45	-	-
	TR 11	-	£11.25	-	-	£11.75	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Submitted Utilisation Price (£MWh)	TR 9	£230.00	-	-	£230.00	-	-	£230.00	-	-	£230.00	-	-	£230.00	-	-	£230.00	-	-
	TR 10	£323.66	£255.00	-	£323.66	£255.00	-	£323.66	£255.00	-	£323.66	£255.00	-	£327.80	£220.00	-	£327.80	£220.00	-
	TR 11	£311.33	£225.77	£220.00	£311.22	£227.80	£220.00	£311.22	£230.79	£220.00	£311.33	£233.10	£220.00	£311.33	£226.63	-	£311.33	£227.00	-
Average Accepted Utilisation Price (£MWh)	TR9	£230.00	-	-	£230.00	-	-	£230.00	-	-	£230.00	-	-	£230.00	-	-	£230.00	-	-
	TR 10	£350.00	-	-	£350.00	-	-	£350.00	-	-	£350.00	-	-	£360.00	-	-	£360.00	-	-
	TR 11	-	£215.00	-	-	£215.00	-	-	-	-	-	-	-	-	-	-	-	-	-

* Average Prices are Weighted by MW Volume and Hours Tendered

Figure 1 gives an overview of the number of accepted STOR units for seasons 4.3-4.6, broken down by unit size, response times, service type and location. **Please note the size of a unit is not a factor in the assessment of tenders and is presented here for information purposes only.**

Figure 1 Pie Charts of Accepted tenders for seasons 4.3-4.6



Section 1.2 Prices

Figures 2 & 3 below show the range of accepted and rejected prices by response time categories for availability and utilisation prices respectively. Each tender is represented by a point and the horizontal red bars represent the median for the respective groups. Please note these plots do not fully display the relationship between a tender’s availability price and its utilisation price which is taken into consideration in the assessment. The data is displayed in three response time categories to demonstrate the range of response times for current tenders. The assessment of the “0-10 minute” and “10-20 minute” categories is the same, the “over 20 minute” response time category is assessed differently, for more information on this please refer to the [assessment principles document](#). To see more detailed tender data see **Figure 4** and **Appendix 3**.

Figure 2 Year 4 price range charts

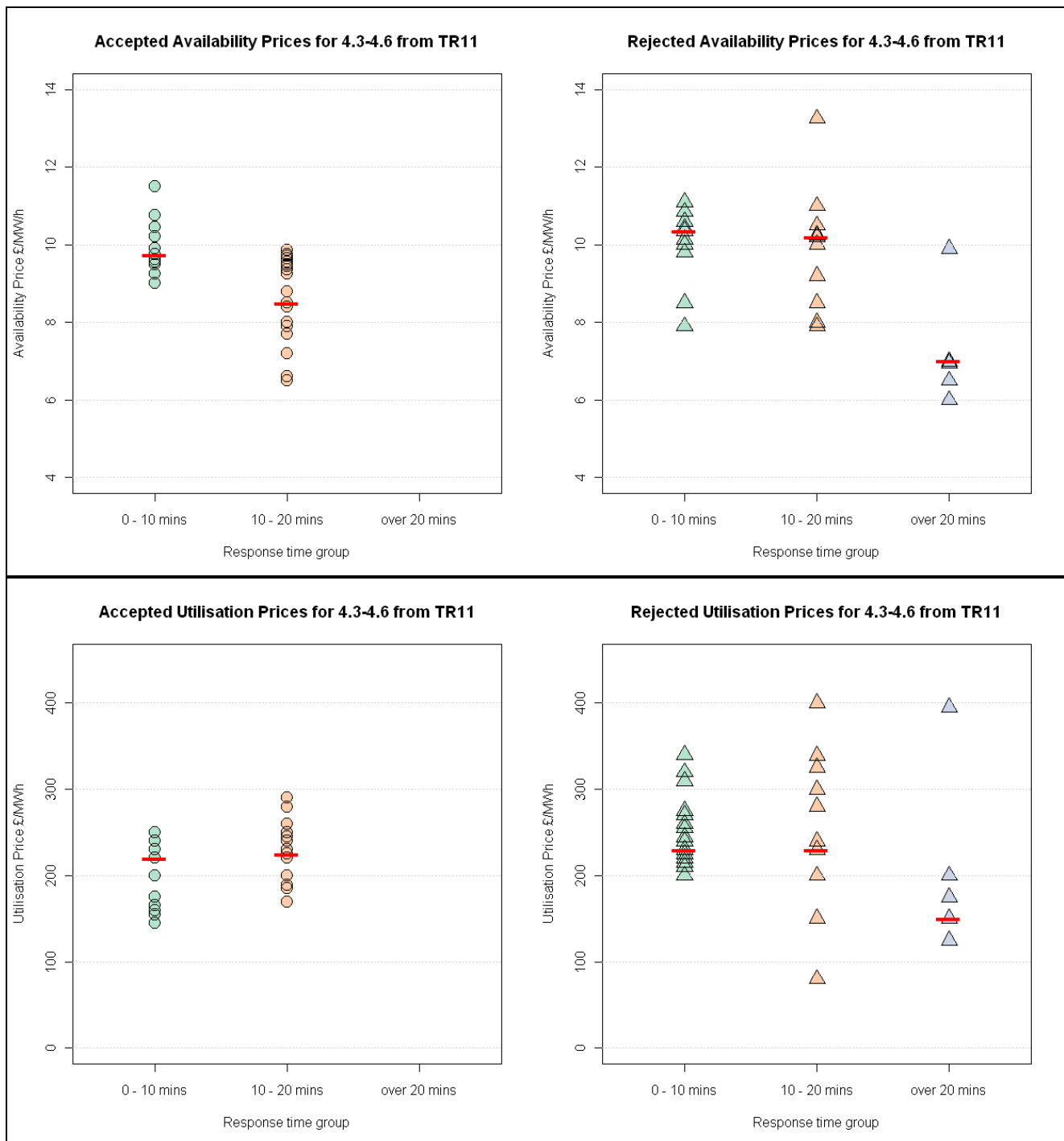
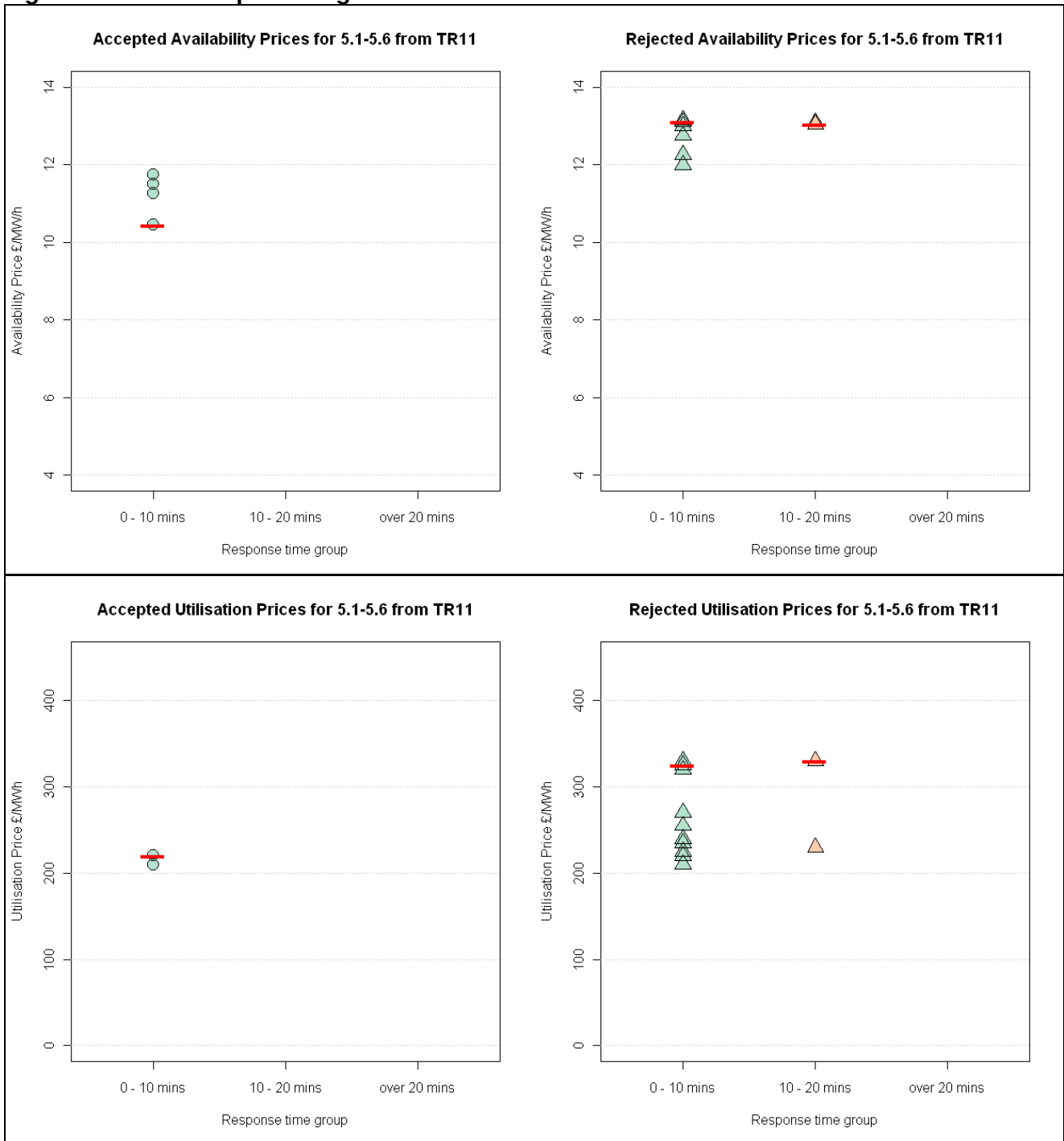


Figure 3 Year 5 price range charts



Figures 4 and 5 below show scatter plots of availability and utilisation price for each tender for each season. The data is broken down into two response time groups, flexible or committed service and accepted or rejected tenders.

Figure 4 Year 4 Availability and Utilisation price charts

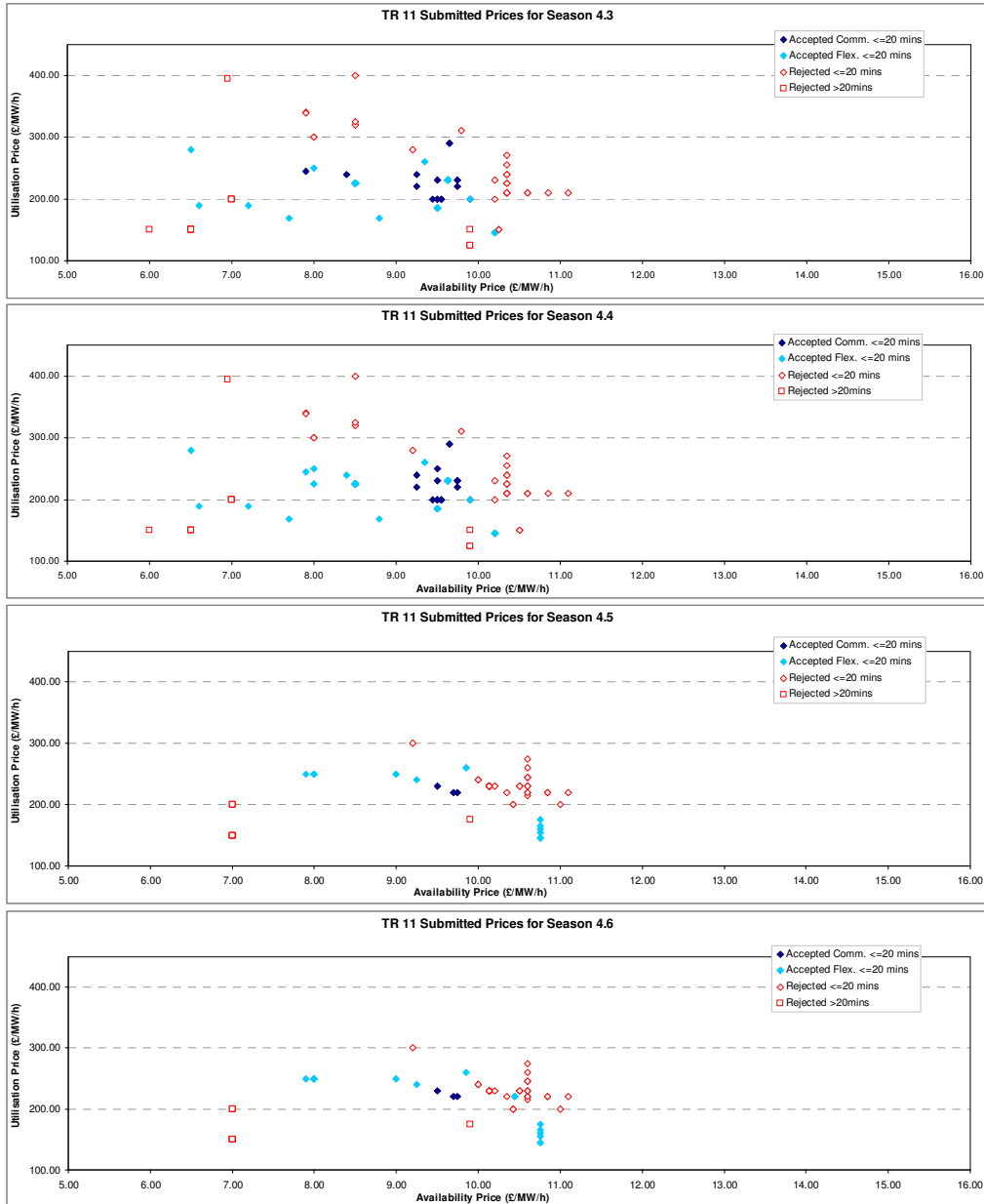
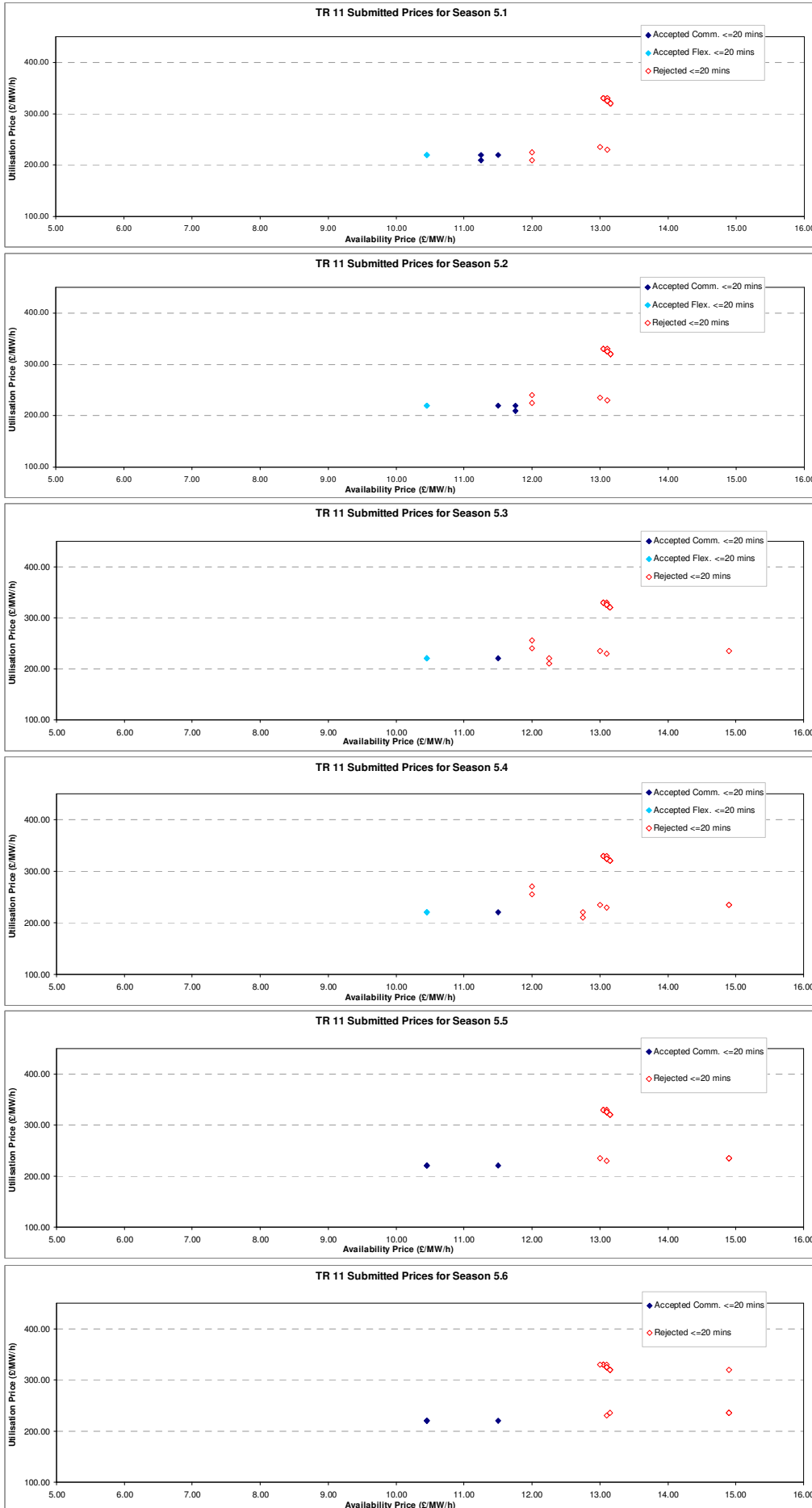


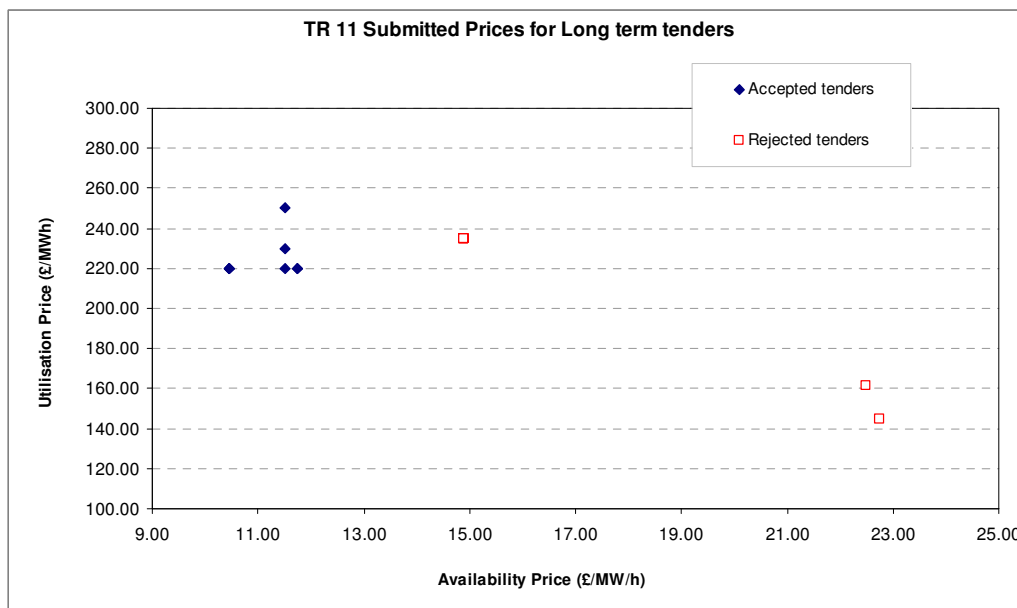
Figure 5 Year 5 Availability and Utilisation price charts



Section 2 Tenders for Seasons beyond Year 5

National Grid received tenders from 5 companies for 22 units new to the STOR market, providing up to 540MW of STOR over the next 15 years with contracts starting between season 4.6 and 7.5. All tenders received had index linked availability and utilisation prices*, with the submitted base prices reflective of April 2010 RPI and fuel prices. All submitted tenders had response times less than 20 minutes. The availability prices submitted were in the range of £10.50 - £22.50 /MW/h and the utilisation prices submitted were in the range of £145 - £250/MWh. **Figure 6** below shows the base price for the accepted and rejected tenders.

Figure 6 Seasons beyond Year 5 Availability and Utilisation price chart



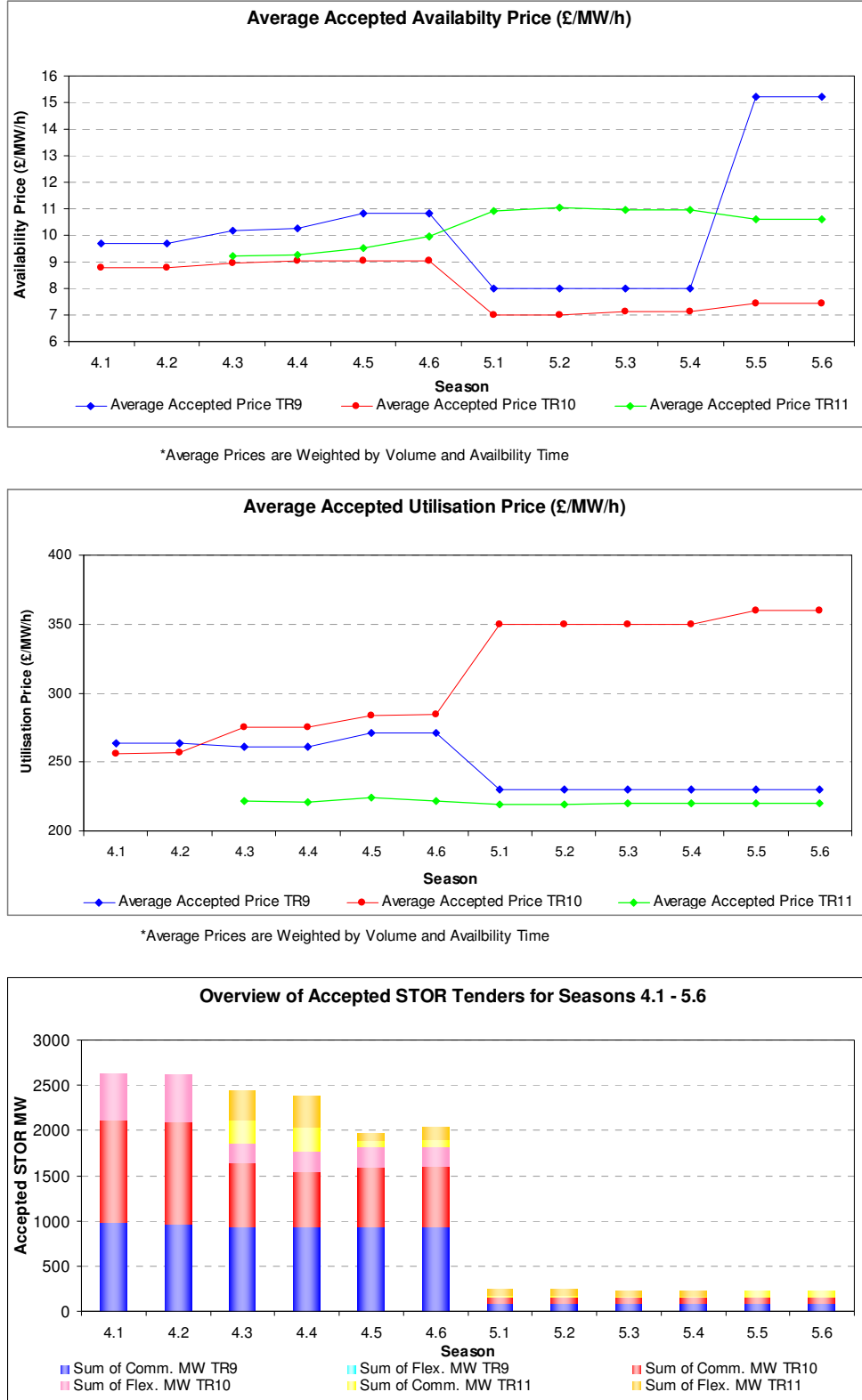
See **Appendix 4** for more detailed information on longer term tenders.

* A list of currently agreed indexation methodologies are available on the STOR website.
<http://www.nationalgrid.com/NR/rdonlyres/81963E9A-C78D-4D4D-A2F9-D438D2E22E1C/42439/IndexationPrinciplesDocument2010Final.pdf>

Section 3 Total Contracted Position

Figure 6 below shows the average accepted availability and utilisation† prices for this and previous tender rounds. The last graph shows the breakdown of accepted volumes by committed and flexible services across the seasons of year 4 and 5

Figure 6 Year 4 and 5 summaries by tender round



† Average prices are weighted by volume and availability hours but do not include indexation where applicable.

Appendix 1: Terminology and Definitions

Term	Definition
STOR	Short-Term Operational Reserve
STORR	Short-Term Operational Reserve Requirement
Unit	As described within a STOR framework agreement as constituting a STOR site
Year 4	Equivalent to Financial Year 2010/11 commencing on 1st April 2010
Year 5	Equivalent to Financial Year 2011/12 commencing on 1st April 2011
Average Availability (£/MW/h) / Utilisation Price (£/MWh)	The average price weighted by Volume and Availability Hours for the specified period.
TR	Tender Round

High level description of STOR:

STOR is designed to give National Grid sufficient short term operating reserve to replace sudden generation losses, or unpredictable changes in demand at 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 new providers to participate. A lower value however is placed on these units as they are likely to compete 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 to whether a unit is accepted or rejected at the week ahead stage and this decision will be determined based on the same factors which influence a tender assessment. 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.

Appendix 2: Season Reference

The following tables summarise the seasons for the current year (Year 4) and the year. For Tender dates etc see the National Grid website as mentioned on page 1 of this report. For further Years please see tender sheets on the National Grid website.

Seasons 2010/11									
Season	Dates	Window	WD		NWD		Hours/Day Type		Total
			Start Time	End Time	Start Time	End Time	WD	NWD	
4.1	05:00 Thursday 1st Apr 2010 - 05:00 Monday 26th Apr 2010	1	07:00	13:30	10:00	14:00	190	32.5	222.5
		2	19:00	22:00	19:30	22:00			
4.2	05:00 Monday 26th Apr 2010 - 05:00 Monday 16th Aug 2010	1	07:30	14:00	09:30	13:30	1081	126	1207
		2	16:00	18:00	19:30	22:30			
		3	19:30	22:30					
4.3	05:00 Monday 16th Aug 2010 - 05:00 Monday 20th Sep 2010	1	07:30	14:00	10:30	13:30	348	36	384
		2	16:00	21:30	19:00	22:00			
4.4	05:00 Monday 20th Sep 2010 - 05:00 Monday 1st Nov 2010	1	07:00	13:30	10:30	13:30	396	39	435
		2	16:30	21:00	17:30	21:00			
4.5	05:00 Monday 1st Nov 2010 - 05:00 Monday 31st Jan 2011	1	07:00	13:30	10:30	13:30	839.5	135	974.5
		2	16:00	21:00	16:00	20:30			
4.6	05:00 Monday 31st Jan 2011 - 05:00 Friday 1st Apr 2011	1	07:00	13:30	10:30	13:30	572	60	632
		2	16:30	21:00	16:30	21:00			
							3426.5	428.5	3855
							Total Hours		3855

Season	WD	NWD
4.1	20	5
4.2	94	18
4.3	29	6
4.4	36	6
4.5	73	18
4.6	52	8

Seasons 2011/12									
Season	Dates	Window	WD		NWD		Hours/Day Type		Total
			Start Time	End Time	Start Time	End Time	WD	NWD	
5.1	05:00 on Friday 1st Apr 2011 - 05:00 on Monday 25th Apr 2011	1	07:00	13:30	10:00	14:00	190	26	216
		2	19:00	22:00	19:30	22:00			
5.2	05:00 on Monday 25th Apr 2011 - 05:00 on Monday 15th Aug 2011	1	07:30	14:00	09:30	13:30	1069.5	133	1202.5
		2	16:00	18:00	19:30	22:30			
		3	19:30	22:30					
5.3	05:00 on Monday 15th Aug 2011 - 05:00 on Monday 19th Sep 2011	1	07:30	14:00	10:30	13:30	348	36	384
		2	16:00	21:30	19:00	22:00			
5.4	05:00 on Monday 19th Sep 2011 - 05:00 on Monday 31 Oct 2011	1	07:00	13:30	10:30	13:30	396	39	435
		2	16:30	21:00	17:30	21:00			
5.5	05:00 on Monday 31 Oct 2011 - 05:00 on Monday 30th Jan 2012	1	07:00	13:30	10:30	13:30	862.5	120	982.5
		2	16:00	21:00	16:00	20:30			
5.6	05:00 on Monday 30th Jan 2012 - 05:00 on Sunday 1st Apr 2012	1	07:00	13:30	10:30	13:30	594	60	654
		2	16:30	21:00	16:30	21:00			
							3460	414	3874
							Total Hours		3874

Season	WD	NWD
5.1	20	4
5.2	93	19
5.3	29	6
5.4	36	6
5.5	75	16
5.6	54	8

Appendix 4:

Long Term Tender data

From Season	To Season	BM/NBM	Flexible or Committed	Response Time	Availability Price	Utilisation Price	Accepted	Location
6.1	18.6	NBM	C	10	£ 22.75	£ 145.00	Rejected	South
5.6	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
5.3	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.6	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.5	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.2	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.3	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.5	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
5.5	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.1	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
5.4	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.4	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
6.4	18.6	NBM	C	8	£ 14.90	£ 235.00	Rejected	North
4.6	18.6	NBM	C	9	£ 11.50	£ 220.00	Accepted	North
6.1	18.6	NBM	C	9	£ 11.75	£ 220.00	Accepted	North
6.1	18.6	NBM	C	9	£ 11.75	£ 220.00	Accepted	North
6.1	18.6	NBM	C	9	£ 11.50	£ 230.00	Accepted	North
6.1	18.6	NBM	C	9	£ 11.50	£ 250.00	Accepted	North
5.5	18.6	NBM	C	6	£ 10.45	£ 220.00	Accepted	North
5.5	18.6	NBM	C	6	£ 10.45	£ 220.00	Accepted	North
5.5	18.6	NBM	C	6	£ 10.45	£ 220.00	Accepted	North
7.5	18.6	BM	C	10	£ 22.50	147-161	Rejected	North