

STANDING RESERVE MARKET REPORT 2004/2005

**FOR STANDING RESERVE SERVICE
FROM BM AND
NON-BM PROVIDERS**

**FOR STANDING RESERVE MARKET AGREEMENTS
EFFECTIVE 1 APRIL 2004**

23 JUNE 2004

Operations & Trading
National Grid Transco
NGT House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Executive Summary

This report describes the tender evaluation process carried out by National Grid Company plc for the procurement of the Standing Reserve service commencing 1 April 2004.

National Grid evaluated all the tenders received against economic purchase and technical performance criteria in accordance with the agreed terms of the market mechanism. On 19 January 2004, tenderers were notified of the results of their respective tenders. The main points are as follows:

- On 18 November 2003 ('Market Day') a total of 131 discrete tender submissions were received representing 109 sites/units from 30 companies.
- For 2004/2005, a maximum total of 2497MW of Standing Reserve service volume was tendered.
- Tenders were received from a variety of service providers including demand, Non-Balancing Mechanism (Non-BM) generation and Balancing Mechanism (BM) generation.
- The tenders were assessed in terms of their economic value whilst taking account of the technical requirements of the system and the other categories of Reserve available.
- Of the 131 tenders evaluated, National Grid offered to enter into Market Agreements with 117 tenders, of which 115 proceeded to final contract.
- The maximum overall volume of successful Standing Reserve is 2106MW comprising:
 - BM Participants 1445MW
 - Non-BM Participants 661MW

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1. Introduction

- 1.1 This market report describes the tenders received and the subsequent selection process that led to Standing Reserve Agreements being entered into for the period 1 April 2004 to 1 April 2005.
- 1.2 This report also reviews the outcome of this tender round in the context of previous tender rounds and the service utilisation during 2003/2004.
- 1.3 This report is produced by National Grid in order to increase the transparency of the tendering process and Standing Reserve historic utilisation. There is no licence requirement for this information to be produced.
- 1.4 Standing Reserve services for this period are based on the contract form as described in the tender documentation issued on 6 October 2003 and available on the National Grid web site at:
http://www.nationalgridinfo.co.uk/balancing/mn_standing_02.html
- 1.5 In the 1993/1994 financial year, National Grid instigated an annual tender process for the competitive procurement of Standing Reserve services as an economic alternative to Reserve delivered from part-loaded generation. National Grid has prepared market reports for each of the Standing Reserve tenders undertaken. These can be found on our website at:
http://www.nationalgridinfo.co.uk/balancing/mn_standing.html
- 1.7 Communication of the Standing Reserve tender timescales for each year and the opportunities has been made via the National Grid Industry Information website and advertisements placed in the Utility Week publication.

2. Definition of Standing Reserve

- 2.1 Standing Reserve is a manually instructed delivery of active power from generation (non-synchronised) and/or demand reduction (synchronised) plant and which is fully available within a maximum response time.
- 2.2 It is procured on a commercial basis as part of National Grid's overall Reserve requirements.
- 2.3 Reserve is required to help manage any mismatch between generation and demand in real time.
- 2.4 This is achieved by making active power available at short notice to meet unexpected changes in generation or demand caused by short term plant losses, plant shortfalls or demand being higher than forecast.
- 2.5 The need for Standing Reserve varies across the year, the time of week and the time of day. It is a function of the system demand profile at that time. To reflect this, National Grid splits the year into five Seasons, for both Working Days (including Saturdays) and Non-Working Days (Sundays and most Bank Holidays). In addition National Grid specifies the periods (Availability Windows) in each day that Standing Reserve is required.
- 2.6 The specified Standing Reserve Seasons and Windows for 2004/2005 were substantially the same as the previous years, having five Seasons with Working Days and Non-working Days separately identified. These Seasons and Windows are shown in Appendix 4.
- 2.7 Tenderers can select whether to tender for one or more Seasons by Working Days and/or Non-working Days.
- 2.8 Tenderers can also stipulate whether they wish to be selected for all or none of the seasons offered.
- 2.9 Non-BM service providers can choose whether to tender to provide a Committed or Flexible service, whereas BM providers can only tender for a Committed service. Once a Committed contract is entered into, providers are obliged to make the service available in all contracted service periods. In return, National Grid commits to pay for all the availability offered. With a Flexible contract, providers are not obliged to make the service available all the time and National Grid is not obliged to accept it (and payment is only made if the availability is accepted).

- 2.10 A Standing Reserve service provider must be able to:
- Offer a minimum active power of 3MW; this can be provided from more than one site as long as the aggregated total is more than the 3MW minimum and it can be instructed and metered from one point of control;
 - Offer a Response Time from instruction to actual generation or demand reduction of the Contracted MW of 20 minutes or less;
 - Provide the Contracted MW offered for at least 2 hours when instructed;
 - Have a Recovery Period after the provision of the Standing Reserve service of not more than 1200 minutes (20 hours);
 - Provide the Standing Reserve service at least 2 times a week for Non-Working Days or 3 times a week Working Days or both Working Days and Non-Working Days;
 - Control the service delivery from a single point and provide metering to the same control point; and
 - If offering a service from aggregated sites, then National Grid must agree the geographical location of the sites.

3. Tender Process

3.1 This annual tender round was held to secure an appropriate level of Standing Reserve service provision for the period 05:00 hours on 1 April 2004 to 05:00 hours on 1 April 2005.

3.2 The tender process undertaken in order to facilitate securing Standing Reserve was:

- Invitation To Tender (ITT) documentation published on National Grid's Industry Website on 6 October 2003.
- Tender opportunity communicated to potential providers by direct mailing plus advertisements placed in Utility Week at end of September and mid October 2003.
- Market Day (deadline for tenders to be submitted to National Grid) held on 18 November 2003.
- Tender assessment was carried out between 18 November 2003 and 16 January 2004.
- Tenderers were notified of the outcome of their tenders on 19 January 2004.
- Standing Reserve Agreements were offered to all successful tenderers.
- All Agreements were signed with providers by 31 March 2004.

4. Tenders Submitted

4.1 A total of 131 discrete tender submissions were received, representing 30 companies and 109 different sites. This translates into a maximum volume of 2497MW, of which 764MW was from Non-BM providers.

4.2 The proportion of Committed/Flexible Standing Reserve service options tendered was as follows:

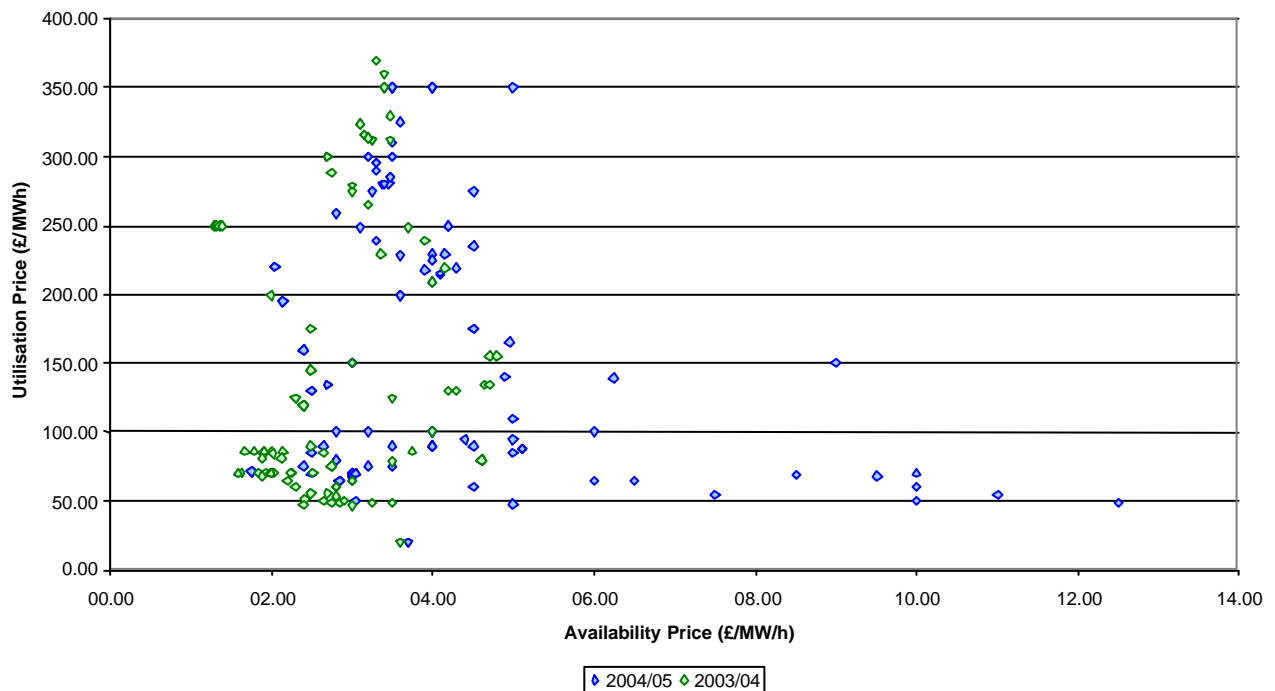
Committed Only	1947 MW
Flexible Only	550 MW
Total Volume	2497 MW

Approximately two-thirds of the Non-BM tenders received were offering a Flexible rather than Committed service.

4.3 All tenders were required to comply with the tender criteria, and to provide certain information with regard to any service limitations. These parameters are discussed further in Appendix 5.

4.4 Pricing for Standing Reserve is made up of an availability payment and utilisation price. A price scatter plot of all tenders received in this tender round compared with those received for 2003/2004 is shown in Figure 1, below.

Figure 1 - Standing Reserve Tender Prices 2004/2005 and 2003/2004



5. Tender Assessment

5.1 All tenders were evaluated against the following objectives: -

- To identify the minimum cost solution in meeting the Short Term Reserve requirement using the tenders received and the other alternative sources of Short Term Reserve that are available to National Grid.
- To re-optimize the minimum cost solution, if necessary, accounting for the system considerations outlined in Appendix 5.

5.2 The assessment model used to assess the economic benefits of each Standing Reserve tender took into account the following variables: -

- The forecast costs of other sources of Short Term Reserve;
- The tendered data for Standing Reserve;
- The Short Term Reserve utilisation forecast;
- Any fixed costs associated with service contracts and monitoring systems;
- Manual Fast Start Start-Up payments for those units tendering into the Standing Reserve tender round that are contracted to provide a manual Fast Start service.

5.3 The forecast of the costs of other sources of Short Term Reserve comprises two elements. The first concerns the cost of securing the availability on the day of alternative sources of Short Term Reserve; the second concerns the cost of utilising that alternative source of Short Term Reserve.

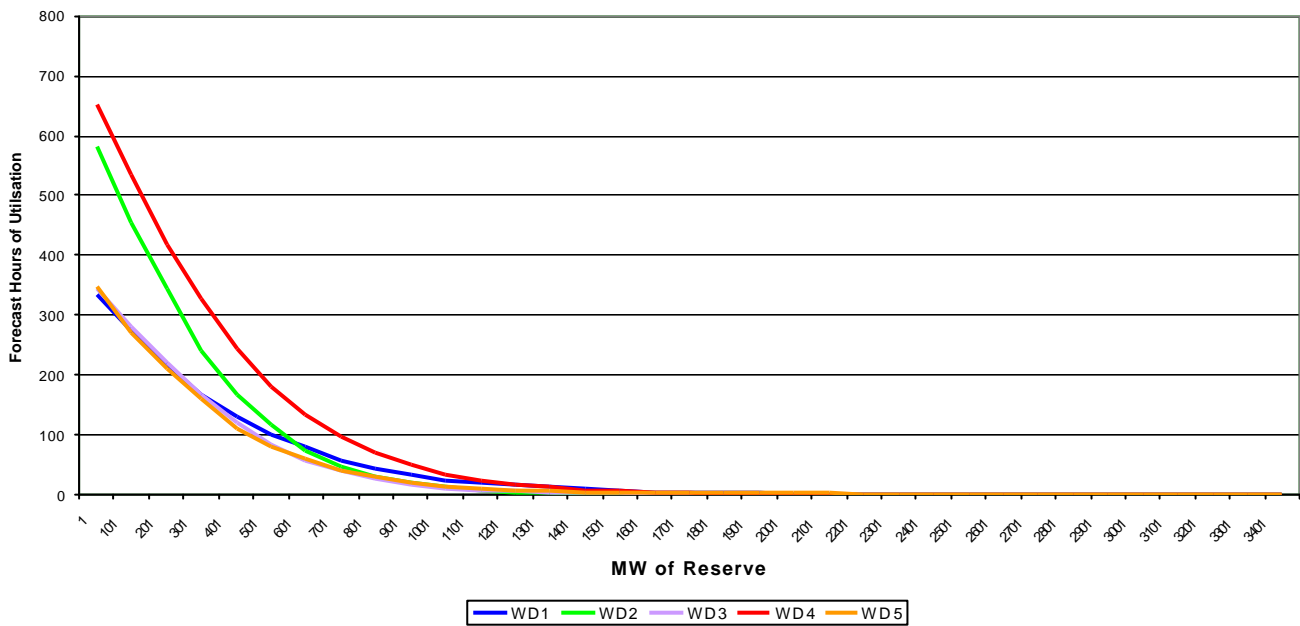
5.4 To determine the costs of securing the availability on the day of alternative sources of Short Term Reserve the historic costs of Warming and Synchronising Units (either through PGBTs or BOAs) are analysed. Through Warming and Synchronising of units that would otherwise have a PN of zero at Gate Closure, National Grid is then able to access this as Regulating Reserve within similar timescales to Standing Reserve. These historic Warming and Synchronisation Costs are then used to derive an equivalent "availability fee" against which the tendered Availability Fee of each Standing Reserve unit may be compared.

5.5 The historic average Offer Price stacks in the Balancing Mechanism are used to determine the cost of utilising any alternative source of Short Term Reserve. The tendered utilisation prices of each Standing Reserve Unit can again be directly compared against the equivalent Short Term Reserve "utilisation" price.

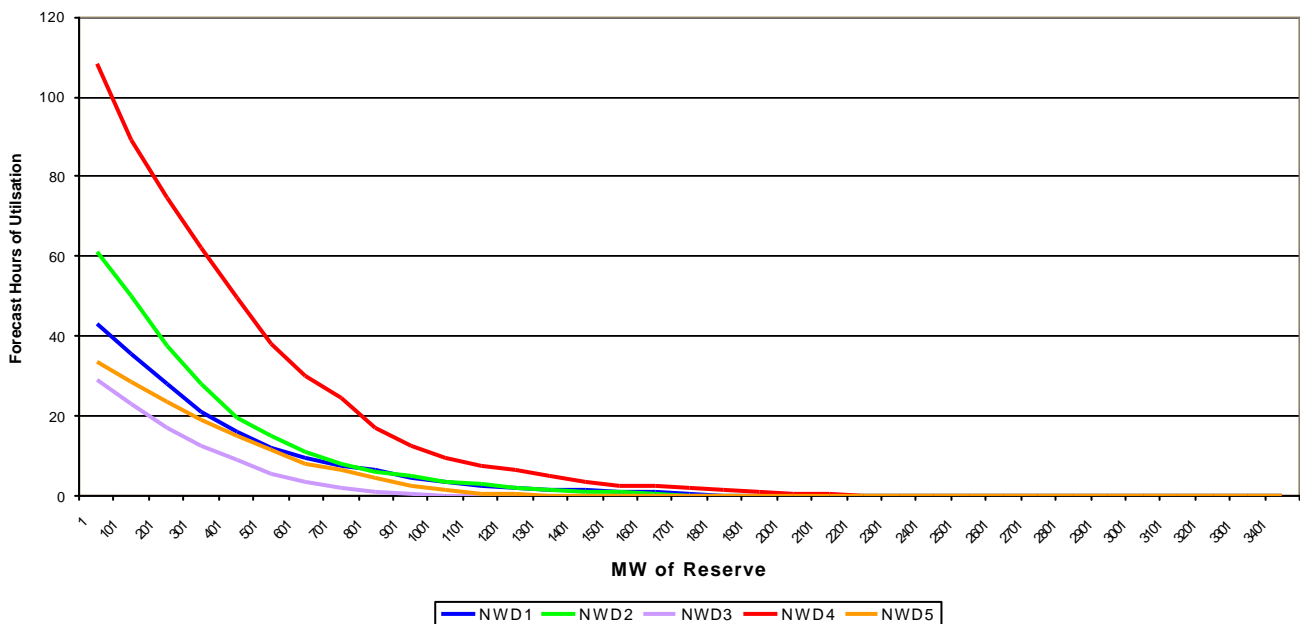
5.6 The Short Term Reserve utilisation forecast is reached by reference to historic statistics on Demand Forecasting Errors and Plant Losses/Shortfalls. Through such analysis the following Short Term Reserve Utilisation curves were derived.

Figures 2 and 3:

Short Term Reserve Utilisation Curves - Working Days



Short Term Reserve Utilisation Curves - Non-Working Days



- 5.7 The graphs on the previous page (Figures 2 and 3) show that for WD4 (Working Day 4), the first MW of Short Term Reserve will be required to be utilised for approximately 650 hours of the total 1240 hours in WD4. Similarly the 1000th MW of Short Term Reserve will be required to be utilised for just 50 of the 1240 hours in WD4.
- 5.8 For each Standing Reserve season the assessment model assesses the price of each submitted Standing Reserve tender together with any other relevant tender specific contractual costs alongside the forecast prices (“availability” and “utilisation”) of the alternative source of Short Term Reserve. The model then selects the most economic combination of Standing Reserve Tenders and alternative sources of Short Term Reserve (based upon the forecast Short Term Reserve utilisation curve) until it has achieved the forecast total requirement for Short Term Reserve.
- 5.9 The above analysis selects tenders purely on an economic basis. The analysis is then repeated against a range of sensitivities shown below. The final tender selection was robust against this range of sensitivities:
- Variations to the forecast holding and utilisation prices for alternative sources of Short Term Reserve
 - Levels of plant shortfalls/losses/demand forecast errors
 - Likelihood of utilisation limits for Standing Reserve tenders being breached
- 5.10 Finally the historic performance of previously contracted Standing Reserve providers is taken into consideration.

6. Assessment Results

- 6.1 Economic evaluation of the tenders took place through December 2003 and January 2004 and led to tender success for the following maximum Standing Reserve:-

	Successful Tenders	All Tenders
BM Providers	1445 MW	1733 MW
Non-BM Providers	661 MW	764 MW
Total volume	2106 MW	2497 MW

- 6.2 The seasonal variation of successful Standing Reserve volumes can be seen in the table below. Since the maximum volume active in any one season is 2106MW in Season 4 (Working Days), it may be deduced that some services are only tendered (or successful) for certain seasons.

Service Season	Successful Volumes (MW)			
	BM Working Days	Non-BM Working Days	BM Non-working Days	Non-BM Non-working Days
Season 1	1386	659	1363	639
Season 2	1433	659	1411	639
Season 3	1437	659	1414	639
Season 4	1445	661	1421	641
Season 5	1444	661	1420	614

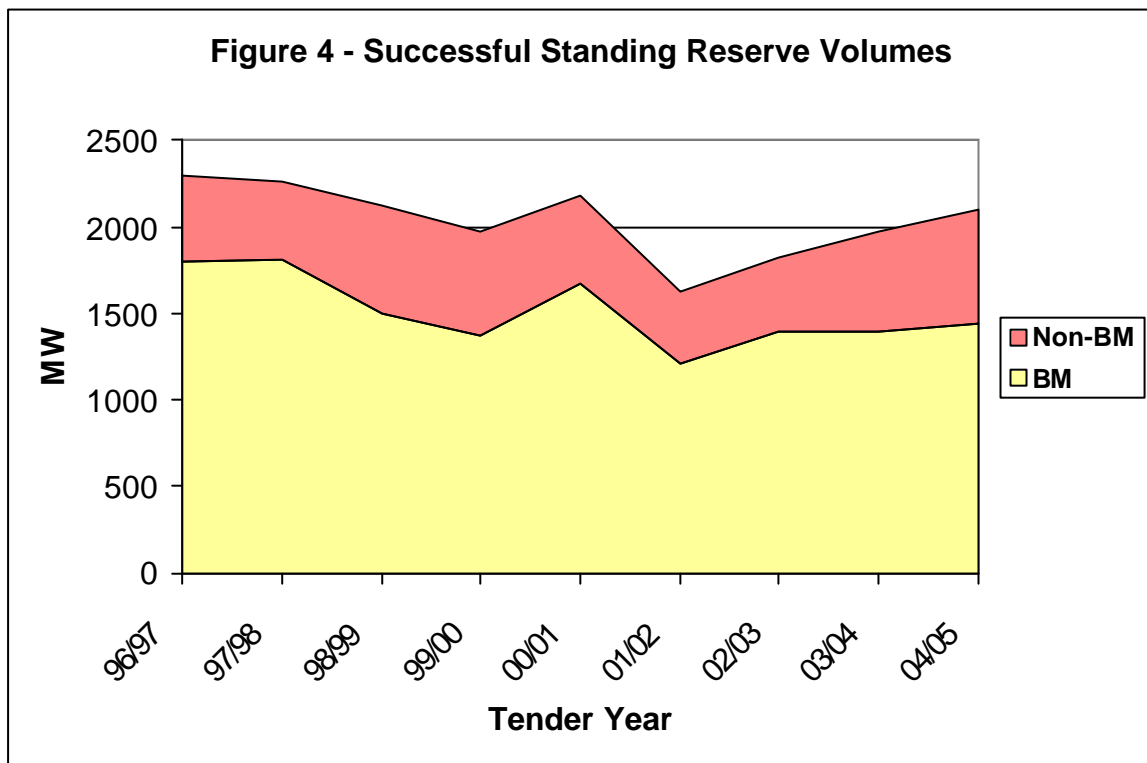
- 6.3 Generally those tenders that failed were the least economic option when assessed against the range of sensitivities listed in Section 5 above.
- 6.4 The forecast average availability payment for Standing Reserve during the period 1 April 2004 to 31 March 2005 (assuming 100% availability of all successful providers) is £4.14/MW/h for non-working days and £4.17/MW/h for working days.
- 6.5 If all Units and Sites were declared available for 100% of the contracted time then the total spend on availability payments during 2004/2005 for Standing Reserve would be £37m.

7. Comparison with Previous Tender Rounds

7.1 One of the major intentions of the Standing Reserve market tender process was to introduce competition from a broad and diverse range of service providers.

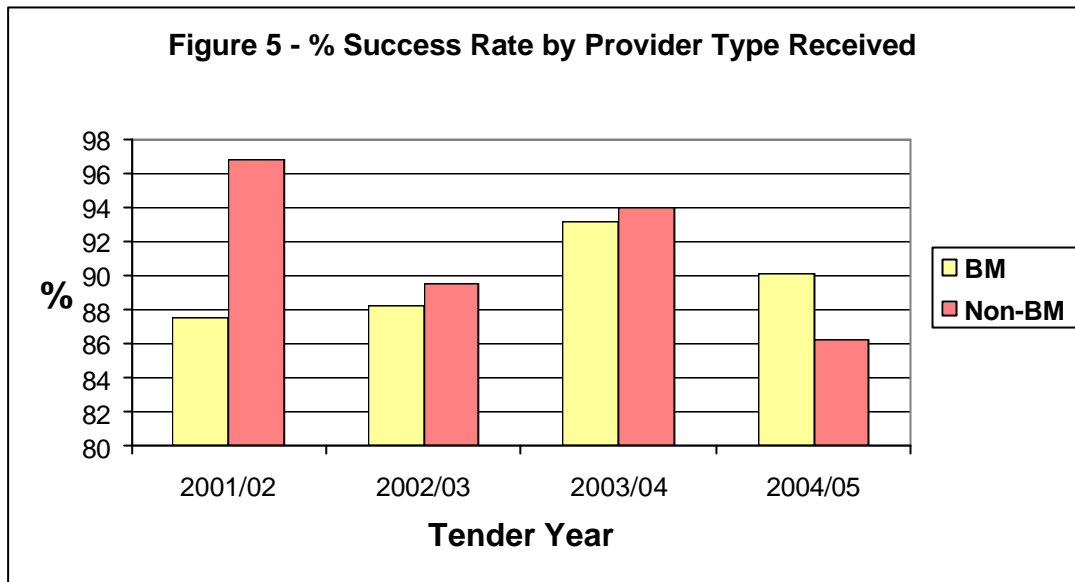
7.2 Figure 4 below shows how the volume of contracted service has changed since 1996.

7.3 Appendices 1 and 2 show comparisons of the number and volume of tenders

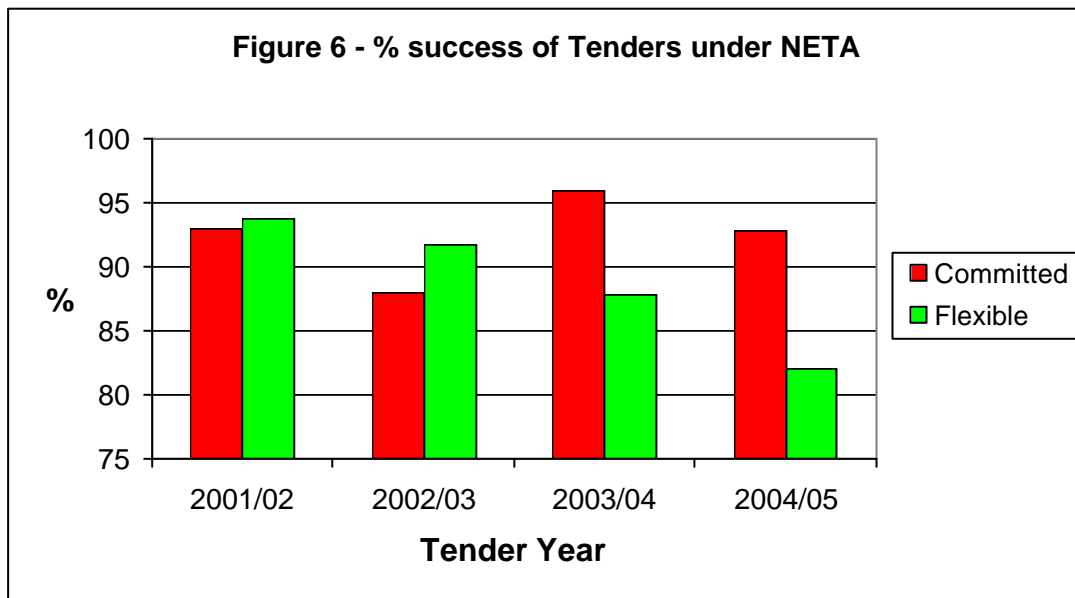


received and contracted over the three tender rounds under NETA.

7.4 Comparing the four tender rounds for service years under NETA – 2001/2002 to 2004/2005 – the following figure 5 shows the percentage success rate of tenders by number of tenders received on a BM and Non-BM basis.

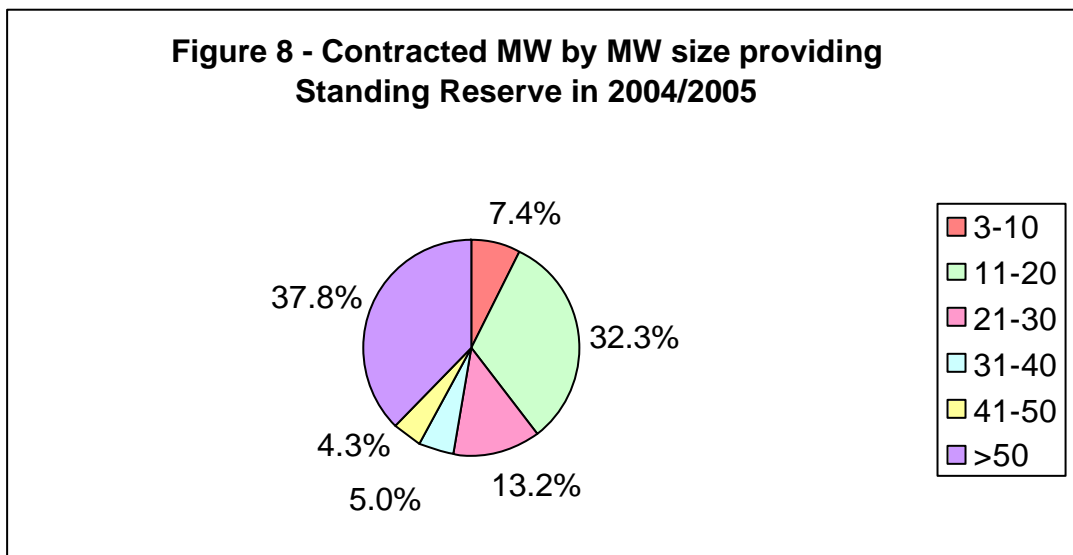
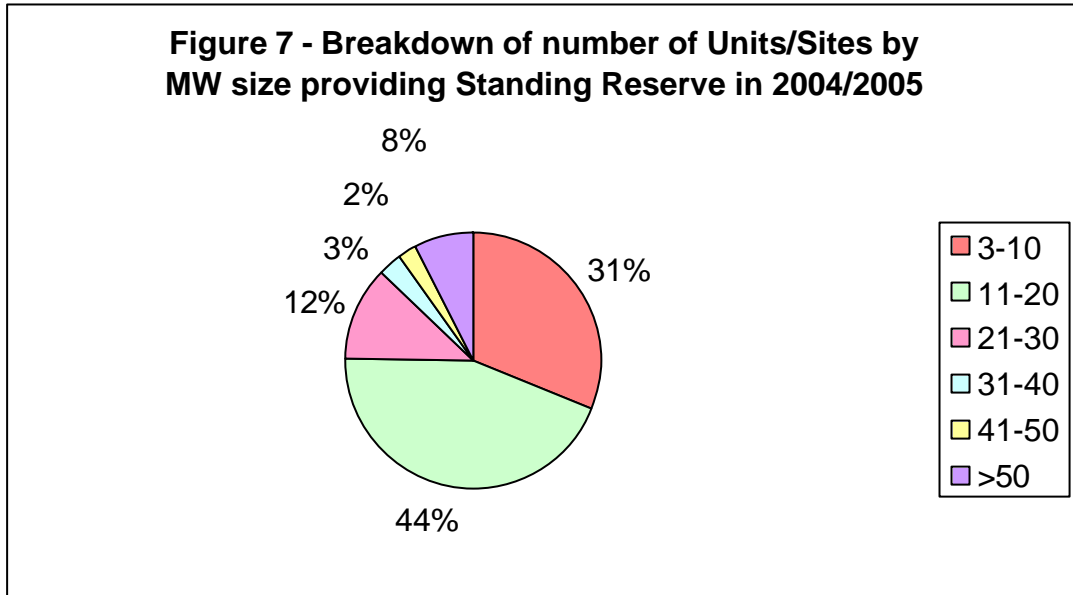


7.5 Figure 6 below shows the percentage success rate of tenders by number of tenders received on a Committed and Flexible basis under NETA.



7.6 As of 1 April 2004 there are a total of 93 units/sites providing Standing Reserve.

7.7 Figures 7 and 8 below identify the proportion of sites in size ranges of 10MW blocks by number of units/sites and by the contracted MW.

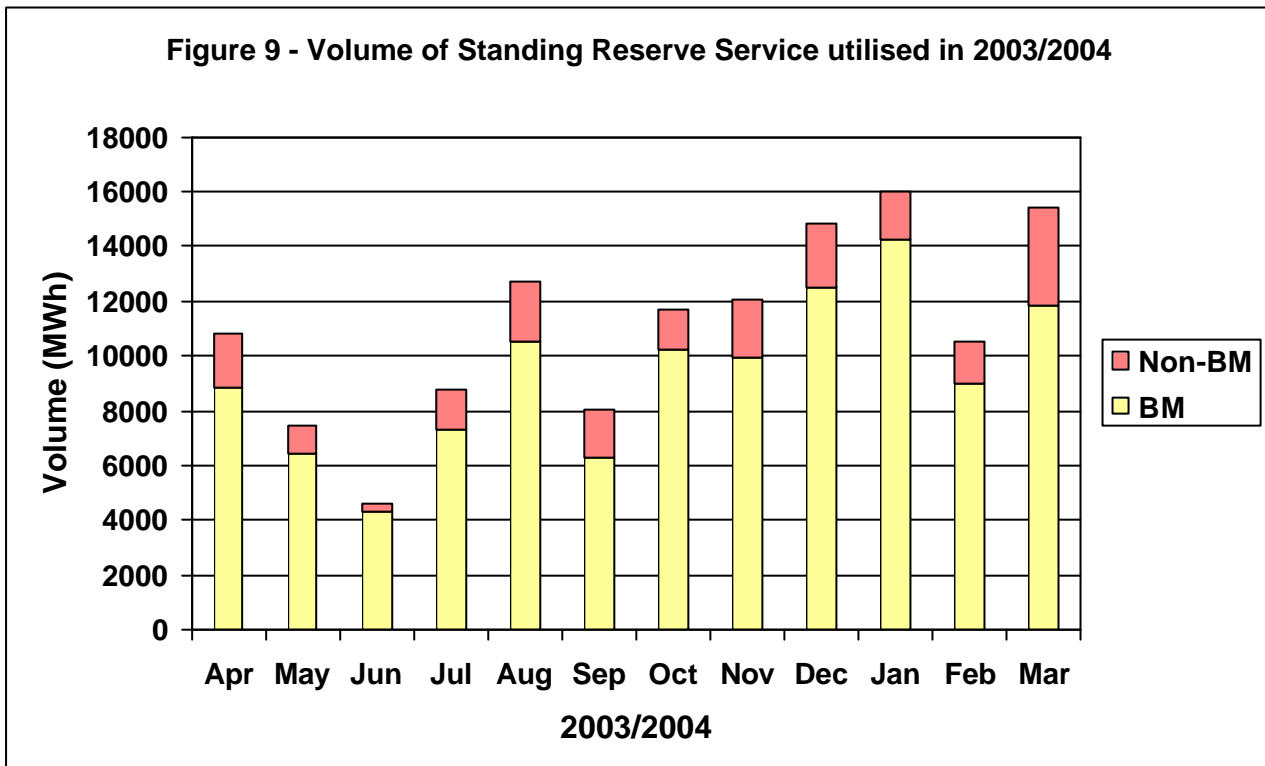


- 7.8 Figures 7 and 8 illustrate that there is a non-linear relationship between the amount of contracted MW and the number of units/sites which deliver the MW, for example:
- 42.1% of the total contracted MW is available from only 10% of the units/sites; and
 - 39.7% of the total contracted MW is available from 75% of the units/sites.

8. Standing Reserve Utilisation during 2003/2004

8.1 This section summarises the 12 month breakdown of Standing Reserve utilisation over the previous contract period (05:00 hours on 1 April 2003 to 05:00 hours on 1 April 2004).

8.2 Figure 9 below shows the volume (MWh) of Standing Reserve service utilised each month on a BM and Non-BM provider basis.



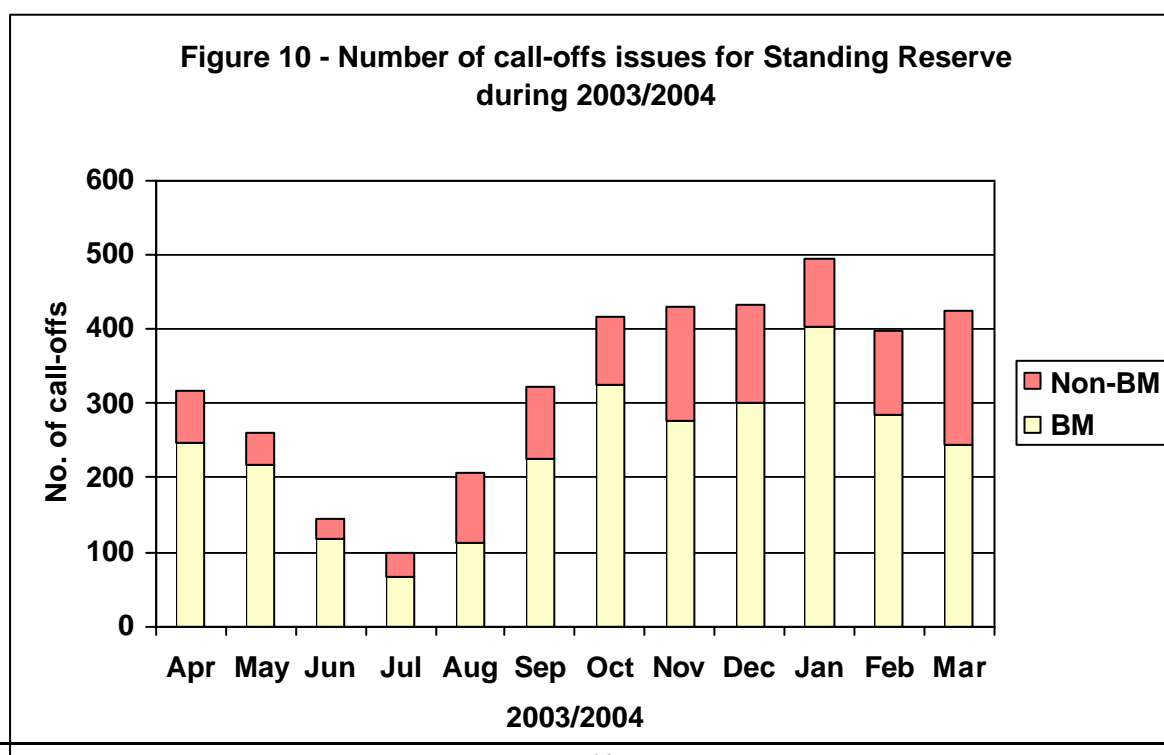
8.3 The total of availability payments for Standing Reserve during 2003/2004 was £28.25m compared with £21.9m for 2002/2003.

8.4 The payments made for Standing Reserve in 2003/2004 for BM and Non-BM for availability and utilisation on a month by month basis are shown in the table overleaf:

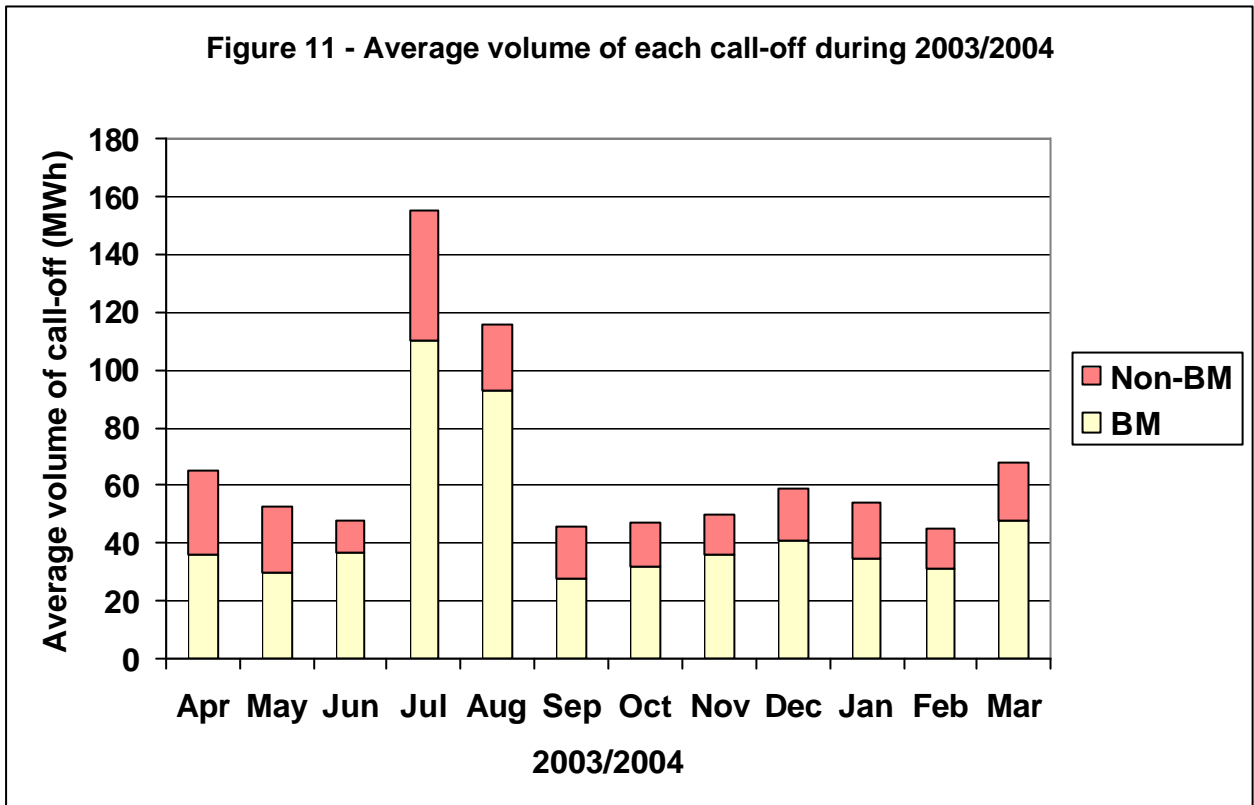
Month	BM		Non-BM	
	Avail (£k)	Util (£k)	Avail (£k)	Util (£k)
April 03	1,598	1,159	293	150
May 03	1,483	780	300	73
June 03	1,936	512	382	23
July 03	2,061	920	280	112
August 03	1,983	1,374	292	136
September 03	1,608	788	271	97
October 03	1,879	1,285	305	74
November 03	2,327	1,186	410	117
December 03	2,541	1,559	402	176
January 04	2,451	1,859	401	122
February 04	2,018	1,142	353	104
March 04	2,200	1,415	374	228
TOTAL	24,087	13,979	4,063	1,412

8.5 The average availability payment for Standing Reserve during the period 1 April 2003 to 31 March 2004 was £3.44/MW/h for non-working days and £3.49/MW/h for working days. The total spend on availability payments was £28.1m.

8.6 Figure 10 below shows the number of service call-offs issued to both BM and Non-BM providers on a monthly basis.



8.7 Figure 11 below shows the average volume (MWh) per call off during 2003/2004 on a month by month basis.



9. 2005/2006 Tender Round

- 9.1 The Invitation To Tender documentation for the next tender round (for contracts commencing 1 April 2005) will be made available on the National Grid Industry Information website during September 2004.
- 9.2 Further information and enquiries should be directed to:

**Laura Barker
Operations and Trading
National Grid Transco
NGT House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA**

Telephone number: **01926 655479**
Email: **laura.barker@ngtuk.com**

- 9.3 For other information please visit the National Grid website on the following address:

http://www.nationalgridinfo.co.uk/balancing/mn_standing.html

Appendices

Appendix 1 – Number of Tenders compared with previous Tender Rounds under NETA

Tender Round	NUMBER TENDERED					NUMBER CONTRACTED				
	Tenders Received	BM	Non-BM	Committed	Flexible	Tenders Contracted	BM	Non-BM	Committed	Flexible
2001/02	103	40	63	71	32	96	35	61	66	30
2002/03	108	51	57	84	24	96	45	51	74	22
2003/04	111	44	67	78	33	104	41	63	75	29
2004/05	131	51	80	70	61	115	46	69	65	50

Appendix 2 – Volume of Tenders compared with previous Tender Rounds under NETA

Tender Round	VOLUME TENDERED (MW)					VOLUME CONTRACTED (MW)				
	Volume Received	BM	Non-BM	Committed	Flexible	Volume Contracted	BM	Non-BM	Committed	Flexible
2001/02	2130	1649	481	1804	326	1623	1206	417	1333	290
2002/03	2337	1873	464	1989	348	1822	1400	422	1484	338
2003/04	2025	1400	625	1702	323	1971	1400	571	1702	269
2004/05	2497	1733	764	1947	550	2106	1445	661	1659	447

Appendix 3 – Standing Reserve Contracted Capacity 2004/2005

Size of Unit/Site (MW)	Total MW Contracted	Number of Units/Sites	Average MW per Unit/Site
0 – 10	156	29	5.5
11 - 20	681	41	16.5
21 - 30	277	11	25
31 – 40	105	3	35
41 – 50	90	2	45
>50	797	7	114
TOTAL	2106	93	22.5

Appendix 4 - 2004/2005 Service Seasons and Windows

Service Seasons (inclusive)		Service Windows (Inclusive)			
		Working Days		Non-Working Days	
1	05:00 hours on 1 April 2004 to 05:00 hours on 7 June 2004	I	07:00 – 13:00	I	10:00 – 13:30
		II	16:00 – 21:30	II	19:30 – 22:30
		III	N/A	III	N/A
2	05:00 hours on 7 June 2004 to 05:00 hours on 6 September 2004	I	07:00 - 18:00	I	10:00 – 13:00
		II	20:00 – 22:30	II	18:00 – 23:00
		III	N/A	III	N/A
3	05:00 hours on 6 September 2004 to 05:00 hours on 30 October 2004	I	07:00 –12:30	I	10:00 – 13:00
		II	16:00 – 21:30	II	17:30 – 21:30
		III	N/A	III	N/A
4	05:00 hours on 30 October 2004 to 05:00 hours on 7 February 2005	I	07:00 – 14:00	I	11:00 – 13:00
		II	15:30 – 21:00	II	16:00 – 20:30
		III	00:00 – 03:00	III	00:00 – 03:00
5	05:00 hours on 7 February 2005 to 05:00 hours on 1 April 2005	I	07:00 –14:00	I	10:00 – 13:00
		II	16:30 – 20:00	II	17:00 – 20:00
		III	00:00 – 03:00	III	00:00 – 03:00

Bank Holidays for 2004/2005:

- Easter Monday 12 April 2004
- May Day Bank Holiday 3 May 2004
- Late Spring Bank Holiday 31 May 2004
- Late Summer Bank Holiday 30 August 2004
- Christmas Day 25 December 2004
- Christmas Bank Holiday 1 27 December 2004
- Christmas Bank Holiday 2 28 December 2004
- New Year's Day 1 January 2005
- New Year's Day Bank Holiday 3 January 2005
- Easter Monday 28 March 2005

Appendix 5 - System Considerations for Selection of Reserve

1. The requirement for Standing Reserve varies throughout the day depending on the generation mix and demand profile. Changes in generation and demand covered by Reserve can occur at any time and therefore Reserve margin must be maintained at all times. In meeting this requirement economically, four main aspects must be considered: -
 - (a) Any inherent Reserve;
 - (b) Level of Reserve required;
 - (c) Cost of Reserve options; and
 - (d) Operating parameters of the Reserve plant.
2. The despatch of Reserve and/or Balancing Mechanism actions takes account of parameters such as:-
 - (a) System requirements;
 - (b) Dynamic parameters;
 - (c) Commercial implications;
 - (d) Minimum operating levels; and
 - (e) Contingency planning.
3. The demand profile and the parameters described above may result in times when the level of Reserve required is provided by part-loaded generation (Regulating Reserve).
4. There are times when this Regulating Reserve is not sufficient and other Reserve options need to be considered. The logic of contracting for only limited number hours of each day is borne out by actual utilisation of Standing Reserve. Sensitivity analysis shows that the benefits of extending the service windows would be outweighed by the cost of additional availability payments, although National Grid still reviews, annually, the timing and duration of service windows.
5. Tender submissions included a variety of parameters, as required, covering the technical nature of the Standing Reserve service. Information provided with the tender included technical parameters of the service offered and other factors such as the time required in order to initiate the service (Response Time), and the duration for which the service could be sustained (Maximum Utilisation Period).
6. The Standing Reserve service requires a maximum Response Time of 20 minutes. It is of greater benefit and value to National Grid to have as short a Response Time as possible. A spread of tenders results in an acceptable proportion offering 10 minutes or less.
7. Due to the limitations of a finite transmission system, there can exist geographical restrictions on the selection of Reserve providers. However, as with the issue of Response Time, the natural variance in the geographical disposition of tendered services means that this does not normally impinge heavily on the selection.

8. The minimum size of a discrete Standing Reserve tender is set at 3MW. This is considered an appropriate compromise between a sufficiently low threshold in order to permit as many providers as possible to tender, and the practicality and cost to National Grid of despatching a large number of individual providers in a short space of time. Given the large number of small Non-BM contracts that National Grid has to operate, a PC-based monitoring and despatch system called Standing Reserve Despatch (SRD) has been developed to enable National Grid to manage more efficiently service declarations, call-off of providers and monitoring performance against contracted parameters.
9. The anticipated costs incurred by National Grid in the SRD installation (at new sites) where necessary and other fixed costs (contract administration) are accounted for on a site (or tender) specific basis as appropriate.