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THE SCOTTISH TEACHERS' SUPERANNUATION SCHEME

ACTUARIAL REVIEW AS AT 31 MARCH 2001

REPORT BY THE GOVERNMENT ACTUARY

June 2006

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TEACHERS' SUPERANNUATION (SCOTLAND) REGULATIONS 1992

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APPENDICES

To*:* ***The Scottish Ministers***

I am pleased to present my report on the actuarial review of the Scottish Teachers' Superannuation Scheme as at 31 March 2001 carried out in accordance with Regulation G4 of the Teachers' Superannuation (Scotland) Regulations (1992) (S.I. 1992 No. 280) ("the Regulations"), as amended by the Teachers' Superannuation (Scotland) (Amendment) Regulations 2003 (S.S.I. No. 423), ("the 2003 Amendment Regulations").

Prior to the 2003 Amendment Regulations, the Regulations have also been amended by S.I. 1992 Nos. 1025 and 1597, S.I. 1993 Nos. 490 and 2513, S.I. 1994 Nos. 1715 and 2699, S.I. 1995 Nos. 840 and 1670, S.I. 1997 No. 676, S.I. 1998 No. 718, S.I. 1999 No. 446, S.S.I. 2000 No. 366, S.S.I. 1991 Nos. 152 and 291, and S.S.I. 2002 No. 288.

1. INTRODUCTION

1.1 Regulation G4 of the (amended) Regulations requires the Government Actuary to carry out an actuarial review of the Scottish Teachers' Superannuation Scheme ("the Scheme") as at 31 March 2001 and to report on the review to the Scottish Ministers. The previous report related to the five-year period ending on 31 March 1996.

1.2 Membership of the Scheme is open to teachers in schools and other educational establishments in Scotland which are maintained or grant-aided out of money either provided by Parliament or raised by local authorities, and to teachers in many independent schools and establishments of further education, including the universities established in 1992. Appendix A summarises the current benefit provisions of the Scheme.

1.3 Under the Regulations, an account is maintained, known as the Teachers' Superannuation Account ("the Account"), to which contributions from members and employers are credited and from which expenditure on benefits (including pension increases under the Pensions (Increase) Acts) is debited. However, all contributions (from members and employers) are paid to the Exchequer, and the Exchequer effectively meets the cost of all benefits.

1.4 The Regulations state that, with effect from 1 April 2001, the notional investments (i.e. the balance in the Account) will earn a real rate of return (in excess of price increases) specified by the Government Actuary. In addition, for the purposes of the actuarial review as at 31 March 2001, the balance in the Account as at that date shall be such that the value of the scheme assets equals the value of the scheme liabilities. (The scheme assets consist of the notional investments and the future contributions in respect of existing members.)

1.5 The Government Actuary is required to determine the employers' contribution rate in two parts. First, a standard contribution rate is determined; employers pay the balance of the standard contribution rate in excess of contributions paid by members at 6% of salary. Second, the employer contribution rate is adjusted on account of any difference between the value of the scheme liabilities and the value of the scheme assets. However, for this review, the adjustment will be zero because the values of assets and liabilities will be equal.

1.6 This report has been prepared in accordance with the requirements of Guidance Note No. 9 (version 7.0) issued by the Faculty and Institute of Actuaries, except that a discontinuance valuation has not been carried out, as explained in paragraph 5.6.

2. DEVELOPMENTS SINCE THE 1996 REVIEW

2.1 Historically, the employers' contribution rate has not included the cost of pension increases. However, the Teachers' Superannuation (Scotland) Amendment Regulations 1997 (SI No. 676) ("the 1997 Regulations") gave effect to significant changes in the operation of the Teachers' Superannuation Account ("the Account"). These changes were due to be fully implemented at the current valuation, with the employers' contribution rate reflecting the cost of all benefits (including pension increases) for the first time, and with future notional investment returns to be credited to the Account based on the average returns of very large invested pension funds.

2.2 However, The Teachers' Superannuation (Scotland) Amendment Regulations 2003 (SSI No. 423) (the 2003 Amendment Regulations) introduced a different valuation approach, referred to as "Superannuation contributions adjusted for past experience" (or SCAPE), which replaces that under the 1997 Regulations with effect from the current valuation. This is discussed further in Section 3.

2.3 During the inter-valuation period 1996-2001, contributions were paid at the rates determined at the 1986 and 1991 valuations. Table 1 summarises the contribution rates paid from 1 April 1996 to 31 March 2001.

Table 1
Contributions from April 1996 to March 2001

Percent of salary

Period	Standard contribution rate		Supplementary contribution	Total employer rate
	Total	Employer		
April 1996 to Aug 1997 *	13.0	7.0	1.0	8.0
Sept 1997 to March 2001 †	12.4	6.4	0.5	6.9

* Determined at the 1986 valuation. † Determined at the 1991 valuation.

2.4 At the 1996 valuation, the standard contribution rate (excluding the cost of pension increases) was assessed to be 12.4%, of which the employers' share was 6.4%. In addition, the 1996 valuation determined that a supplementary contribution of 0.75% should be payable. The total employers' contribution rate of 7.15% was implemented with effect from 1 April 2002.

2.5 At the 1996 valuation, an assessment was also made of the standard contribution rate including the cost of pension increases. Under the 1992 Regulations, however, this standard contribution rate (of 17.9%) did not form the basis for determining the employers' contribution rate.

2.6 The Teachers' Superannuation (Scotland) Regulations 2001 (SSI 291) and 2002 (SSI No. 288) implemented minor changes to the scheme benefits and, in order to meet the cost of the changes, increased the standard contribution rate by 0.25% to 12.65%, with effect from 1 April 2003. Thus, the employers' share of the standard contribution rate payable from 1 April 2003 increased from 6.4% to 6.65% and the total employer contribution rate increased from 7.15% to 7.4%.

2.7 I carried out an interim actuarial review as at 31 March 2001 in order to provide an indication of the standard contribution rate due to be determined by this (full) review. The report on the interim review (dated September 2003) recommended a total standard contribution rate of 18.5% of pensionable salary (including employee contributions of 6%). The interim review did not consider the assets and liabilities of the Scheme and did not recommend a supplementary contribution rate. The total standard contribution rate was subsequently increased to 18.5% from 1 October 2003.

2.8 Table 2 summarises the contribution rates payable from 1 April 2001 to 31 March 2006. We have assumed that, from April 2006, the employers' contribution rate will be as determined at the current review.

Table 2
Contributions from April 2001 to March 2006

Percent of salary

Period	Standard contribution rate		Supplementary contribution	Total employer rate
	Total	Employer		
April 2001 to March 2002 (i)	12.4	6.4	0.5	6.9
April 2002 to March 2003 (ii)	12.4	6.4	0.75	7.15
April 2003 to September 2003 (iii)	12.65	6.65	0.75	7.4
October 2003 to March 2006 (iv)	18.5	12.5	-	12.5

(i) Determined at the 1991 valuation.
(ii) Determined at the 1996 valuation.
(iii) 2001 and 2002 Regulations.
(iv) Determined at the 2003 Interim Review.

Consolidated Account, 1 April 1996 to 31 March 2001

2.9 Table B1 of Appendix B summarises the consolidated Account for the period from 1 April 1996 to 31 March 2001, and Table B2 sets out the principal items of income and outgo for each year. The notional investment returns shown in Tables B1 and B2 are based on the returns attained by very large invested pension funds. However, there are no actual investments underlying the Account; in effect, the balance represents a liability of the Exchequer. In both tables, the balance in the Account represents the market value of the initial investments according to the 1992 Regulations. (These Account figures are provided for completeness only since the current valuation will now be carried out under the SCAPE approach.)

2.10 Table B2 shows that, throughout the period, benefit expenditure exceeded contribution income. However, it should be noted that contributions were payable only at a contribution rate excluding the cost of pension increases whereas the expenditure includes the cost of pension increases. Taking account of notional investment returns, total income substantially exceeded expenditure over the period, and so the balance increased significantly.

2.11 It is important to recognise that an excess of income over expenditure does not necessarily indicate that an actuarial review will result in a valuation surplus. The balance in the Account can be considered as corresponding to the assets of a conventionally funded pension scheme, in which contributions must be accumulated during the working lifetime of members in order to provide benefits after retirement.

3. CHANGES UNDER SCAPE

Introduction

3.1 The Teachers' Superannuation (Scotland) Amendment Regulations 2003 (S.S.I. No. 423) (the 2003 Amendment Regulations) introduced significant changes to the operation of the Account with effect from April 2001, with consequential implications for actuarial reviews (including the current review, as at 31 March 2001).

3.2 Future actuarial reviews of the Scheme (including that as at 31 March 2001) will be carried out on an approach known as "Superannuation contributions adjusted for past experience" (or SCAPE).

3.3 Under SCAPE, the recommended contribution rate is the sum of the standard contribution rate plus a contribution adjustment (which might be positive or negative) in respect of any difference between the values of the assets and the liabilities. The assets consist of the notional investments and future contributions in respect of existing members.

3.4 At the current review (as at 31 March 2001), the value of the notional investments will be determined as the amount required to ensure that the value of the assets is exactly equal to the value of the liabilities.

3.5 With effect from 1 April 2001, the notional investments (adjusted for cashflows into and out of the Account) will be credited with a real rate of return (in excess of price increases) specified by the Government Actuary. The specified real rate of return also forms the basis for determining the standard contribution rate and the valuation liabilities (both of which will include the cost of pension increases).

3.6 The Government Actuary, in consultation with HM Treasury, will periodically review the rate of return in view of past experience and future long-term considerations. The rate of return will be chosen by reference to the reasonable expectation of real rates of return on secure bond investments (such as index-linked gilts) over the long term. It should be recognised that the specified rate will not be based directly on current market rates of return, although market rates will be taken into account along with other factors.

Actuarial reviews

3.7 The interim review as at 31 March 2001 (see paragraph 2.6) did not constitute a formal actuarial report. However, the recommended contribution rate did allow for the introduction of SCAPE with effect from 31 March 2001 in that the standard contribution rate was not adjusted in respect of any difference between the values of the assets and the liabilities (which, under SCAPE, are equal as at 31 March 2001).

3.8 The recommended contribution rate determined at the current review (as at 31 March 2001) was expected to be implemented with effect from April 2006. As was the case following the interim review, there will not be any adjustment to the standard contribution rate because, under SCAPE, the assets and liabilities as at 31 March 2001 are equal.

3.9 At future reviews, the standard contribution rate will be adjusted in respect of differences in the value of assets and liabilities arising from the experience since 1 April 2001. Future investment experience should not lead to surplus or deficiency because investment returns will be credited in accordance with the specified real rate of return. Thus, future contribution adjustments will primarily reflect the Scheme's demographic experience (or changes to the benefit provisions).

4. DATA

4.1 The Scottish Public Pensions Agency (SPPA) supplied data in respect of the following groups:

(i) members in service as at 31 March 2001;

(ii) pensions in payment as at 31 March 2001;

(iii) members entering and leaving service during the five years ended 31 March 2001;

(iv) new awards and cessations of pension in the five years ended 31 March 2001;

(v) members with preserved (or deferred) benefits as at 31 March 2001.

Significant data issues

4.2 There have been a number of significant issues with the data provided for this valuation. This has been discussed with SPPA over a period of time, and SPPA requested that we proceed with the valuation on the basis of the data provided, making approximations where necessary.

4.3 The data was unsatisfactory in a number of areas, most significantly:

- the data showed a total amount of pensions received by spouses which was significantly lower than the comparative data in the 1996 valuation and also the pension amounts recorded in the accounts for spouses,
- full data was not provided in respect of some deferred members, principally those deferred members who are entitled to a refund of contributions rather than a deferred pension,
- the data showed a significant unexplained increase in new entrants recorded compared with previous inter-valuation periods,
- inaccurate and multiple recording of members entering and leaving service.

4.4 The effects of these data issues are:

- it has been necessary to make a number of approximations in order to calculate the results,
- it has not been possible to reconcile the membership between the 2001 valuation data and the previous (1996) valuation, or with external sources,
- it has not been possible to analyse the Scheme’s experience over the period 1996 to 2001 with a view to setting the assumptions for future experience.

4.5 In conclusion, we cannot be confident that the data is reliable, as it can not be reconciled with other sources. In addition, the data is not comprehensive for all groups of members. These factors increase the uncertainty in the valuation results.

4.6 Appendix C summarises the membership data provided.

5. VALUATION METHODOLOGY

5.1 The review has been carried out using a *"prospective benefits"* valuation methodology known as the "Entry Age Method". This is the same method as used at previous actuarial valuations of the Scheme.

The Entry Age Method

5.2 Under this approach, the objective is to meet the cost of members' benefits by means of a stable contribution rate (the "standard contribution rate"), expressed as a percentage of salary, payable during active service. The standard contribution rate (known as the new entrant contribution rate) is calculated to be the rate required to meet the cost of the benefits expected to accrue throughout the career of a typical new entrant joining the Scheme at the assumed normal entry age.

5.3 The actuarial valuation is carried out by reference to the total prospective service of the membership at the review date. The liability in respect of active members is based on both past and future service, allowing for future increases in earnings. The liability in respect of deferred members is based on past service and future service after re-entry to the Scheme, again allowing for future increases in earnings. The liability in respect of pensioners and dependants is based on the pensions in payment (and contingent pensions) at the review date. For consistency, the assets consist of the notional investments plus the future contributions (at the standard contribution rate) arising from the future service of the membership as at the valuation date (including contributions payable in respect of deferred members after re-entry to the Scheme).

Main features of the Entry Age Method

5.4 Provided that the future experience is in accordance with the actuarial assumptions adopted to calculate the standard contribution rate, then the contributions should be just sufficient to meet the cost of benefits arising from the service of a typical new entrant. The standard contribution rate should remain broadly stable over time provided that the actuarial assumptions (including the assumed distribution by age and sex of members entering service) remain broadly unchanged.

5.5 If the assets (including future contributions) exceed (*or* fall short of) the liabilities in respect of total service, then the actuarial surplus (*or* deficiency) would be addressed by an adjustment to the standard contribution rate. The Regulations state that a surplus should be eliminated by means of a contribution reduction (*or* that a deficiency should be eliminated by means of a supplementary contribution) spread over a period of fifteen years.

Discontinuance valuation

5.6 The Entry Age valuation described in paragraphs 5.1 to 5.5 assesses the Scheme as an ongoing entity. Because the Scheme is a statutory scheme with the benefits effectively guaranteed by the government, it is not considered necessary to assess the position if the Scheme were to be discontinued.

6. FINANCIAL ASSUMPTIONS

The Account

6.1 Under the previous regulations, the valuation as at 31 March 2001 would have been based on the Account maintained from 1 April 1996 to 31 March 2001. As at 31 March 2001, the balance in this Account (i.e. the market value of the notional investments) was £11,879 million. However, as a result of the 2003 Amendment Regulations, and as explained in paragraph 2.11, this balance (of £11,879 million) will not be used for the current actuarial review.

6.2 Instead, as explained in Section 3, the initial balance in the Account (i.e. as at 31 March 2001) will be determined by the current review such that the valuation assets and liabilities are in balance. In effect, the balance in the Account as at 31 March 2001 will be determined as the difference between the value of the scheme liabilities and the value of future contributions in respect of existing members. With effect from 1 April 2001, the Account will be credited with a specified notional investment return.

Specified rate of return (in excess of price increases)

6.3 As explained in paragraph 3.5, future actuarial reviews (including that as at 31 March 2001) will be carried out using the same (real) rate of return that is specified by the Government Actuary for the purposes of crediting investment returns to the Account.

6.4 For the purposes of the actuarial review as at 31 March 2001, and in accordance with the considerations set out in paragraph 3.6, I have decided that the real rate of return will be 3½% a year (in excess of price increases).

Other financial assumptions

6.5 Although the liabilities after retirement are linked to price increases, the liabilities accruing during active service are related to general increases in earnings. Accordingly, it is also necessary to consider the rate of return in relation to earnings increases. Historically, there has been a reasonably close correlation between price increases and general earnings increases, and so real earnings growth (in excess of price increases) has remained relatively stable by comparison to the individual rates of increase of prices and earnings.

6.6 It has been assumed that the rate of investment return in excess of general earnings increases will be 2% a year, which is equivalent to assuming that real earnings growth will be about 1½% a year. (Section 7 considers career increases in salaries on account of promotion and other factors.)

6.7 Pensions accrued during the period from 1978 to 1997 include an element of pension (known as the Guaranteed Minimum Pension or GMP) on which the State pays some (or all) pension increases. An assumed gross rate of return is required in order to value GMPs. For the purposes of the actuarial review as at 31 March 2001, it has been assumed that the long-term gross rate of return will be 7% a year. (This assumption has a relatively minor bearing on the outcome of the valuation).

Summary

6.8 Table 3 summarises the financial assumptions adopted for the current valuation and, for comparison, those adopted for the 1996 valuation.

Table 3
Summary of financial assumptions

Assumption	Current valuation	Previous valuation
Gross rate of return	7%	8½%
Real rate of return in excess of:		
Prices	3½%	3½%
Earnings	2%	2%
Rate of real earnings growth *	1½%	1½%

* in addition to increases arising from salary progression, promotion etc.

6.9 The assumed real rates of return (of 3½% in excess of prices and 2% in excess of earnings) are the same as were adopted at the 1996 review. However, the assumed gross rate of return of 7% a year is lower than that assumed in 1996 (of 8½% a year), reflecting the continuing fall in interest rates. Whilst these assumed rates of return may appear high in comparison with current market rates of interest, the liabilities of the Scheme will not emerge for many years. The financial assumptions adopted for the review are based on long-term considerations.

7. DEMOGRAPHIC ASSUMPTIONS

7.1 This Section summarises the demographic assumptions adopted for the current review. Paragraphs 7.3 to 7.8 summarise the assumptions relating to mortality after retirement. Paragraphs 7.9 to 7.14 summarise the additional demographic assumptions adopted in order to determine the standard contribution rate and value the liabilities of active members.

7.2 Due to the data issues outlined in Section 4, we have not been able to analyse the experience of the Scheme's membership over the period from 31 March 1996 to 31 March 2001.

Pensioner mortality after age and premature retirement

7.3 Since the 1996 valuation, the actuarial profession has published new standard mortality tables, known as PMA92 (men) and PFA92 (women). These tables are based on more recent experience of pensioner mortality than the PMA80 and PFA80 tables (used for the 1996 valuation). They also allow for a greater degree of future improvements to pensioner mortality.

7.4 In the absence of any reliable scheme experience, we have assumed mortality rates for current pensioners as in the PMA92 and PFA92 tables with no age adjustment. Table 4 shows the life expectancy of current pensioners on this basis.

Table 4
Life expectancy of current pensioners

Years

Age at valuation date	Men	Women
60	24	27
65	19	22
70	15	18
75	11	14
80	8	10½

7.5 In respect of future pensions that will be paid to current active and deferred members, the mortality rates in the standard tables have been projected to the calendar year 2025. The assumed life expectancy of future pensioners at age 60 is 25 years for men and 28 years for women.

Pensioner mortality after ill-health retirement

7.6 The mortality of both existing and future ill-health pensioners is expected to be heavier than that of the unadjusted standard tables. For future ill-health pensioners, the assumed rates are similar to the PMA92 and PFA92 tables but with an addition of two years of age for males and three years of age for females. For the existing cohort of ill-health pensioners the assumed rates are similar to the PMA92 and PFA92 tables but with an addition of two years of age. (This implies shorter longevity than the unadjusted standard tables.)

7.7 It has been assumed that, for men, mortality in the first year after ill-health retirement will be 50% greater than for those of the same age who have been retired more than one year. For women, allowance has been made for an excess of 200% in the first year and 100% in the second year, as compared to those of the same age who have been retired for two years or more. This basis is unchanged from the previous review.

Spouses' mortality

7.8 In the absence of any reliable scheme experience of spouses' mortality, for widows' mortality, I have adopted the recently published WA92 standard mortality table but with a reduction of one year of age. For widowers' mortality, I have adopted the same rates as for male pensioners after age retirement. The assumed proportions of members married, and therefore eligibility for spouse's benefits, are the same as those adopted for the 1996 valuation.

Active members

7.9 Reliable data was not available to allow an analysis of the age retirement experience over the inter-valuation period. The assumed rates of retirement (on age grounds) are the same as were adopted for the 1996 valuation. No allowance has been included for future premature retirements. Similarly it was not possible to analyse the ill-health retirement experience. The assumed rates of ill-health retirement are the same as those adopted for the 1996 valuation.

7.10 For both men and women, the assumed rates of death-in-service have been reduced slightly from those adopted for the 1996 valuation to reflect general improvements in mortality.

7.11 In the absence of any reliable Scheme experience, the assumed effects of withdrawal from service have not been revised. However, at previous valuations, it has been assumed that withdrawal rates would be greater in the first 5 years of service but, for the current valuation, it has been assumed that withdrawal rates would only be greater in the first 2 years of service. The withdrawal rates for the first 2 years' service have been slightly altered to reflect this, such that the overall effect of this change is neutral.

7.12 On re-entry to the Scheme after withdrawal, a member may aggregate the earlier period of service with the service subsequent to re-entry. The valuation includes allowance for this contingency in the period between withdrawal and age 60, and for benefits in respect of the service before and after re-entry to be based on the salary at the final date of exit from the Scheme. It is assumed that deferred members who do not re-enter active service will receive their deferred benefits from age 60.

7.13 In addition to the allowance for general increases in salary (see paragraph 6.5), the valuation also includes allowance for increases in salary arising from increments and promotion. For both men and women, the assumed promotional scale is the same as that adopted for the 1996 valuation, as the full effect of recent changes to the salary structure (such as the introduction of threshold payments) will not be clear until the next valuation.

7.14 Appendix D shows the assumptions at specimen ages.

8. RESULTS

Standard contribution rate

8.1 The standard contribution rate (including the cost of pension increases) as at 1 April 2001 is assessed to be 19.5% of salary, of which the employer's share is 13.5% (taking account of member contributions of 6%).

8.2 The standard contribution rate at this review of 19.5% of salary is 1.6% higher than the corresponding rate of 17.9% (including pension increases) at the 1996 valuation, and is 1.0% higher than the contribution rate of 18.5% of salary currently being paid following the recommendations in the Interim Report.

8.3 The two main factors underlying the increase since the 1996 valuation are the demographic assumptions adopted for the current valuation, particularly the greater allowance for future mortality improvement, and the benefit improvements implemented from October 2001 (which account for an increase of about 0.25%).

8.4 The standard contribution rate in the Interim Report included some, but not full, allowance for the assumed improvements in future mortality.

Valuation result

8.5 The valuation has been carried out using the Entry Age Method, as described in Section 5. The standard contribution rate has been determined so as to meet the cost of benefits arising in respect of new entrants joining the Scheme after 1 April 2001 although it will not be payable until 1 April 2006. Thus, the valuation does not include any liabilities in respect of new entrants, but does include an adjustment in respect of the contributions payable in respect of new entrants between 1 April 2001 and 1 April 2006, during which period the contributions paid will have been based on the recommendations of earlier actuarial reports.

8.6 The contributions allowed for in the valuation, are as follows:

Standard contributions (employers and members)

(i) 12.4% of salaries from 1 April 2001 to 31 March 2003;

(ii) 12.65% of salaries from 1 April 2003 to 30 September 2003;

(iii) 18.5% of salaries from 1 October 2003 to 31 March 2006;

(iv) 19.5% of salaries from 1 April 2006.

Supplementary contributions by employers

(v) 0.5% of salaries from 1 April 2001 to 31 March 2002; and

(vi) 0.75% of salaries from 1 April 2002 to 30 September 2003.

8.7 As explained in paragraph 3.4, the value of the notional investments as at 31 March 2001 has been determined so that the value of the liabilities is equal to the sum of the values of the notional investments and the future contributions from members and employers.

8.8 Table 5 summarises the result of the valuation as at 31 March 2001.

Table 5
Valuation statement as at 31 March 2001

Present value of:	**£ million**
Liabilities	
Benefits in respect of:	
Pensions in payment	4,143
Deferred members (including liabilities after re-entry to service)	737
Benefits to active members:	
In respect of service before 31 March 2001	5,559
In respect of service after 1 April 2001	4,763
Total liabilities	15,202
Assets	
Standard contributions:	
In respect of existing active members	4,212
In respect of existing deferred members (after re-entry to service)	197
Shortfall in respect of new entrants until 1 April 2006	-25
Supplementary contributions (until 31 October 2003)	
In respect of all members	29
Added years contributions	20
Notional investments to be credited as at 31 March 2001 ‡	10,769
Total assets	15,202
Balance of assets less liabilities	Nil

‡ Such that the total assets equal the total liabilities

Balance in the Account as at 31 March 2001

8.9 Table 5 shows that the amount required in the Account (i.e. the value of the notional investments) as at 31 March 2001 in order to balance the valuation assets and liabilities is £10,769 million. (In effect, this assumes that the notional investments will earn a future real rate of return of 3½% a year with effect from 1 April 2001.)

Recommended contribution rate

8.10 The assets and liabilities are equal as at 31 March 2001 as a result of the introduction of SCAPE (see Section 3), and so no adjustment is needed to the standard contribution rate in deriving the recommended total contribution rate.

8.11 Thus, the recommended contribution rate payable with effect from 1 April 2006 is 19.5% of salary, of which the employer's share is 13.5% of salary.

Increase in liabilities 1996 to 2001

8.12 At the 1996 review, the total service liabilities (including the cost of pension increases) amounted to £10,980 million, as compared to £15,202 million at the current review (as shown in Table 5). Table 6 summarises the main factors contributing to the increase in the total service liabilities (of some £4 billion) over the period 31 March 1996 to 31 March 2001.

Table 6
Increase in liabilities, 1996 to 2001

Factor		£ billion
Liabilities as at 31 March 1996		11.0
(i)	Interest on initial total service liability (@ 8½%)	5.5
(ii)	Total service liability of new entrants 1996 to 2001	1.5
(iii)	Expenditure on benefits 1996 to 2001	-2.2
(iv)	Benefit improvements (@ April 2000)	0.1
(v)	Salary increases lower than expected	-1.4
(vi)	Price increases lower than expected	-0.5
(vii)	Change in mortality basis	0.8
(viii)	Other changes to demographic basis	0.0
(ix)	Reduction of 1½% in gross rate, to 7%	0.4
(x)	Other experience and miscellaneous	0.0
All factors		4.2
Liabilities as at 31 March 2001		15.2

Period until next review

8.13 Under the Regulations, the Account will be credited with notional investments of £10,769 million as at 31 March 2001. If, over the period until the next valuation,

(i) the Account were to be credited with a real rate of return of 3½% a year, and

(ii) contributions were to be credited to the Account at the rates shown in paragraph 8.6,

then the next valuation should be out of balance only to the extent that the other actuarial assumptions are not borne out over the intervening period.

9. SUMMARY

Standard contribution rate

9.1 The standard contribution rate, payable from 1 April 2006, is 19.5% of salary. This is an increase of 1.6% over the corresponding standard contribution rate determined in the 1996 report, mainly because of benefit improvements and increased longevity.

Balance in the Account as at 31 March 2001

9.2 The balance in the Account (i.e. the value of the notional investments) as at 31 March 2001 will be set to £10,769 million. With effect from 1 April 2001, the notional investments will earn a real rate of return of 3½% a year.

Supplementary contribution

9.3 Under the provisions of the amending regulations, the notional investments as at 31 March 2001 has been determined so that the values of the assets and liabilities are equal. Thus, no supplementary contribution (on account of any excess of liabilities over assets) is required as a result of this review.

Employers' contribution rate

9.4 The recommended total contribution rate is 19.5% of salary, which we have assumed would be implemented with effect from April 2006. Allowing for member contributions of 6.0% of salary, the recommended rate of contribution payable by employers is 13.5% of salary. This represents an increase of 1.0% over the existing rate of employer contributions of 12.5% of salary.

C D Daykin, CB FIA
23 June 2006

Government Actuary's Department
London

APPENDIX A

Summary of the main provisions of the Scottish Teachers' Superannuation Scheme

1. This Appendix summarises the principal provisions of the Scheme as provided under the Teachers' Superannuation (Scotland) Regulations 1992 (amended by subsequent Regulations). The Scheme is contracted-out of the State Second Pension.

Eligibility for membership

2. All full-time and part-time teachers in state schools, accepted independent schools and further education colleges (including the universities established in 1992) are eligible for membership of the Scheme.

Contributions

3. Members contribute at the rate of 6% of salary (which includes some allowances but excludes payments in respect of overtime and extra duties).

Retirement age

4. Pensions are normally payable from age 60 although many members continue to work after that age. Pensions may be payable from age 50 (at the employer's expense) where employment has been terminated prematurely on redundancy or efficiency grounds. Members may take an actuarially reduced pension from age 55.

Benefits on retirement at or after age 60

5. Subject to a qualifying period of two years, the pension is 1/80th of pensionable salary per year of service, where pensionable salary is the best year's pay in the last three years of service. A lump sum of three times the pension is also payable.

Pension on retirement due to ill-health

6. On retirement due to ill-health with more than two years' service, an immediate enhanced pension is payable. A lump sum of three times the pension is also payable.

Lump sum on death in service

7. On death in service, a lump sum is payable of two years' pensionable salary.

Benefits on withdrawal

8. A member who leaves with less than two years' service may take a refund of contributions (of 6%) with interest at any time before age 60. A member who leaves with greater than two years' service is entitled to a preserved pension payable from age 60 together with a lump sum of three times the pension payable at age 60. On re-entry to the Scheme, earlier service may be aggregated with the new period of service for the purpose of calculating benefits at retirement provided that the member has not taken a refund of contributions or transfer value.

Spouses and children's benefits

9. If a married member dies after retirement, a spouse's pension is payable at the rate of one half of the member's pension. (For widows, the member's service after 31 March 1972 reckons towards the widow's pension whereas, for widowers, only service after 5 April 1988 is reckonable.) On death after retirement, a higher short term pension is payable and a supplementary grant may also be payable. Spouse's pensions cease on remarriage. Children's pensions are payable in respect of dependent children.

Pension Increases

10. Pensions in payment and preserved benefits are subject to the provisions of the Pensions (Increase) Act 1971, and so, in general, are increased in line with price increases.

APPENDIX B

Table B1

Consolidated Account, 1 April 1996 to 31 March 2001

	£000s
Balance at 1 April 1996 (market value)	7,870,357
Income	
Contributions	
Employees	473,689
Employers	549,189
Transfers, CEPs & miscellaneous	78,888
Notional investment return	4,707,618
Total income	5,809,384
Outgo	
Benefits	
Annual Pensions	1,498,935
Lump Sum Benefits	255,997
Refunds, transfers, CEPSs	45,666
Total outgo	1,800,598
Balance at 31 March 2001 (market value)	**11,879,143** *

* The balance in the Account represents the market value of the notional investments according to the regulations prior to the 2003 Amendment Regulations.

APPENDIX B

Table B2

Details of income and expenditure for period 1 April 1996 to 31 March 2001

(£ thousands)

Year ending 31 March	Income				Expenditure				Balance of Account at End of Year
	Contributions	Notional Investment Income	Other Income	Total Income	Annual Pensions	Lump Sum Payments	Other Payments	Total Outgo	
1996									7,870,357
1997	203,260	877,826	6,563	1,087,649	263,862	57,160	6,053	327,075	8,630,931
1998	196,035	2,129,118	24,348	2,349,501	289,132	84,459	7,145	380,736	10,599,696
1999	197,078	921,063	17,870	1,136,011	304,380	35,322	7,783	347,485	11,388,222
2000	207,281	1,609,648	15,518	1,832,447	316,466	36,929	10,438	363,833	12,856,836
2001	219,224	-830,037	14,589	-596,224	325,095	42,127	14,247	381,469	11,879,143

- The balance in the Account represents the market value of the notional investments according to the regulations prior to the 2003 Amendment Regulations

APPENDIX C

Table C1
Active members, 1996 and 2001

	31 March 1996*			31 March 2001†		
	Number	**Total salaries £000s**	**Average salary**	**Number**	**Total salaries £000s**	**Average salary**
Men	21,019	528,193	25,125	20,207	621,689	27,969
Women	43,370	946,057	21,814	48,460	1,311,803	24,609
Total	64,389	1,474,250	22,896	68,667	1,933,492	28,158

* payable from 1 April 1996

† these figures allow for the one-off 10% increase as at 1 April 2001 as a result of the McCrone Report. We understand that the data provided did not include this allowance.

APPENDIX C

Table C2
Deferred members, 1996 and 2001

Only members with a deferred pension entitlement are included in the figures below.

There are a number of other deferred members who have an entitlement to a refund of contributions.

	31 March 1996*			31 March 2001†		
	Number	Total deferred pension £000s	Average deferred pension	Number	Total deferred pension £000s	Average deferred pension
Men	2,673	8,378	3,134	3,157	10,220	3,237
Women	10,676	18,290	1,713	10,812	22,305	2,063
Total	13,349	30,182	2,261	13,969	32,525	2,328

* includes pension increases to 31 March 1996

† includes pension increases to 31 March 2001

APPENDIX C

Table C3
Pensions in payment, 1996 and 2001

	31 March 1996			31 March 2001		
Retirement category	**Number**	**Annual pensions £000s**	**Average pension**	**Number**	**Annual pensions £000s**	**Average pension**
Age and premature						
Men	10,534	91,779	8,713	11,608	116,803	10,062
Women	19,368	115,360	5,956	20,157	139,087	6,900
Ill-health						
Men	1,550	12,311	7,943	2,062	20,218	9,805
Women	3,256	20,851	6,404	4,022	30,858	7,672
Spouses/Dependants	3,236	8,261	2,553	4,005 *	12,336 *	3,080
Total (excl. children)	37,944	248,562	6,551	41,854	319,302	7,629

* The actual data provided indicated a total Spouse pension of £6,322,000 based on total number of Spouses of 2,054. Having discussed with SPPA, SPPA indicated we should use spouses' pensions data consistent with the amount of family benefits paid in the Accounts, namely £13,316,000. For the purposes of this table, we have pro-rated the number of spouses by the same degree as the amount of pensions has been increased.

APPENDIX D

Table D1

Assumed rates of mortality for future pensioners

Age last birthday at beginning of year	Age (or premature) retirement		Ill-health retirement (more than two years)		Spouses	
	Men	Women	Men	Women	Widows	Widowers
22			.0101	.0051	.0002	.0001
27			.0101	.0051	.0002	.0001
32			.0101	.0051	.0003	.0001
37			.0102	.0051	.0004	.0001
42			.0102	.0052	.0006	.0002
47			.0104	.0055	.0010	.0003
52	.0006	.0006	.0109	.0059	.0015	.0006
57	.0014	.0012	.0119	.0068	.0022	.0014
62	.0032	.0026	.0146	.0092	.0036	.0032
67	.0077	.0058	.0207	.0142	.0068	.0077
72	.0172	.0122	.0330	.0234	.0123	.0172
77	.0348	.0238	.0550	.0393	.0216	.0348
82	.0645	.0432	.0906	.0648	.0370	.0645
87	.1096	.0734	.1422	.1027	.0623	.1096
92	.1708	.1167	.2093	.1545	.1025	.1708
97	.2452	.1740	.2872	.2196	.1646	.2452

APPENDIX D

Table D2

Assumed rates of death, withdrawal and retirement in year following age stated

Age last birthday at beginning of year	Death in service		Withdrawal (at least 2 years' service)		Ill-health retirement		Age last birthday at beginning of year	Age retirement	
	Men	Women	Men	Women	Men	Women		Men	Women
22	.0003	.0002	.0240	.0860	.0000	.0000	59	0.10	0.29
27	.0004	.0002	.0194	.0660	.0002	.0004	60	0.12	0.33
32	.0005	.0003	.0164	.0450	.0004	.0007	61	0.12	0.28
37	.0007	.0004	.0136	.0230	.0008	.0012	62	0.15	0.25
42	.0010	.0007	.0118	.0148	.0022	.0023	63	0.18	0.24
47	.0016	.0012	.0108	.0138	.0049	.0057	64	0.95	0.95
52	.0029	.0019	.0096	.0128	.0111	.0145	65	1.00	1.00
57	.0051	.0025	.0076	.0118	.0183	.0265	66	1.00	1.00
62	.0080	.0035	.0000	.0000	.0000	.0000	67	1.00	1.00
							68	1.00	1.00
							69	1.00	1.00

APPENDIX D

Table D3

Probability of withdrawal during first 2 years

Age last birthday at entry	Probability of withdrawal in first year of service		Probability of withdrawal in second year of service	
	Men	Women	Men	Women
22	.08	.08	.07	.08
27	.09	.13	.08	.11
32	.09	.10	.07	.07
37	.09	.07	.06	.05
42	.09	.07	.06	.05
47	.09	.09	.06	.06
52	.10	.12	.07	.06
57	.10	.12	.07	.06

Table D4

Assumed proportion married

Age last birthday	Proportion married	
	Men	Women
22	0.110	0.220
27	0.370	0.320
32	0.466	0.418
37	0.548	0.502
42	0.638	0.558
47	0.728	0.598
52	0.812	0.626
57	0.862	0.606
62	0.868	0.582
67	0.854	0.536
72	0.820	0.460
77	0.762	0.354
82	0.660	0.226
87	0.502	0.114
92	0.316	0.042
97	0.158	0.000

APPENDIX D

Table D5

Salary scale for active members

Age last birthday	Salary scale	
	Men	Women
21	84	85
25	100	100
30	127	126
35	152	146
40	167	153
45	178	159
50	185	163
55	188	166
60	190	167