



National Grid

**National Grid Standing Reserve
Market Report**

**Tender Round for Standing Reserve
Service from BM and Non BM providers
for
Contracts Effective from
1st April 2003 to 1st April 2004**

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Operations & Trading
31st July 2003

Executive Summary

This report describes the tender round evaluation process of Standing Reserve tenders for the service commencing 1st April 2003.

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 16th January 2003, tenderers were notified of the results of their respective tenders. The main points are as follows:

- On 8th November 2002 ('Market Day') a total of 111 discrete tender submissions were received representing 82 sites/units from 25 companies.
- For 2003/04, a maximum total of 2493MW of Standing Reserve service volume was tendered.
- Tenders were received from a variety of service providers including demand, Non-Balancing Mechanism generation and Balancing Mechanism generation participants.
- 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 111 tenders evaluated, National Grid offered Agreements to 108, of which 104 proceeded to contract.
- The maximum overall volume of successful Standing Reserve is 1971MW comprising:
 - BM Participants 1400MW
 - Non BM Participants 571MW

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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 1st April 2003 to 1st April 2004.
- 1.2 This report also reviews the outcome of this tender round in the context of previous tender rounds and the service utilisation during 2002/2003.
- 1.3 Standing Reserve services for this period are based on the contract form as described in the tender documentation issued on 20th September 2002 and available on the National Grid web site at:
www.nationalgrid.com/uk/indinfo/balancing/mn_standing.html
- 1.4 In 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 annual reports for each of the Standing Reserve tenders undertaken. These can be found on our website at:
www.nationalgrid.com/uk/indinfo/balancing/mn_archive_tenders.html#standing
- 1.5 Communication of the Standing Reserve tender timescales and the opportunities has been made available annually through advertisements placed in the Utility Week publication and via the National Grid Industry Information website.

2. Definition of Standing Reserve

- 2.1 Standing Reserve is a manually instructed delivery of active power which is fully available within 20 minutes and sustainable for at least 2 hours.
- 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 2003/2004 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 Providers can also stipulate in their tender submission 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. 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' agreement, providers are not obliged to make the service available all the time and National Grid is not obliged to accept it (i.e. payment is only made if it is accepted).

2.10 A Standing Reserve service provider must be able to:

- Offer 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 offered MW in 20 minutes or less;
- Provide the active power 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); and
- Provide the Standing Reserve service at least 3 times a week.

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 on 1st April 2003 to 05:00 on 1st April 2004.
- 3.2 The tender process undertaken in order to facilitate securing Standing Reserve was:
- Information To Tender (ITT) documentation published on National Grid's Industry Website on 13th September 2002.
 - Tender opportunity communicated to potential providers by direct mailing plus advertisements placed in Utility Week at end of September and mid October 2002.
 - Market Day (deadline for tenders to be submitted to National Grid) held on 8th November 2002. This enabled any potential provider that fulfilled the qualification criteria specified in the ITT documentation to tender for a Standing Reserve Agreement.
 - Tender assessment was carried out by 17th January 2003.
 - Tenderers were notified of the outcome of their tenders on 20th January 2003.
 - Standing Reserve Agreements were offered to all successful tenderers.
 - All Agreements were signed with providers by 31st March 2003.

4. Tenders Submitted

4.1 A total of 111 discrete tender submissions were received, representing 25 companies and 82 different sites. This translates into a maximum volume of 2493MW, of which 625MW was from non-Balancing Mechanism providers.

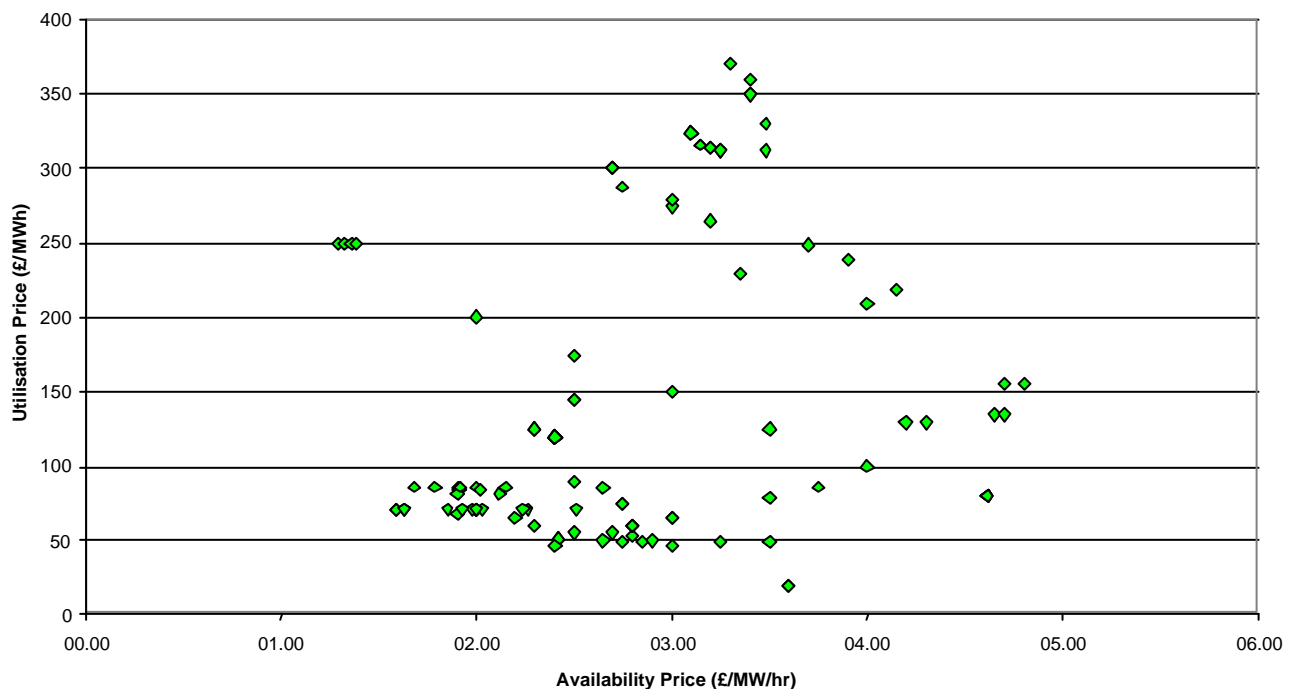
4.2 The proportion of Committed/Flexible Standing Reserve service options tendered was as follows:

Committed Only	2170 MW
Flexible Only	323 MW
Total Volume	2493 MW

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 relating to this tender round is shown in Figure 1, below.

Figure 1: Standing Reserve Tendered Prices 2003/04



5. Tender Assessment

- 5.1 All tenders for each Season (by Working Days and Non-Working Days) were evaluated separately, the objective being to: -
- Identify the minimum cost solution in meeting the Reserve requirement using the tenders received and other Reserve alternatives for each Season.
 - Re-optimize the Reserve requirement, if necessary, retaining any plant required to meet the system considerations outlined in Appendix 5.
- 5.2 A new assessment model was used for this tender round to select the most economic tenders to provide Standing Reserve. It took into account the following variables: -
- forecast costs of Spinning (synchronised) Reserve by season;
 - tendered data for Standing Reserve;
 - the Reserve utilisation forecast from statistical analysis (plant failures/shortfalls and errors in demand forecasting);
 - any fixed costs associated with service contracts and monitoring systems.
- 5.3 Historic plant losses, generation shortfall statistics and demand forecast errors were analysed to forecast the system requirement for Reserve against which tenders were evaluated. Spinning Reserve price forecasts under NETA contribute to the assessment and determine the optimal balance between Spinning and Standing Reserve options.
- 5.4 For each Standing Reserve season the assessment model assesses the price of each submitted Standing Reserve tender alongside the forecast price of Spinning Reserve. The model then selects the most economic combination of Standing Reserve Tenders and Spinning Reserve (based upon the forecast Reserve utilisation curve) until it has procured the forecast total requirement for Reserve.
- 5.5 Figures 2 and 3 illustrate the nature of forecast Reserve utilisation curves evaluated for Working Days and Non-working Days during each of the Seasons in question.

Figure 2: Working Days Short Term Reserve Utilisation Curves

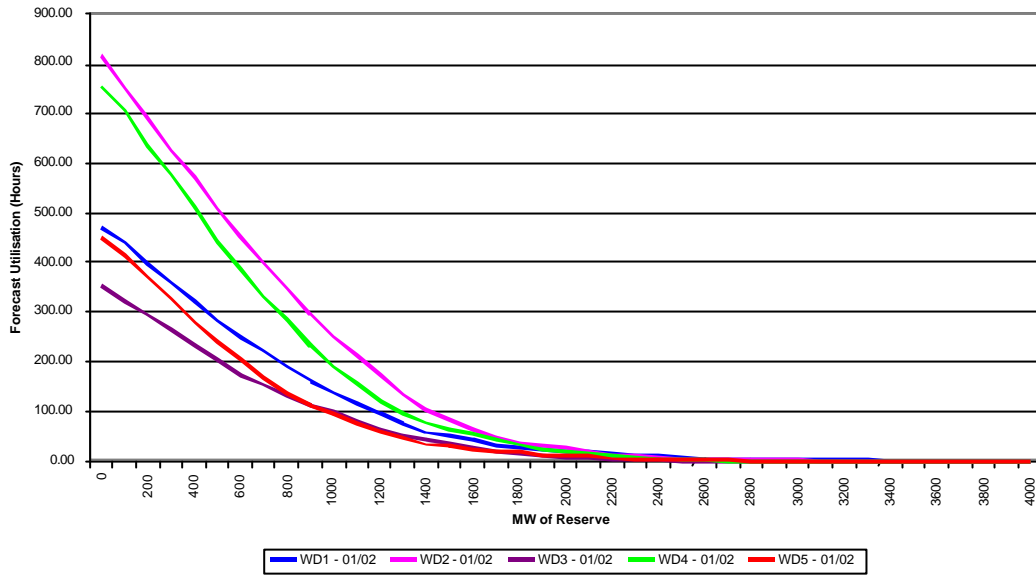


Figure 2 above identifies that the first MW of Reserve for Working days in Season 4 will be required for 755 hours of the total 1312 hours of Reserve service in WD4. The 1000th MW of Reserve service will be required for some 191 hours of the 1312 total WD4 hours.

Figure 3: Non-Working Days Short Term Reserve Utilisation

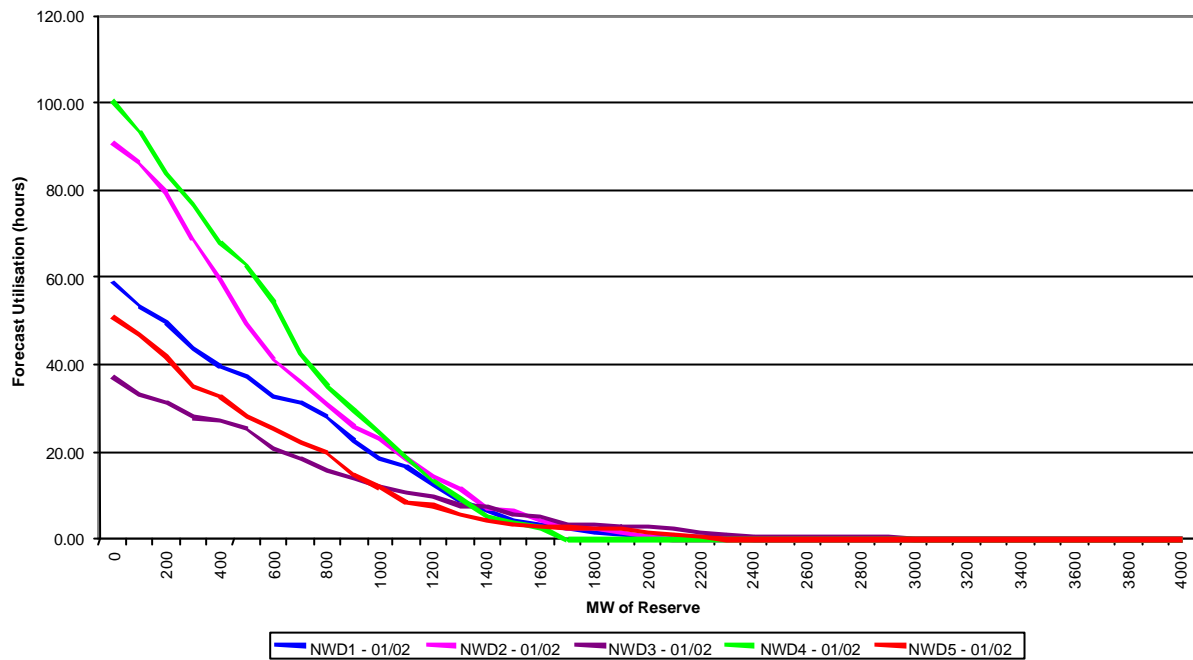


Figure 3 above identifies that the first MW of Reserve in Non-Working days Season 4 will be required for 100 hours of the total 171 hours of Reserve service during NWD4. The 1000th MW of Reserve service will be required for some 24 hours of the total 171 hours.

5.6 The above analysis selects a number of 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:

- forecast holding and utilisation prices for Spinning Reserve;
- levels of plant shortfalls/losses/demand forecast error;
- likelihood of utilisation limits for tendered services being breached;
- variations in the forecast prices of Spinning Reserve; and,
- historic reliability of existing providers.

6. Assessment Results

6.1 Economic evaluation of the tenders took place through December 2002 and January 2003 and led to tender success for the following maximum Standing Reserve:-

BM Providers	1400 MW
Non BM Providers	571 MW
Total volume	1971 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 1971MW in Season 4, it may be deduced that some services are only tendered (or successful) for part of the year.

Service Season	Successful Volumes (MW)	
	Working Days	Non-working Days
Season 1	1935	1958
Season 2	1932	1955
Season 3	1939	1962
Season 4	1964	1971
Season 5	1963	1970

6.3 Generally those tenders that failed were not the most economic option when assessed against the range of sensitivities listed in Section 5 above.

7. Comparison with Previous Tender Rounds

7.1 One of the major intentions of the market tender process was to introduce competition from a broad and diverse range of service providers. Figure 4 below shows how the volume of contracted service has changed since 1996.

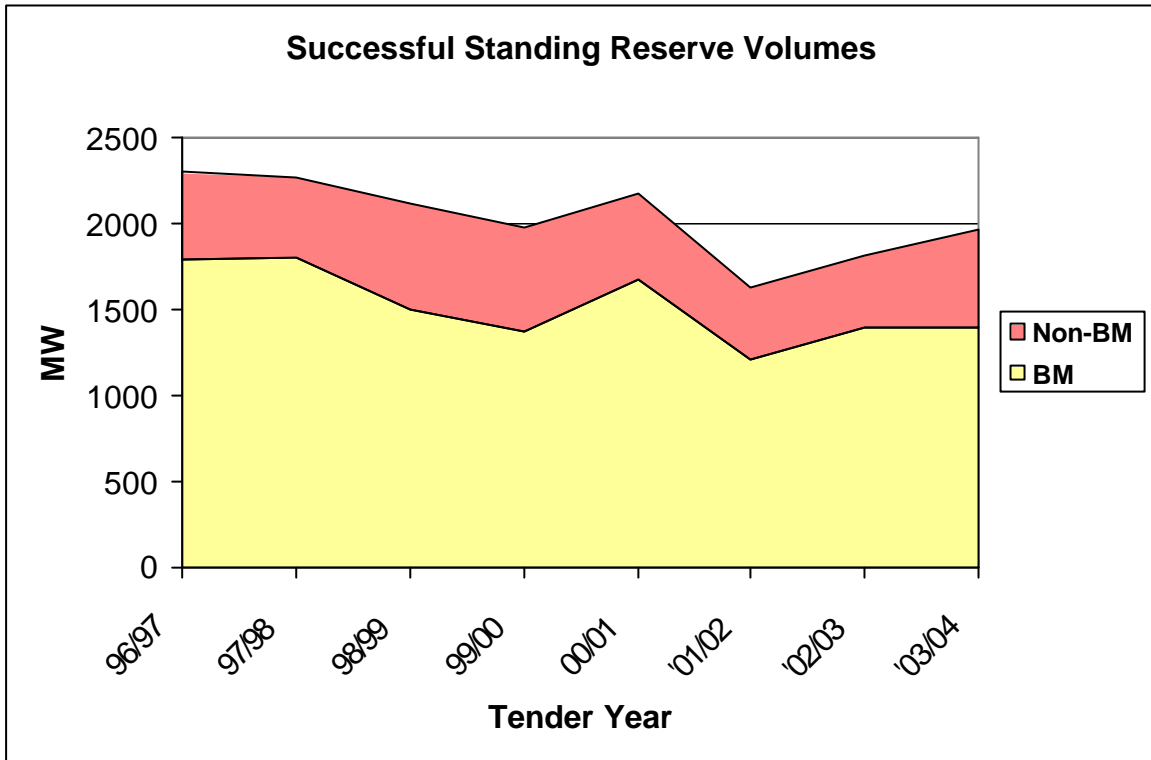


Figure 4 – Graph of Successful Standing Reserve Volume

7.2 Appendices 1 and 2 show comparisons of the number and volume of tenders received and contracted over the three tender rounds under NETA.

7.3 Comparing the three tender rounds for service years under NETA – 2001/2002, 2002/2003 and 2003/2004 – the following figure 5 shows the percentage success rate of tenders by number of tenders received on a BM and Non-BM basis.

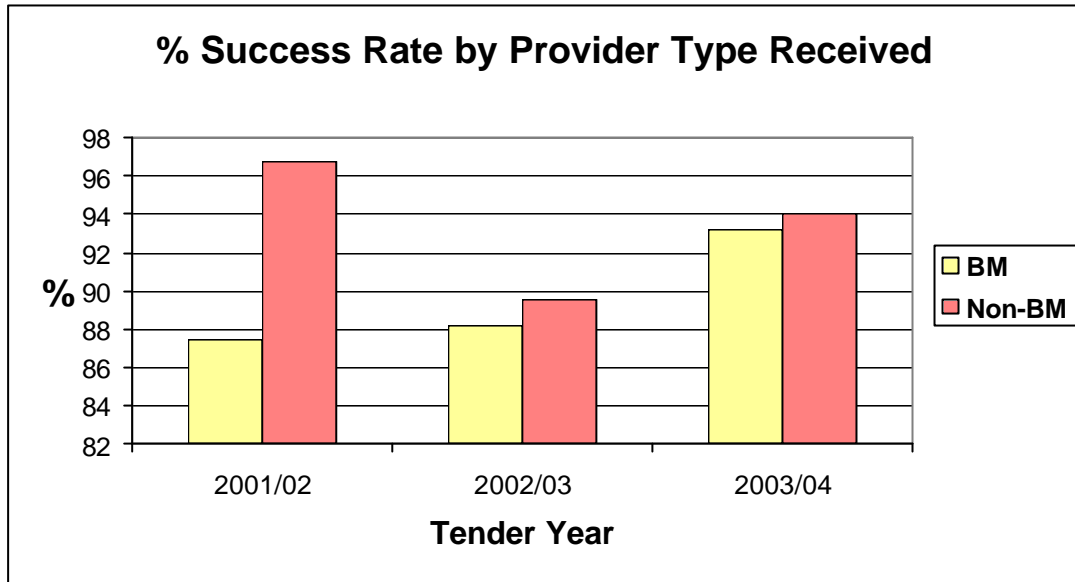


Figure 5 – Graph of % success of Tenders under NETA by provider type

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

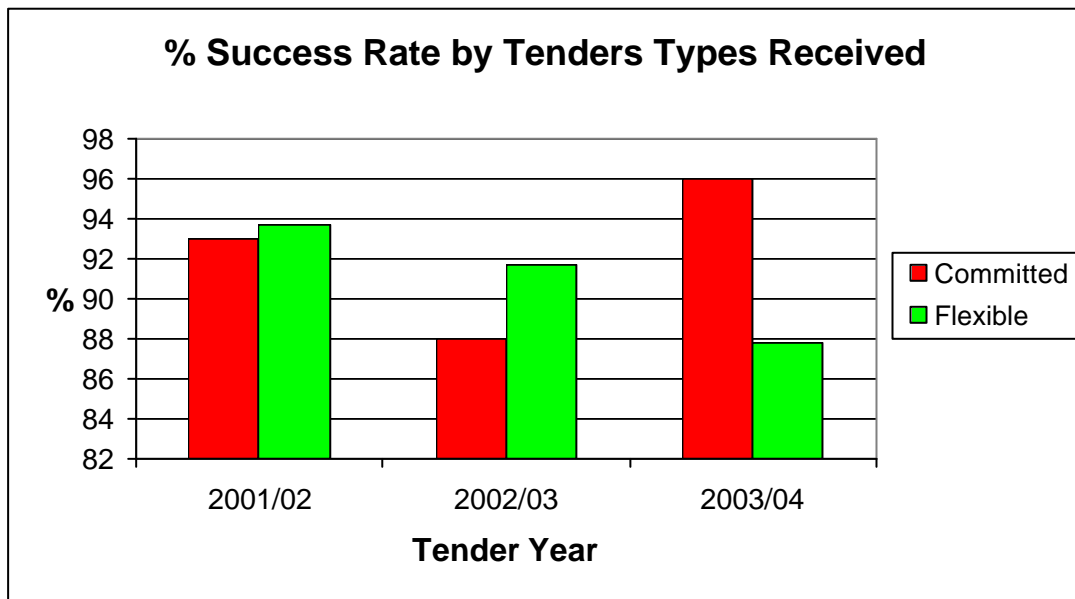


Figure 6 – Graph of % success of Tenders under NETA by tender type

7.5 As of 1st April 2003 there are a total of 74 units/sites providing Standing Reserve of at least 3MW.

7.6 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.

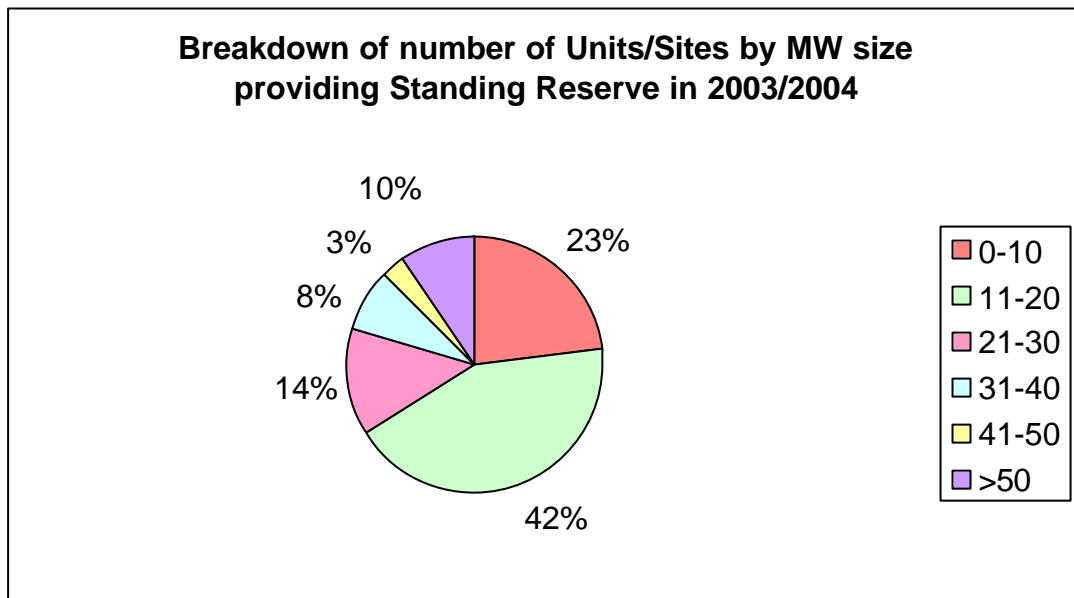


Figure 7 – Number of Units/sites providing Standing Reserve by MW size

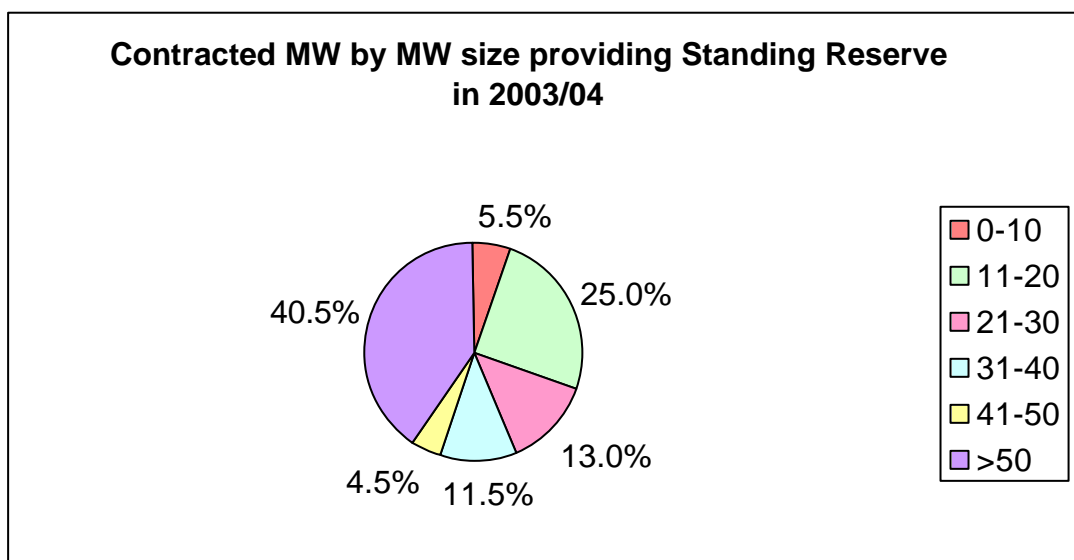


Figure 8 – Contracted MW providing Standing Reserve by MW size

7.7 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:

- 40.5% of the total contracted MW is available from only 10% of the units/sites; and
- 30.5% (5.5% + 25%) of the total contracted MW is available from 65% (23% + 42%) of the units/sites.

8. Standing Reserve Utilisation during 2002/2003

8.1 This section summarises the 12 month breakdown of Standing Reserve utilisation over the previous contract period (05:00 hours on 1st April 2002 to 05:00 hours on 1st April 2003).

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

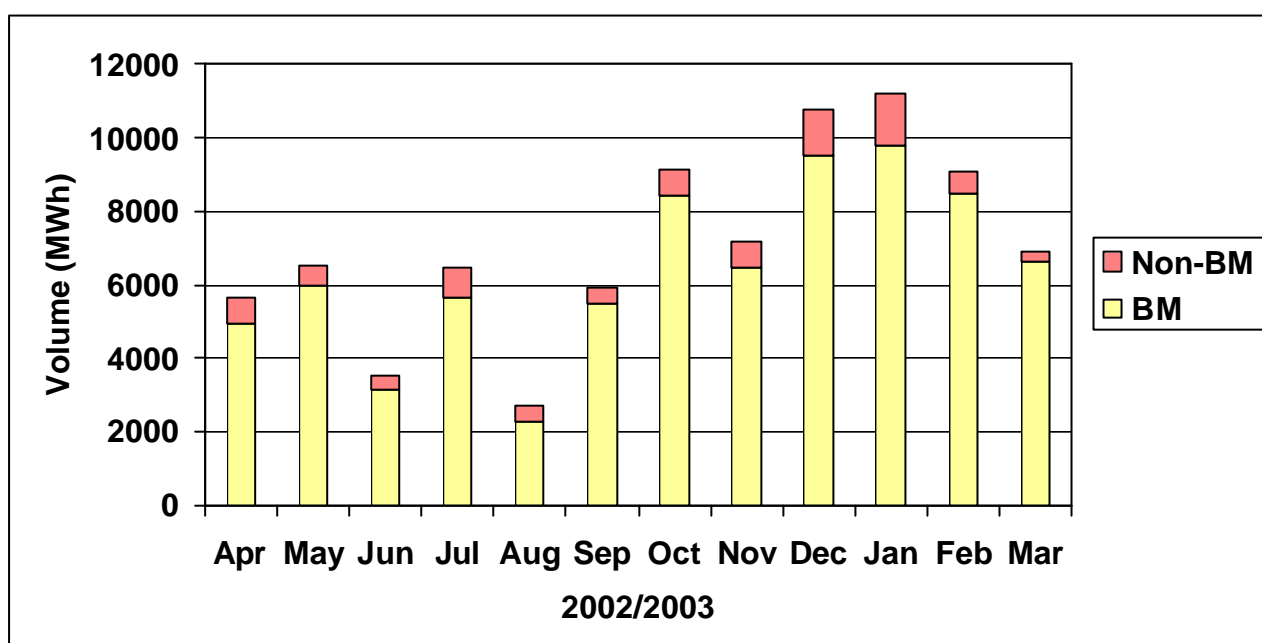


Figure 9 Volume of Standing Reserve utilised in 2002/2003

8.3 Total availability payments for Standing Reserve during 2002/2003 was £21.9m. The average availability payments were:

- £3.14/MW/h for non-working days; and
- £3.16/MW/h for working days

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

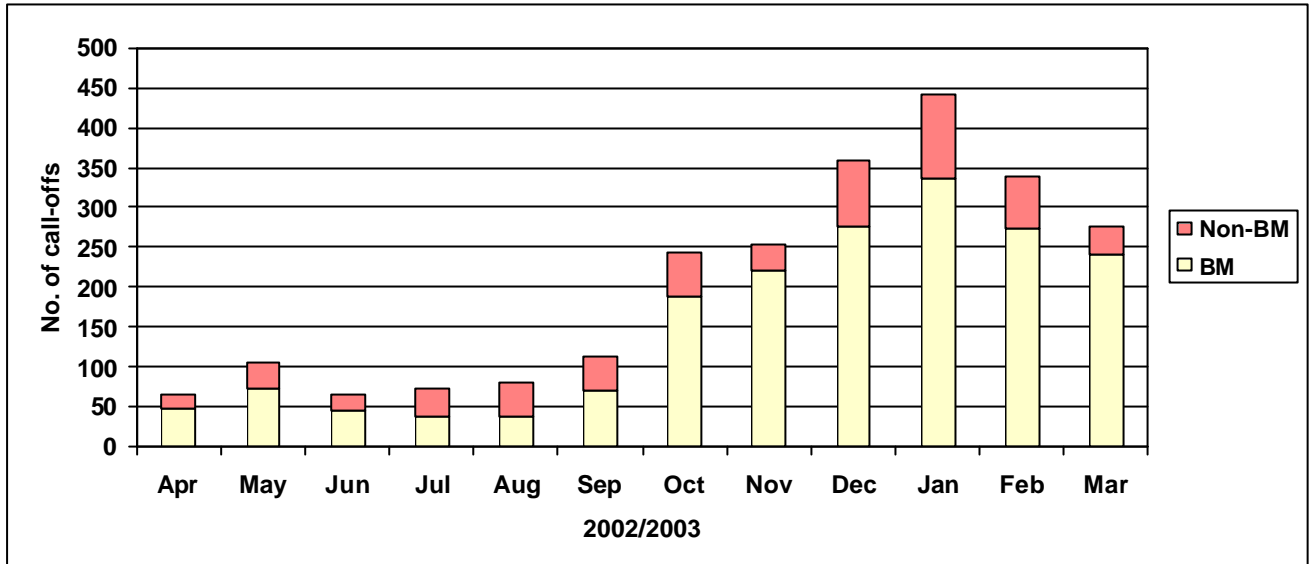


Figure 10 Number of call-offs issued for Standing Reserve in 2002/03

8.5 Figure 11 below shows the average volume (MWh) per call off during 2002/2003 on a month by month basis.

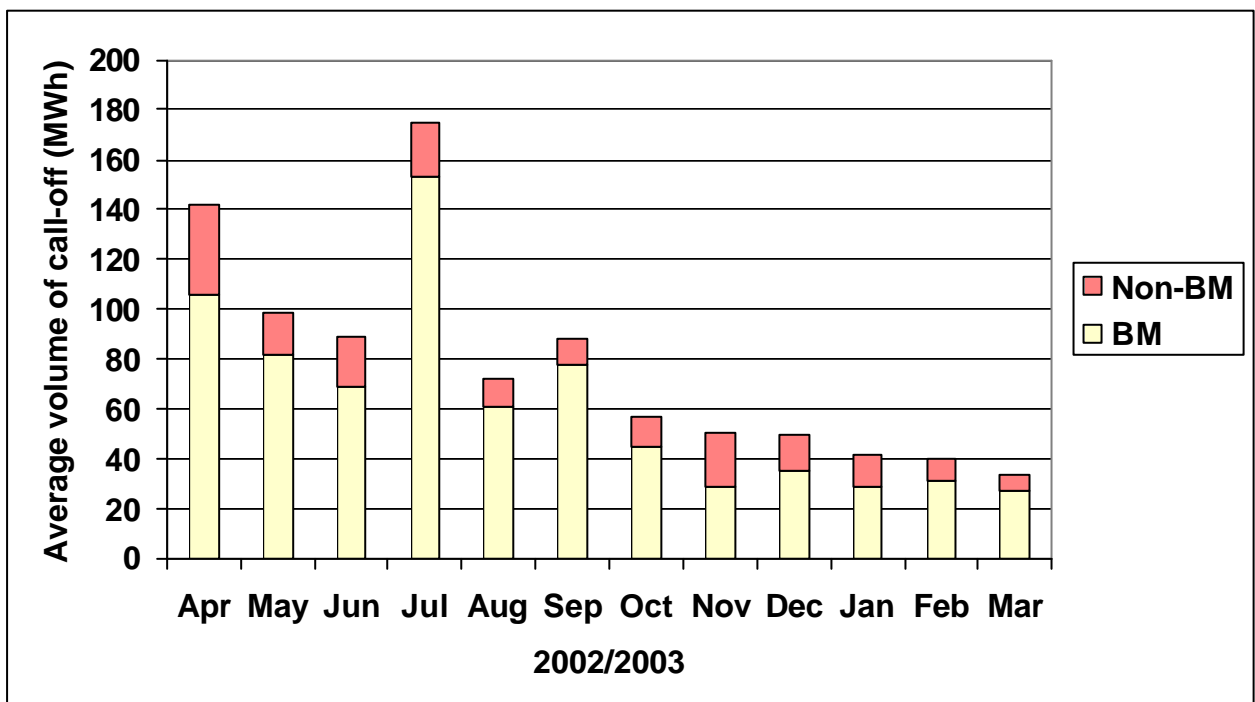


Figure 11 Average volume of each call-off on monthly basis

9. 2004/2005 Tender Round

9.1 The ITT documentation for the next tender round (for contracts commencing 1st April 2004) will be made available on the National Grid Industry Information website during September 2003.

9.2 Further information and enquiries should be directed to:

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National Grid House
Kirby Corner Road
Coventry
CV4 8JY**

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Email: **paul.bagg@uk.ngrid.com**

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

www.nationalgrid.com/uk/balancing/indinfo/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

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	2493	1868	625	2170	323	1971	1400	571	1702	269

Appendix 3 – Standing Reserve Contracted Capacity 2003/2004

Size of Unit/Site (MW)	Total MW Contracted	Number of Units/Sites	Average MW/site
0 – 10	106	17	6
11 - 20	495	32	15.5
21 - 30	258	10	26
31 – 40	225	6	37.5
41 – 50	90	2	45
>50	797	7	114
TOTAL	1971	74	26.5

Appendix 4 - 2003/04 Service Seasons and Windows

Service Seasons (inclusive)		Service Windows (Inclusive)			
		Working Days		Non-Working Days	
1	05:00 hours on 1 st April 2003 to 05:00 hours on 2 nd June 2003	I	07:00 – 13:00	I	10:00 – 13:00
		II	16:00 – 21:30	II	19:00 – 22:30
		III	N/A	III	N/A
2	05:00 hours on 2 nd June 2003 to 05:00 hours on 1 st September 2003	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 1 st September 2003 to 05:00 hours on 25 th October 2003	I	07:00 –13:30	I	10:00 – 13:00
		II	16:30 – 21:00	II	17:00 – 21:00
		III	N/A	III	N/A
4	05:00 hours on 25 th October 2003 to 05:00 hours on 2 nd February 2004	I	07:00 – 14:00	I	10:00 – 13:00
		II	15:30 – 21:00	II	16:30 – 20:00
		III	00:00 – 03:00	III	00:00 – 03:00
5	05:00 hours on 2 nd February 2004 to 05:00 hours on 1 st April 2004	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

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.
4. There are times when this Operating 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 Reserve service. Information provided with the tender included technical parameters of the Reserve 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 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 of and cost to National Grid to despatch 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.