

SHORT TERM OPERATING RESERVE REVIEW 2007/8

Summary:

This report reviews the first year of Short Term Operating Reserve (STOR) service between 1st April 2007 and 31st March 2008, and is designed to give a high level view of the first year of STOR for those parties interested in tendering for the service at a future time.

- In 2007/08 National Grid procured on average 2362MW for the six seasons, made up on average of 1926MW for the committed service and 436MW for the flexible service.
- Of the submitted tenders 73% of units were accepted which equates to 360 committed service providers and 249 flexible service providers over the whole year.
- The average availability price for both Committed and Flexible STOR was £5.89/MW/h and the average utilisation price was £211.44/MWh.
- The total number of unit call offs were 3355 for working days and 507 for non working days
- National Grid used 1691 Hours of STOR which includes 106 hours of STOR utilisation in optional windows.
- In total National Grid utilised 116.2GWh of STOR at a cost of £15.4m.
- Total Available STOR saw 14.5GW at a cost of £44.8m. Although National Grid has contracted on average 2362MW of both Flexible and Committed STOR, the average availability observed is 78% of that volume.

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1. Introduction:

Short Term Operating Reserve (STOR) is the successor to Standing Reserve (SR) and this report analyses the use of STOR from 1st April 2007 to 31st March 2008.

The STOR service is broken down into two distinct parts Committed and Flexible STOR. The Committed service providers (Both BMU and Non-BMU¹) provide their service for all required windows in each season, whereas Flexible service providers (Non-BMU only) can opt out of providing the service as they wish. Both services when accepted, receive an availability payment for the windows they are available for, and on utilisation receive an utilisation payment based on the number of MW they provide. Flexible STOR is assessed on a weekly basis and can be rejected if there is enough reserve on the system for the windows they offer availability.

Further details can be found on the National Grid Website below.

A description of STOR terms and conditions can be reviewed via the National Grid website at:

<http://www.nationalgrid.com/NR/rdonlyres/72D4386B-2027-474C-B281-2384F5B21A5E/25695/ServiceDescrTR5Final.pdf>

The STOR year is broken down in to 6 distinct seasons the dates of which can be found in Appendix A and is assessed via the tender round process as seen on the National Grid website at:

<http://www.nationalgrid.com/NR/rdonlyres/FE3D7BB0-41FA-468C-93C9-4C2D074945A9/18895/STORMIR0701.pdf>

1 Non-BMU are generation or demand side participants (which may be individual or aggregated sites) which do not participate in the Balancing Mechanism

2. Tender Information for 2007/2008

The table below summarises all the tenders for 2007/08 by tender round and takes into account 368MW of previous Standing Reserve Contracts all bar 68MW finished on 1st April 2008. Standing Reserve was provided by generators and demand side participants (Non-BMU) and was both a committed service and a flexible service as the STOR service is now. From the table we can see that there are no flexible tenders received for season 1.5 and 1.6 in tender round 2.

TABLE 1: STOR Tender data

Season	1-1		1-2		1-3		1-4		1-5		1-6		
	F	C	F	C	F	C	F	C	F	C	F	C	
Previously Accepted Standing Reserve		368		368		368		368		368		368	
TR1 Tendered MW	436	1794	436	1855	370	1671	381	1918	397	1706	315	1702	
TR1 Accepted MW	405	1591	405	1621	339	1385	356	1410	372	1369	290	1372	
TR2 Tendered MW					31	328	31	255		101		101	
TR2 Accepted MW					31	177	31	177		101		101	
TR3 Tendered MW									175	303	213	338	
TR3 Accepted MW									175	3	213	38	
Total Tendered MW (Excl Prev)	436	1794	436	1855	401	1999	412	2173	572	2110	528	2141	
Total Accepted MW (Excl Prev)	405	1591	405	1621	370	1562	387	1587	547	1473	503	1511	
Total Accepted MW	2364		2394		2300		2342		2388		2382		
Average Submitted Availability Price (£MWh)	Previous	6.54		6.54		6.54		6.54		6.54		6.54	
	TR1	5.59	6.27	5.57	6.57	5.58	6.75	5.56	7.53	5.77	7.30	5.98	7.24
	TR2					3.90	9.28	4.08	8.45		6.58		6.58
	TR3									6.84	16.88	7.09	15.76
Average Accepted Availability Price (£MWh)	Previous	6.54		6.54		6.54		6.54		6.54		6.54	
	TR1	5.44	5.76	5.41	5.86	5.39	5.87	5.45	6.56	5.69	6.62	5.90	6.62
	TR2					3.90	6.27	4.08	6.41		6.58		6.58
	TR3									6.84	5.00	7.09	5.97
Average Submitted Utilisation Price (£MWh)	Previous	226.66		226.66		226.66		226.66		226.66		226.66	
	TR1	187.53	223.75	191.86	222.04	191.55	231.48	191.72	230.28	197.81	230.63	185.85	229.83
	TR2					266.97	134.05	273.32	144.65		194.85		194.85
	TR3									202.65	199.90	201.60	206.12
Average Accepted Utilisation Price (£MWh)	Previous	226.66		226.66		226.66		226.66		226.66		226.66	
	TR1	187.53	224.31	191.86	222.40	191.55	232.14	191.72	230.90	197.81	230.63	185.85	230.57
	TR2					266.97	165.82	273.32	165.82		194.85		194.85
	TR3									202.65	190.00	201.60	254.47

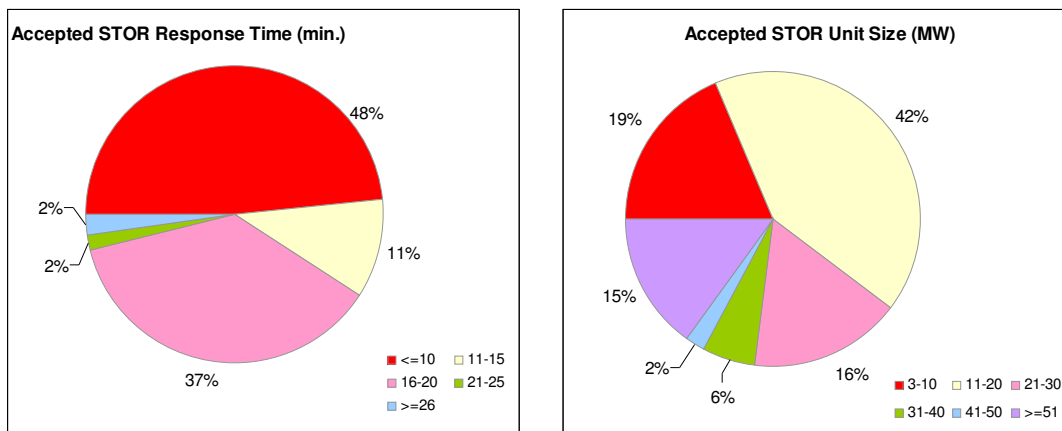
*Please note that numbers are different to those mentioned in previous reports due to exclusion of previously contracted Standing Reserve numbers. Prices are weighted by number of hours of use tendered

The graphs below show the breakdown of STOR providers by response time and unit size.

For the old Standing Reserve service approximately 54% of the providers could respond to an instruction by National Grid in less than 15 minutes. For the new STOR service this number has risen to 59%; the majority of the providers (96%) being able to so in at least 20 minutes.

The percentage of units which provided up to 30 MW was 77% which is 7% more than the old Standing Reserve service.

Figure 1: Break down of STOR provider parameters



The following Graphs have use the following key: WD: Week Day, NWD: Non Weekday, F: Flexible STOR, C: Committed STOR and OW: Optional Windows

3. Utilisation and Availability

Figure 2 shows the average daily peak availability of STOR MW over the last year. It is worth noting that although National Grid has contracted on average 2362MW of both Flexible and Committed STOR, the average availability is 78% of that volume across the year.

Figure 2: STOR MW Average Availability per day

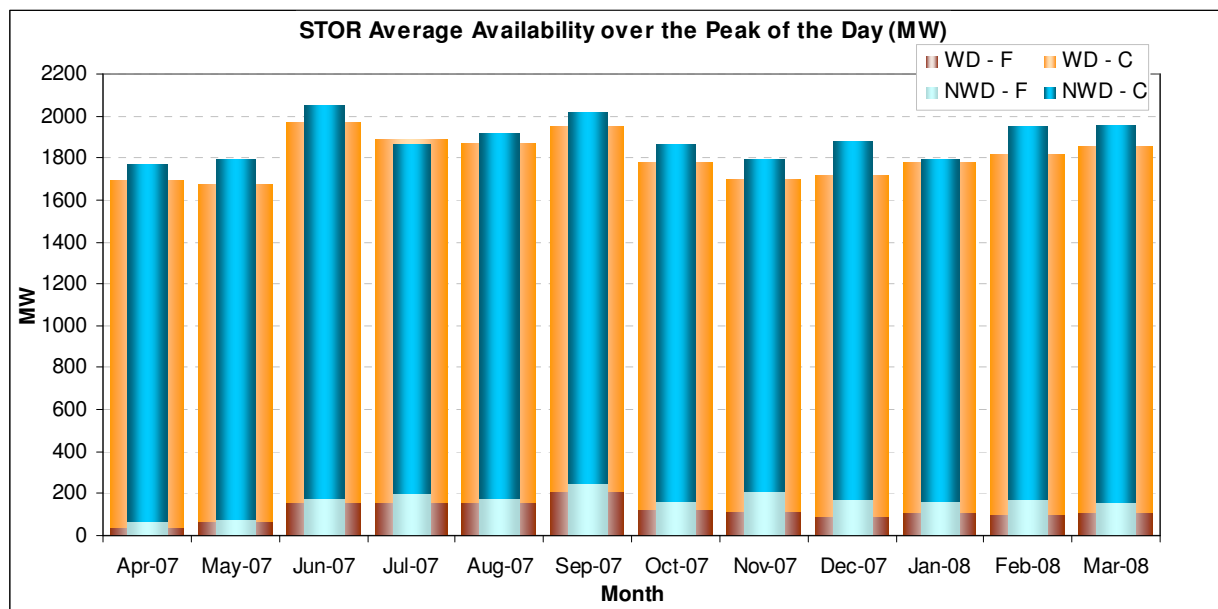


Figure 3 shows the average daily availability payments made to STOR providers on a monthly basis. The total number of STOR MWs available to the Control Room over the whole year was 14.5GW at a cost of £44.81m

Figure 3: Total STOR MW Availability Payments

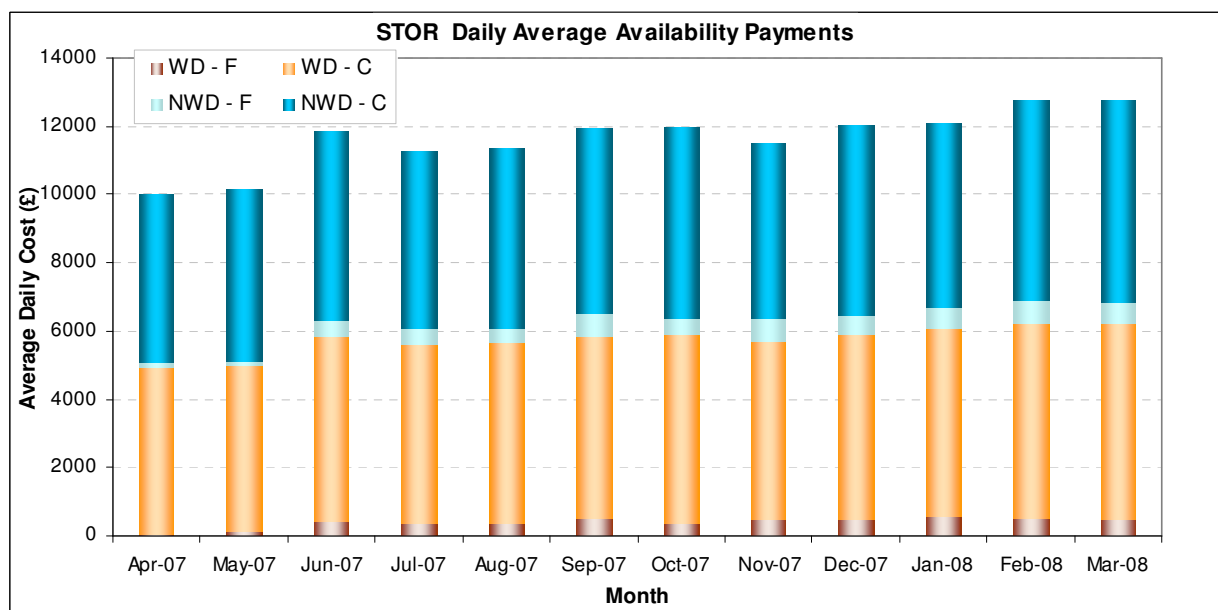


Figure 4 shows the Total monthly MWh utilisation over the year. July saw approximately 4541 MWh of STOR utilisation over the weekends due to plant losses and severe and abnormally wet weather. December again used 20080MWh of STOR over the weekdays.

Figure 4: Average daily STOR utilisation

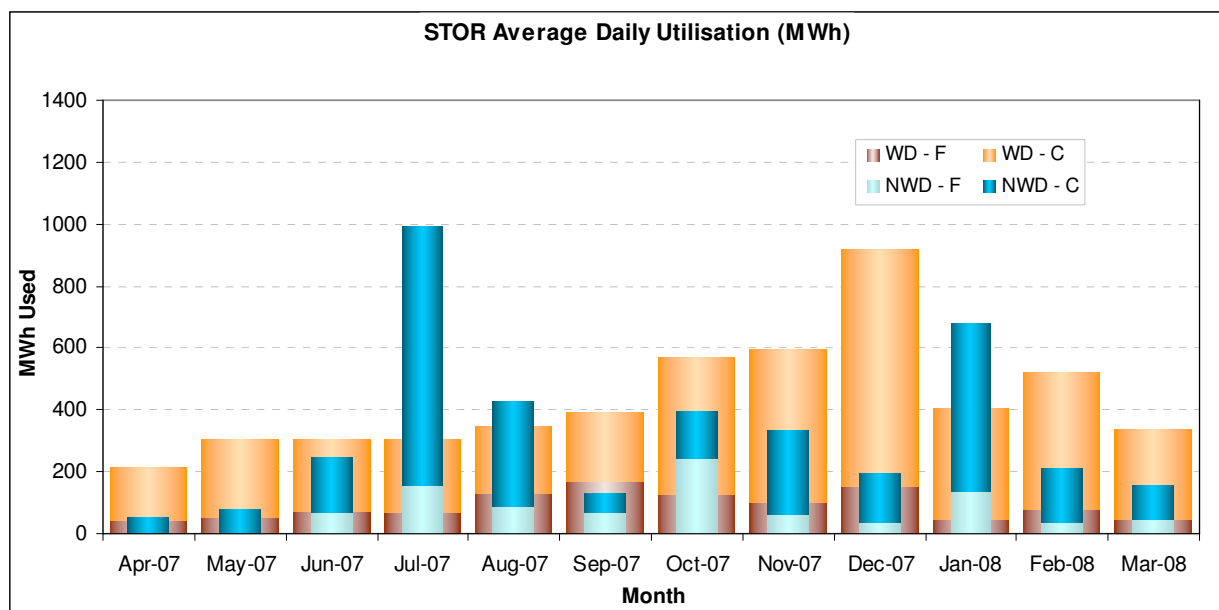
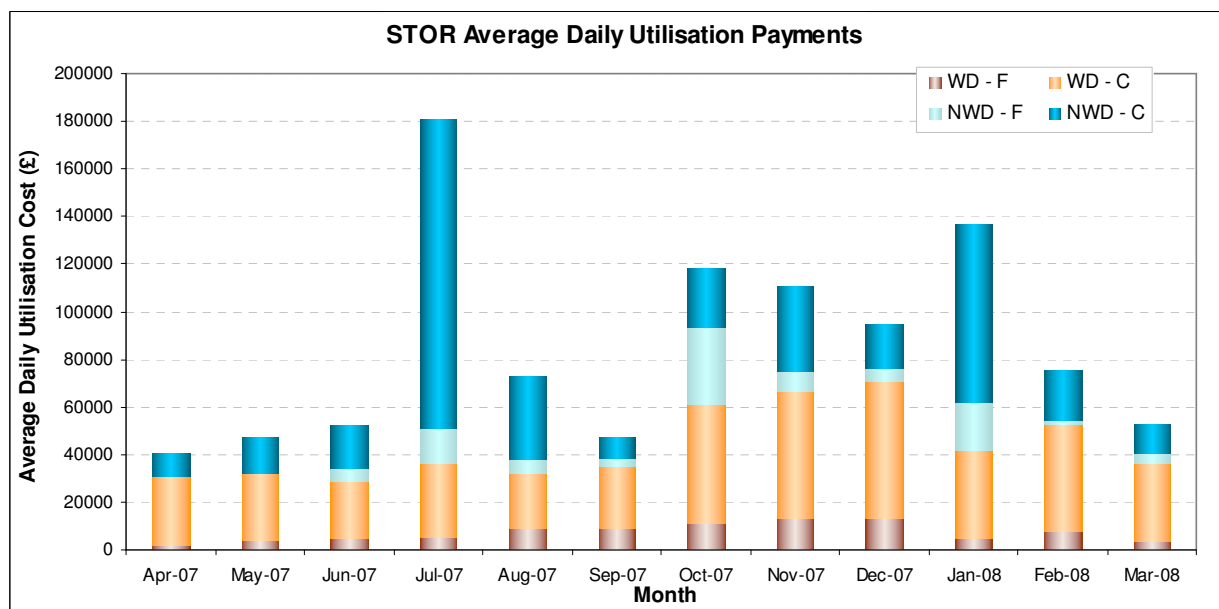


Figure 5 shows the average daily utilisation payments made to STOR providers on a monthly basis. The total number of STOR MWhs utilised by the Control Room over the whole year was 116.2GWh at a cost of £15.4m. The utilisation costs include optional window periods where the BM unit is paid the offer price for that particular settlement period and the Non-BMU is paid the tendered premium price.

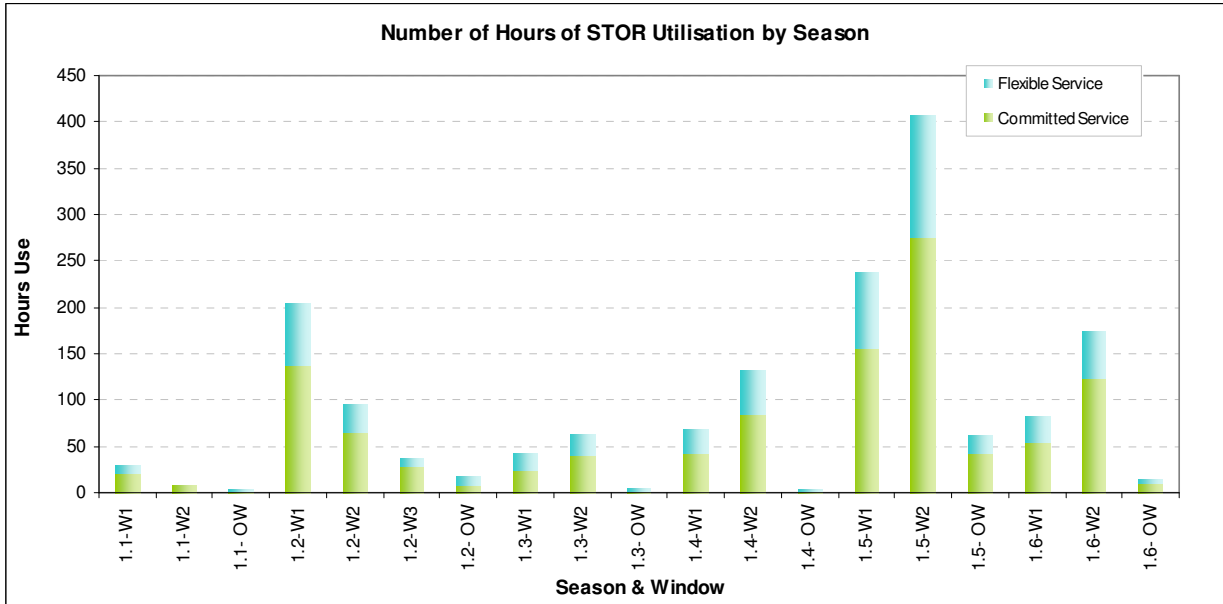
Figure 5: Average daily STOR Utilisation payments



4. Utilisation by Service Type

Figure 6 below shows the total number of hours where STOR was used over the year by unit type. The graph is broken down by season and by window. Over the winter seasons National Grid had accessed STOR for 106 hours in optional windows, of these 37 hours were for the Flexible Service. The total energy delivered in optional windows was just over 3612MWh.

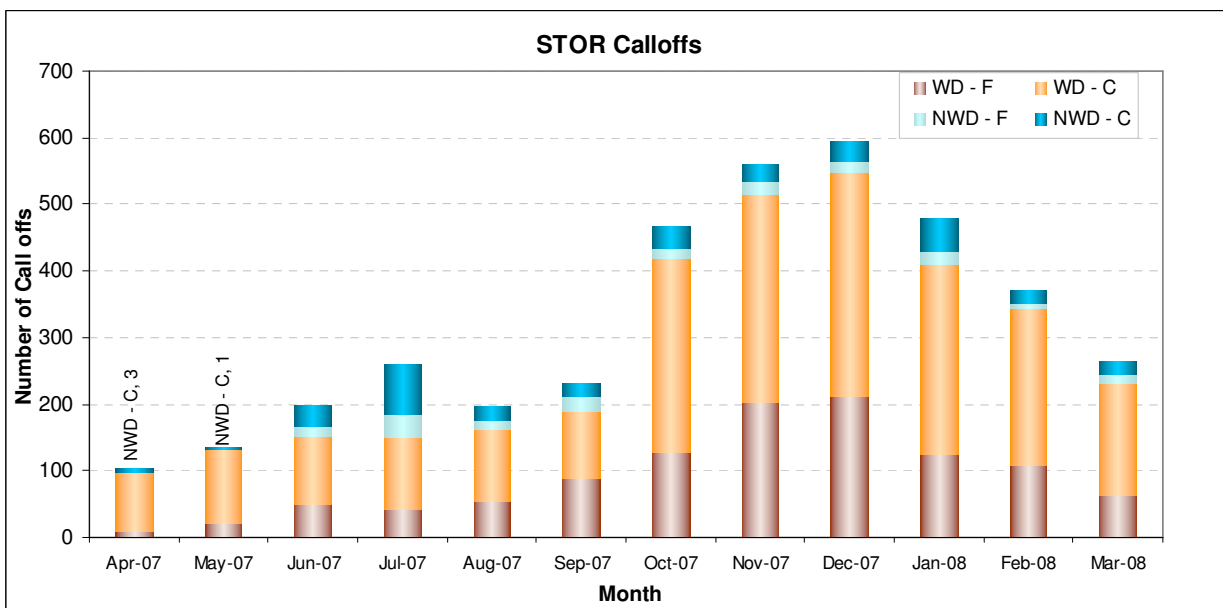
Figure 6: Total number of Hours of STOR Usage



5. Call offs

Figure 7 shows the number of call offs² per month. It can be observed that call offs increased in winter during which several NISMs were issued. In total National Grid requested STOR providers to either increase generation or reduce demand on 3862 occasions.

Figure 7: Number of STOR call offs



² A call off is when National Grid calls for a STOR provider to deliver the contracted STOR MW (generation or demand reduction)

Figures 8 and 9 below show the number of call offs over the whole year by utilisation price and by window.

Figure 8: Committed STOR call offs by Utilisation Price

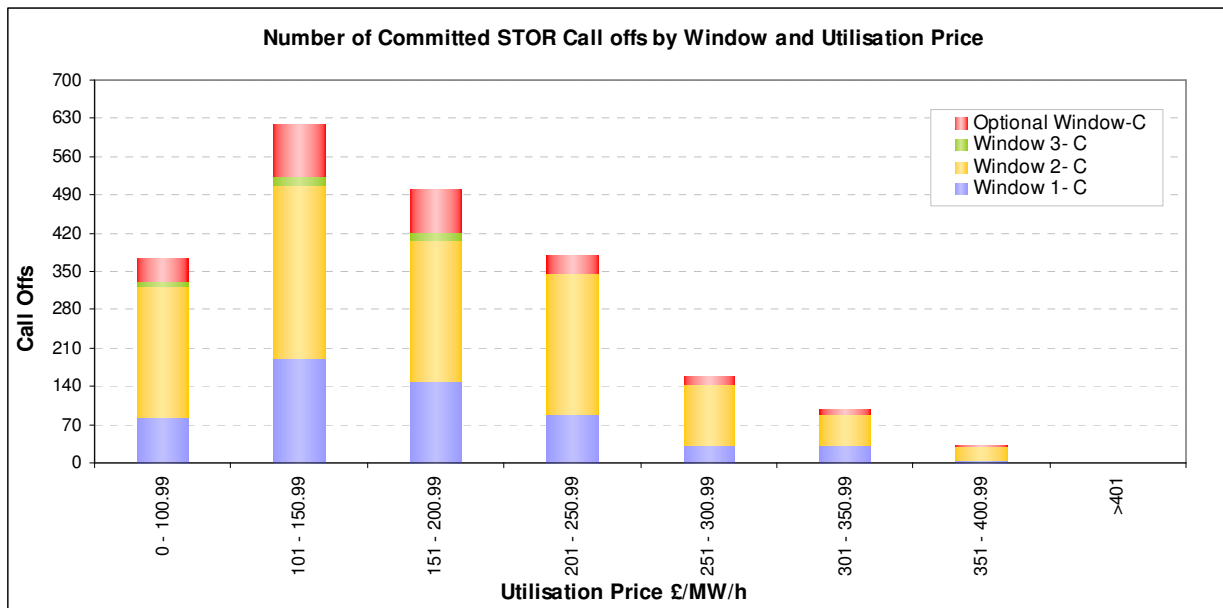
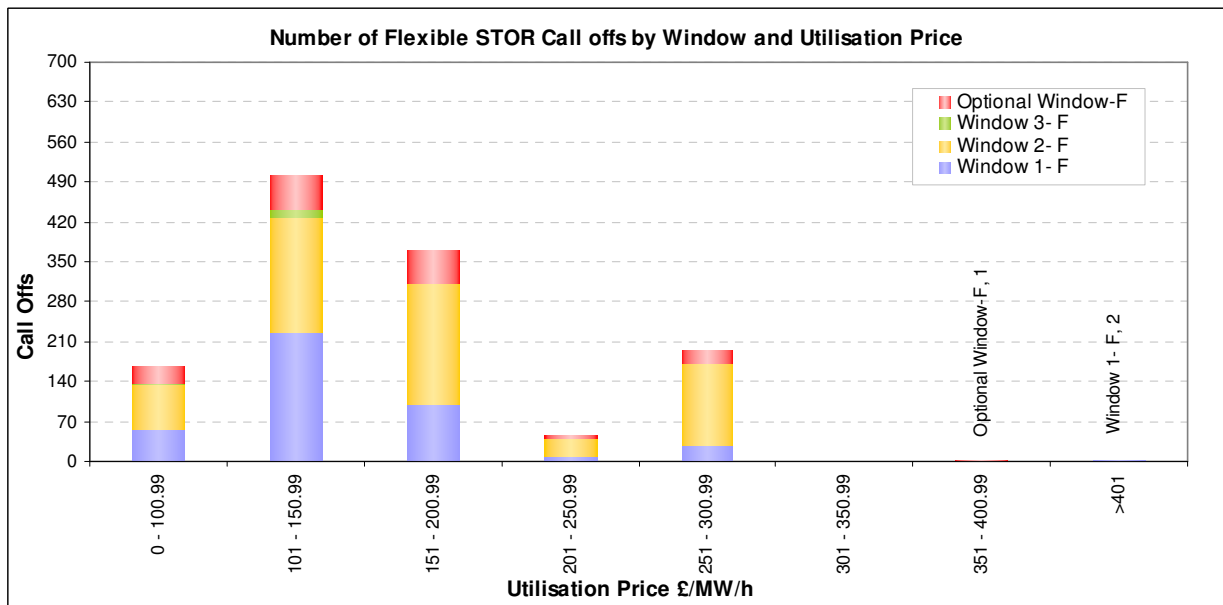


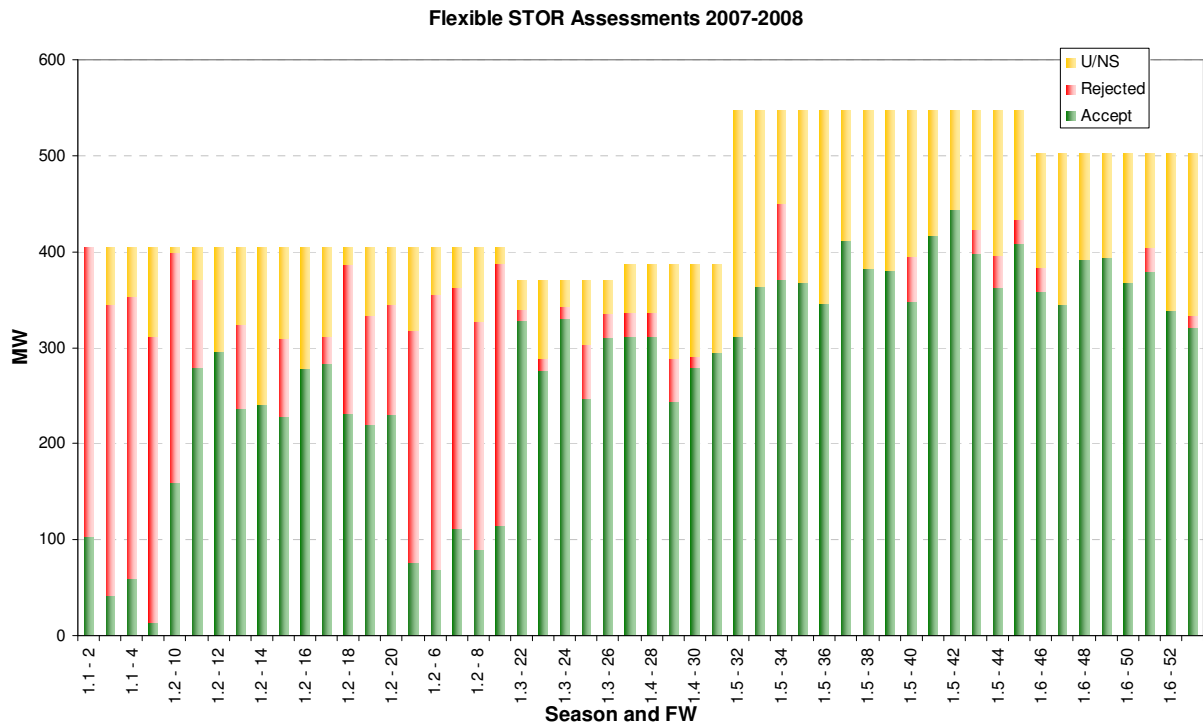
Figure 9: Flexible STOR call offs by Utilisation Price



6. Flexible STOR assessments

As mentioned above the Flexible STOR service is assessed on a weekly basis as Flexible providers submit availabilities for the week ahead. The assessments are based on forecasted system margin and possible costs involved at the week-ahead stage together with the availability window submitted by the service provider.

Figure 10: Weekly Flexible STOR Assessments



Appendix A
STOR windows for Yr1 (2007/08) and Yr2 (2008/09)

Year 1 2007/08						
Season	Dates	Window	WD		NWD	
			Start Time	End Time	Start Time	End Time
1	1st April 2007 - 28th April 2007	I	07:00	13:00	10:00	14:30
		II	19:00	22:00	19:00	22:30
2	29th April 2007 to 18th August 2007	I	07:30	14:00	09:30	13:30
		II	15:30	18:00	19:00	22:30
		III	19:30	22:30		
3	19th August 2007-23rd September 2007	I	07:30	14:00	10:30	13:30
		II	16:00	21:30	19:00	22:00
4	24th September 2007-27th October 2007	I	07:00	13:30	10:30	14:00
		II	16:30	21:00	17:30	21:30
5	28th October 2007 to 2nd February 2008	I	07:00	13:30	10:30	13:30
		II	16:30	21:00	15:30	20:30
6	3rd February 2008 to 31st March 2008	I	07:00	13:30	10:30	13:30
		II	16:30	20:30	16:30	21:00

Year 2 2008/09						
Season	Dates	Window	Weekday		Non Weekday	
			Start Time	End Time	Start Time	End Time
1	05:00 1st April 2008 to 05:00 27th April 2008	I	07:00	13:30	10:00	14:30
		II	19:00	22:00	19:00	22:30
2	05:00 27th April 2008 to 05:00 17th August 2008	I	07:30	14:00	09:30	13:30
		II	15:30	18:00	19:00	22:30
		III	19:30	22:30		
3	05:00 17th August 2008 to 05:00 22nd September 2008	I	07:30	14:00	10:30	13:30
		II	16:00	21:30	19:00	22:00
4	05:00 22nd September 2008 to 05:00 26th October 2008	I	07:00	13:30	10:30	14:00
		II	16:30	21:00	17:30	21:30
5	05:00 26th October 2008 to 05:00 1st February 2009	I	07:00	13:30	10:30	13:30
		II	16:30	21:00	15:30	20:30
6	05:00 1st February 2009 to 05:00 1st April 2009	I	07:00	13:30	10:30	13:30
		II	16:30	20:30	16:30	21:00