GOVERNMENT ACTUARY'S DEPARTMENT

THE TEACHERS' PENSION SCHEME (ENGLAND AND WALES)

ACTUARIAL REVIEW AS AT 31 MARCH 2004

REPORT BY THE GOVERNMENT ACTUARY

November 2006

To*:* ***The Rt. Hon. Alan Johnson MP***
Secretary of State for Education and Skills

I am pleased to present my report on the actuarial review of the Teachers' Pension Scheme (England and Wales) as at 31 March 2004, carried out in accordance with Regulation G4 of the Teachers' Pension Regulations 1997 (S.I. 1997 No. 3001), as amended.

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10 November 2006
Government Actuary

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The Teachers' Pension Scheme (England and Wales)

Actuarial Review as at 31 March 2004

Contents

1 Introduction

1.1 In accordance with Regulation G4 of the Teachers' Pension Regulations 1997 ('the Regulations'), the Department for Education and Skills (DfES) has asked me to carry out an actuarial review of the Teachers' Pension Scheme ('the Scheme' or 'TPS') as at 31 March 2004, and to report on the review to the Secretary of State. My report on the previous review related to the five-year period ending on 31 March 2001.

1.2 Membership of the Scheme is open to teachers in schools and other educational establishments in England and Wales 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.

1.3 Under the Regulations, an account is maintained, known as the Teachers' Pension 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. The Regulations state that, with effect from 1 April 2001, the notional investment income on the balance in the Account will be derived using a percentage specified by the Government Actuary. This percentage is a real rate of return (in excess of price increases).

1.4 In accordance with the terms of the 'Public Services Forum' ('PSF') agreement and subsequent statutory consultation on both the provisions that will apply to new entrants to the TPS and the modifications that will be made to the existing scheme for current members, new TPS arrangements will be introduced with effect from 1 January 2007. The PSF agreement was consequential to the proposal in the Pensions Green Paper (of December 2002) to increase the normal pension age in public service schemes from age 60 to age 65, but modified to protect existing scheme members from the higher pension age provided that the new pension arrangements result in at least the same long-term savings as would have been delivered from the implementation of the higher pension age for all members.

1.5 I have been asked to carry out the review assuming, first, that the current Scheme provisions remain in force and, second, taking into account the new provisions effective from 1 January 2007. With effect from that date, the Regulations modify the current provisions for existing members and introduce new provisions for new entrants. Appendix A summarises the current provisions for existing members. Appendix B summarises the provisions of the modified scheme for existing members from 1 January 2007, and Appendix C summarises the provisions for new entrants after that date.

1.6 In accordance with the agreement reached between DfES and representatives of union and employer associations on long term financial sustainability, this review will determine the contribution rates payable by both members and employers with effect from 1 January 2007. I am therefore required to determine the total contribution rate and the appropriate elements for members and employers. This is discussed further in Section 10.

1.7 This report has been prepared in accordance with the requirements of Guidance Note No. 9 (version 7.0) issued by the Institute and Faculty of Actuaries, except where the requirements do not apply to the Scheme. In particular, since the Scheme is a statutory scheme with the benefits effectively guaranteed by the Government, it is not considered necessary to assess the solvency position of the Scheme (as if the liabilities were to be bought out with an insurance company).

2 Developments since the 2001 Report

2.1 With effect from 1 April 2001, the financing of the Scheme has been based on the methodology known as SCAPE ('Superannuation Contributions Adjusted for Past Experience'), as explained in my report on the actuarial review as at 31 March 2001. Under SCAPE, the Superannuation Account is credited with interest at the same real rate of return as that assumed to value the liabilities and determine the standard contribution rate: at the 2001 valuation this was a real rate of interest of 3½% a year (in excess of prices).

2.2 At the 2001 valuation, the standard contribution rate was assessed to be 19.5%, of which 6% was payable by members. Under the Regulations, the balance in the Account as at 1 April 2001 was determined to be equal to the value of the total service liabilities less the value of future contributions (payable at the standard contribution rate) from members and employers as at that date, and so no adjustment to the standard contribution rate was payable on account of any past surplus or deficiency. Thus, the total contribution rate payable by employers, as recommended in the 2001 valuation report, was 13.5%. This rate was implemented with effect from 1 April 2003.

2.3 Table 1 summarises the contribution rates paid from 1 April 2001 to 31 March 2004.

Table 1

Contributions from April 2001 to March 2004

(percent of salary)

Period	Standard contribution rate		Supplementary contribution	Total employer rate
	Total	Employer		
April 2001 to March 2002 *	13.00	7.00	0.40	7.40
April 2002 to March 2003 *	13.00	7.00	1.35	8.35
April 2003 to March 2004 **	19.50	13.50	0.00	13.50

* Determined at the 1996 valuation and by subsequent amending regulations

** Determined at the 2001 valuation

2.4 The contribution rate determined at the 2001 valuation remains payable from 1 April 2004 to 31 December 2006. (From 1 January 2007, the employers' and members' contribution rates will be as determined at the current review.)

Consolidated Account, 1 April 2001 to 31 March 2004

2.5 Table D1 of Appendix D summarises the consolidated Account for the period from 1 April 2001 to 31 March 2004, and Table D2 sets out the principal items of income and outgo for each year. The notional investment returns shown in Tables D1 and D2 are based on a rate of 3.5% in excess of price inflation (the current rate of return under the SCAPE methodology). There are, however, no actual investments underlying the balance in the Account; in effect, the balance represents a liability of the Exchequer.

2.6 From Table D2, it can be seen that, throughout the period, expenditure on benefits exceeded contribution income. However, taking account of notional investment returns, total income substantially exceeded expenditure over the period, and so the balance increased significantly.

2.7 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.

2.8 Under the SCAPE methodology, no surplus or deficiency will arise as a result of interest credited to the Account (because interest is credited at the same rate as the assumed valuation rate of interest).

3 Changes to the Scheme from 1 January 2007

Scheme provisions

3.1 The Teachers' Pensions Regulations will be amended to implement significant changes to the benefit structure of the Teachers' Pensions Scheme with effect from 1 January 2007, both for new members and existing members, with consequential implications for actuarial reviews (including the current review, as at 31 March 2004).

3.2 New entrants joining the Scheme from 1 January 2007 and existing members who return to service after 31 December 2007 following a break in pensionable employment of more than five years will be subject to new provisions. The normal pension age (NPA) will be 65 but they will be able to retire before or after this age with benefits (broadly) actuarially equivalent to those that would be paid from age 65. The pension accrual rate will be 1/60th (but with no automatic lump sum). Lump sums will be available by commutation of pension at a rate of £12 of lump sum for every £1 of pension forgone. Other significant changes relate to dependants' benefits, ill health retirement benefits and the definition of final pensionable salary. Appendix C summarises the main provisions of the Scheme for new entrants after 1 January 2007.

3.3 Existing members as at 1 January 2007 will remain subject to the current provisions (including an NPA of 60 and a pension accrual rate of 1/80th (plus a lump sum of 3/80th)) but with some changes consistent with the provisions for new entrants after 1 January 2007. (The future service of existing deferred members who subsequently re-join the Scheme after 31 December 2007 following a break of more than five years will be subject to the same provisions as new entrants after 1 January 2007.) Existing members will also be able to commute pension at a rate of £12 of lump sum for every £1 of pension forgone in order to top up the automatic lump sum. Appendix A summarises the current provisions for existing members and Appendix B summarises the modified provisions for existing members from 1 January 2007.

3.4 The overall effect of the changes is that all members will be subject to the same benefit provisions for future service except in respect of NPA, the accrual rate of pension (and lump sum) and the minimum amount of lump sum that can be taken.

3.5 The changes for both existing members and new entrants from 1 January 2007 deliver the long term savings from the TPS that were required by the Chief Secretary to the Treasury under the terms of the PSF agreement. In particular, it is necessary to increase the contribution rate payable by all members from 6% to 6.2% with effect from 1 January 2007 to meet the PSF terms and provide for the benefit structure that has been agreed for existing members and new entrants. In addition, to give effect to the wider agreement on long term financial sustainability that has been reached between DfES and representatives of the unions and employer associations, this review will determine the contribution rates payable by both members and employers with effect from 1 January 2007, as a result of which the members' contribution rate could differ from this rate of 6.2%.

New taxation regime

3.6 With effect from 6 April 2006 ('A-day'), Her Majesty's Revenue and Customs (HMRC) introduced a new pensions tax regime. The new regime introduces a wide range of new measures including substantial changes to the maximum pension benefits that members can receive before being subject to additional taxation.

3.7 In particular, the HMRC now permits members to take a higher proportion of retirement benefits in the form of a lump sum (instead of pension). The new TPS Regulations will allow existing members and new entrants retiring after 1 January 2007 access to the higher retirement lump sums available under the new regime. The DfES has asked me to take account of this change (from 1 January 2007) at the current (2004) valuation under the new provisions.

4 Membership data

4.1 Teachers' Pensions (the Scheme's administrators) (TP) supplied the following data:

(i) members in service and salaries payable as at 31 March 2004;
(ii) pensions in payment as at 31 March 2004;
(iii) members entering and leaving service during the 3 years ended 31 March 2004;
(iv) new awards and cessations of pension in the 3 years ended 31 March 2004;
(v) former members with preserved (or deferred) benefits as at 31 March 2004.

4.2 I have relied on the accuracy of the information provided by TP in carrying out this review although the data has been checked for reasonableness and consistency with the data as at 31 March 2001. Some initial issues were encountered in reconciling the data for members in service, both year on year and in relation to the Scheme Accounts. Following discussion with TP, allowance was made for data cleansing after benefit statements were issued during 2003/04, and for the treatment of members for whom no employer's annual return or notification of withdrawal was received. The salary and pension rolls as at 31 March 2004 were also compared to the 2003/04 Scheme Accounts leading to minor adjustments to the active membership data as at 31 March 2004. Further to these adjustments, the data as at 31 March 2004 reconciled satisfactorily with that as at 31 March 2001.

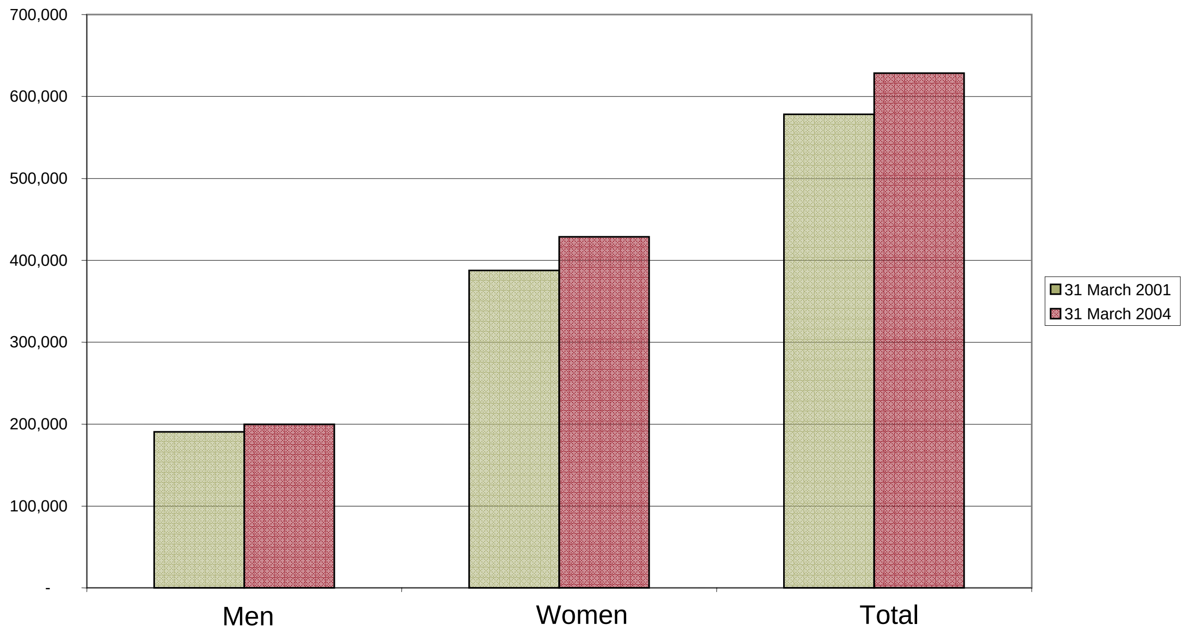
4.3 The following paragraphs summarise the important features of the membership data.

Active membership

4.4 Figure 1 illustrates the numbers of active members as at 31 March 2004 and as at 31 March 2001.

Figure 1

Number of active members



4.5 Over the triennium, the number of active members increased by about 50,000, or nearly 9%. This reflects an increase of about 5% for men and an increase of over 10% for women. By 31 March 2004, women comprised just over two thirds of the membership.

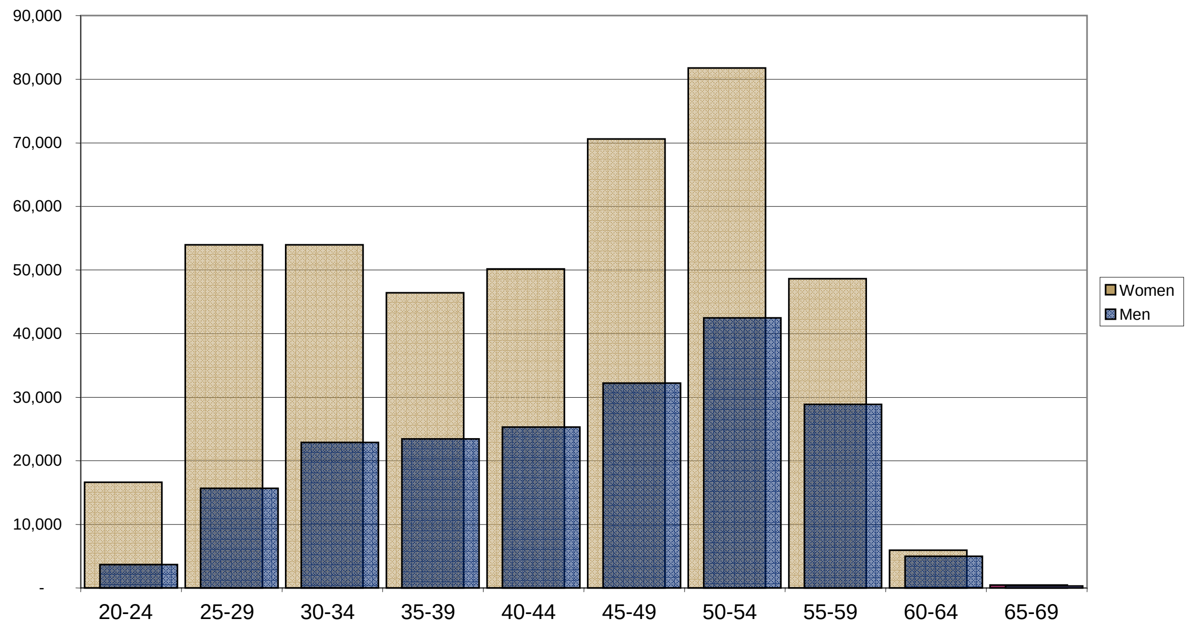
4.6 Total annual pensionable salaries increased by about 24% (from £16¼ billion to £20 billion) over the triennium, while average salaries increased by some 14%, to about £32,000 a year at 1 April 2004. This increase in average salary corresponds to average annual increases of just over 4½% a year since 1 April 2001.

4.7 Table E1 of Appendix E summarises the numbers of contributing members, and total salaries, as at 1 April 2004, together with the corresponding numbers and salaries as at 1 April 2001. Table E2 of Appendix E summarises the changes in the active membership of the Scheme from 31 March 2001 to 31 March 2004

4.8 Figure 2 illustrates the age distribution of male and female active members as at 31 March 2004.

Figure 2

Age distribution of active members

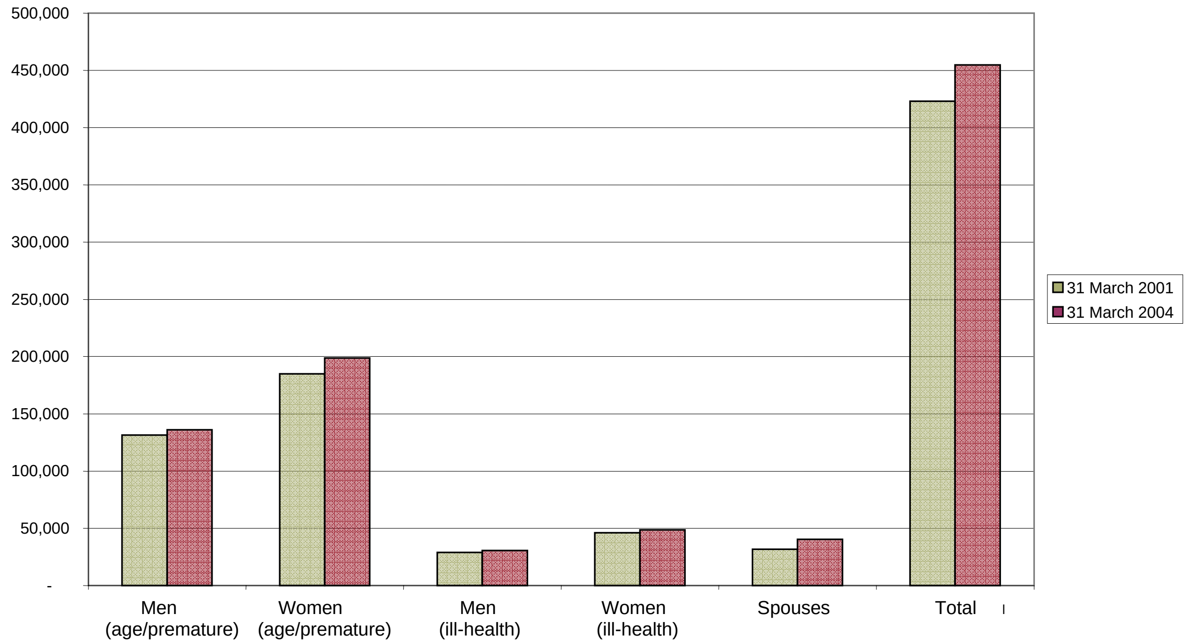


Pensioners and dependants

4.9 Figure 3 illustrates the numbers of pensioners (excluding children) as at 31 March 2004 and as at 31 March 2001.

Figure 3

Number of pensioners



4.10 Over the triennium, the number of pensions in payment increased by about 30,000 or about 7%. As at 31 March 2004, the number of pensions in payment was about 72% of the number of active members (73% at 31 March 2001).

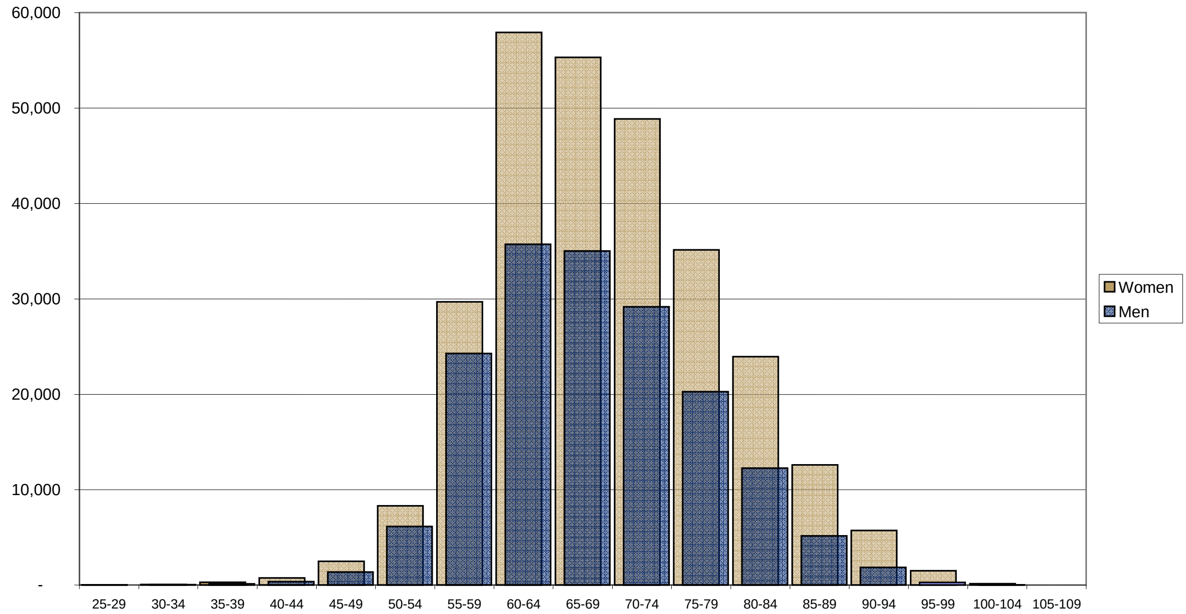
4.11 Total annual pensions in payment increased by about 14% over the triennium, while the average member pension in payment (including pension increases) increased by 8% to about £8,800 a year at 31 March 2004.

4.12 Table E3 of Appendix E summarises the number and amounts of pensions in payment (including pension increases) as at 31 March 2004, and the corresponding numbers and amounts as at 31 March 2001.

4.13 Figure 4 illustrates the age distribution of male and female pensioners.

Figure 4

Age distribution of pensioners



Deferred membership

4.14 Members who leave service before retirement age with less than two years' pensionable service may choose to take a return of member's contributions with interest. Members who leave service before retirement age with more than two years' service are granted deferred benefits, payable at age 60. A significant proportion of deferred members (with either less or more than two years' previous service) return for a further period of service before age 60.

4.15 As at 31 March 2004, there were about 90,000 men and 220,000 women with deferred benefits, equivalent in total to about 50% of the active membership. This excludes approximately 50,000 deferred members who are over age 70. There are difficulties with tracing these members and we have been advised that most are now very unlikely to make any claim. The value of the benefits in respect of these deferred members would not have a material effect on the outcome of the valuation of the TPS.

4.16 Table E4 of Appendix E summarises the number and amounts of deferred pensions (including pension increases) as at 31 March 2004, and the corresponding numbers and amounts as at 31 March 2001.

5 Valuation methodology – Current provisions

5.1 I have been asked to carry out the valuation as if the current provisions were to remain in force after 1 January 2007 and without any allowance for the higher retirement lump sums available under the new taxation regime.

5.2 Further to discussions with the DfES, this element of the review has been carried out using a 'prospective benefits' valuation methodology known as the 'Entry Age Method'. This is the same methodology as used at previous actuarial valuations of the Scheme.

The Entry Age Method

5.3 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.

5.4 The actuarial valuation is carried out by reference to the total prospective service of the membership at the review date. That is, 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 balance in the Account 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).

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.

5.6 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.

6 Valuation methodology – New provisions

6.1 I have also been asked to carry out the valuation on the basis of the new provisions coming into force with effect from 1 January 2007 and including allowance for the higher retirement lump sums available under the new taxation regime.

6.2 Further to discussions with the DfES, the valuation has been carried out separately for existing members and new entrants in order to derive a combined contribution rate appropriate for payment over the period 1 January 2007 to 31 March 2010 (the assumed implementation date of the contributions recommended at the 2008 review).

6.3 The new entrant valuation has been carried out using the Entry Age Method, as described in Section 5. This is the same methodology as used at previous actuarial valuations of the Scheme, and for the review on the current provisions (Section 5).

6.4 The existing members valuation has been carried out using a *'prospective benefits'* valuation methodology known as the 'Attained Age Method'. This methodology is appropriate for valuing a scheme closed to new entrants. Paragraphs 6.5 to 6.10 describe the Attained Age Method in greater detail.

The Attained Age Method

6.5 Under this approach, the objective is to meet the cost of members' future service benefits by means of a stable contribution rate, expressed as a percentage of salary, payable over the future service of existing members.

6.6 The standard contribution rate (known as the attained age contribution rate) is calculated to be the rate required to meet the cost of the benefits expected to accrue to the existing membership throughout the remainder of their careers. 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 future service of the existing membership.

6.7 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 balance in the Account 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).

6.8 The existing active membership will, on average, be older than a typical new entrant, and so the attained age contribution rate is generally higher than the new entrant contribution rate. Consequently, moving from the Entry Age Method to the Attained Age Method increases the value of future contributions. This generates additional surplus (relative to the Entry Age Method) which is applied to reduce the higher standard contribution rate under the Attained Age Method. For the purpose of this report, the resulting contribution rate is referred to as the 'adjusted contribution rate'.

6.9 The existing membership will age over time, and so, all other things being equal, the standard contribution rate is expected to increase gradually at future valuations. However, since the standard contribution rate at any valuation should be sufficient to meet the expected cost of all future benefits, a higher standard contribution rate at a subsequent valuation should lead to valuation surplus. This surplus would normally be applied to reduce the higher standard contribution rate, so that the adjusted contribution rate is stable from one valuation to the next. For this reason, the Attained Age Method is particularly suitable for the valuation of a closed group (i.e. one to which there are no new entrants) that will age over time.

6.10 Any surplus (or deficiency) not arising from the use of the Attained Age Method (as described in paragraphs 6.8 and 6.9) would be addressed by a further adjustment to the contribution rate. The Regulations require 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.

Combined contribution rate

6.11 The combined contribution rate payable from 1 January 2007 to 31 March 2010 is based on the separate contribution rates in respect of existing members and new entrants.

6.12 The combined standard contribution rate is determined as the weighted average of the adjusted contribution rate in respect of existing members (described in paragraph 6.8) and the standard contribution rate in respect of new entrants. These two contribution rates are weighted by the estimated proportion of the total salary roll payable to the two groups of members, allowing for the gradual growth of new entrants over the period.

6.13 The combined standard contribution rate is then adjusted by the contribution reduction (or supplementary contribution) required to eliminate any surplus (or deficiency) in respect of existing members, other than that arising from the change to the Attained Age Method, payable for fifteen years (paragraph 6.10).

7 Financial assumptions

The Account

7.1 The valuation is based on the Account maintained from 1 April 2001 to 31 March 2004. Table D1 of Appendix D summarises the consolidated SCAPE account for the three-year period. As at 31 March 2004, the balance in the Account (ie the market value of the notional investments) was almost £116 billion, an increase of about £14 billion since 31 March 2001.

Specified rate of return (in excess of price increases)

7.2 The Regulations state that actuarial reviews from 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 Teachers' Pension Account.

7.3 For the purposes of the actuarial review as at 31 March 2004, and in consultation with HM Treasury, it has been decided that the assumed real rate of return will be 3½% a year (in excess of price increases). This is the same real rate of return as was used for the 2001 valuation.

Other financial assumptions

7.4 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. 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 8 considers career increases in salaries on account of promotion and other factors.)

7.5 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 2004, it has been assumed that the long-term gross rate of return will be 6½% a year. (This assumption has a relatively minor bearing on the outcome of the valuation).

Summary of financial assumptions

7.6 Table 2 summarises the financial assumptions adopted for the current valuation and, for comparison, those adopted for the 2001 valuation.

Table 2

Summary of financial assumptions

Assumption	2004 valuation	2001 valuation
Gross rate of return	6½%	7%
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.

7.7 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 2001 review. However, the assumed gross rate of return of 6½% a year is lower than that assumed in 2001 (of 7% 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.

8 Demographic assumptions

8.1 This Section summarises the demographic assumptions adopted for the current review. Paragraphs 8.2 to 8.10 discuss the assumptions relating to mortality after retirement. Paragraphs 8.11 to 8.19 summarise the additional demographic assumptions adopted in order to value the liabilities and determine the standard contribution rate.

Pensioner mortality after age and premature retirement

8.2 The recent mortality experience of age and premature retirement pensioners is similar to that in the standard mortality tables published by the actuarial profession known as PMA92 (men) and PFA92 (women), with a reduction of one year of age.

8.3 Since the 2001 valuation, the actuarial profession and other bodies have continued to discuss and project future levels of mortality improvement. The broad consensus is that younger people will be subject to greater levels of future improvement than has previously been assumed, and than is incorporated in the standard PMA92 and PFA92 tables. I have therefore included allowance for future mortality improvement broadly consistent with that included in the UK 2004-based population projections which, for future pensioners (ie existing (active and deferred) members and new entrants) produces greater allowance for future mortality improvement than the standard tables.

8.4 For existing pensioners, the assumed mortality rates are in accordance with the standard PMA92 and PFA92 tables but with a reduction of one year of age. (This implies greater longevity than the unadjusted standard tables.) Table 3 shows the life expectancy of existing pensioners on this basis.

Table 3

Life expectancy of existing pensioners

Age at valuation date	Men (years)	Women (years)
60	25½	28½
65	20½	23½
70	16	19
75	12	15
80	9	11½

8.5 In respect of existing active and deferred members, the mortality rates in the standard tables have been projected to the calendar year 2045 with a reduction of one and a half years of age. For new entrants, the mortality rates in the standard tables have been projected to the calendar year 2045 with a reduction of two years of age. The assumed life expectancy at age 60 of existing active and deferred members is 27½ years for men and 30½ years for women. The assumed life expectancy at age 60 of future new entrants is 28 years for men and 31 years for women.

Pensioner mortality after ill-health retirement

8.6 The mortality of ill-health pensioners is expected to be heavier than that of age retirement pensioners. We would expect the mortality of future ill-health pensioners under the current provisions (until 1 January 2007) to be heavier than that of existing ill-health pensioners (because many of the existing pensioners retired before the ill-health retirement criteria were tightened in 1997) although this might be offset by general improvements in mortality over time.

8.7 Under the new provisions (from 1 January 2007), there will be two tiers of ill-health retirement. We expect the mortality of the two groups of future ill-health pensioners to differ but the overall average level of mortality should be similar to that of future ill-health pensioners under the current provisions. At this valuation, I have assumed that the mortality of future ill-health pensioners under the new provisions will be the same as if the current ill-health provisions were to remain in force.

8.8 The assumed mortality rates for existing ill-health pensioners are based on the standard PMA92 and PFA92 tables with adjustments to reflect the recent experience. The assumed life expectancy at age 60 of existing ill-health pensioners is 20½ years for men and 24½ years for women.

8.9 The assumed mortality rates for future ill-health pensioners are similar although the adjustments differ slightly and the rates include allowance for additional future mortality improvement. It has also been assumed that, for men, mortality in the first year after retirement will be 50% greater than for those of the same age who have been retired more than one year. For women, it has been assumed that mortality in the first year after retirement will be 100% greater in the first year, and 50% greater in the second year, than for those of the same age who have been retired for two years or more. The assumed life expectancy of new entrants retiring on ill-health at age 55 is 25½ years for men and 29½ years for women.

Spouses' and partners' mortality

8.10 For existing widows, I have adopted the standard WA92 mortality table but with a reduction of one year of age. For existing widowers, I have adopted the standard PMA92 table but without any age adjustment. In respect of the mortality of future spouses, similar future mortality improvements have been assumed to those for future member pensioners. Mortality of Surviving Nominated Partners ('partners') has been assumed to be the same as that for spouses. The assumed proportions of married members eligible for spouse's benefits are the same as those adopted for the 2001 valuation with additional allowance for members eligible for partners' benefits.

Active members

8.11 Under the current provisions, the assumed rates of age retirement are lower at age 60, and higher between ages 61 and 64, than those adopted for the 2001 valuation. On average, men are assumed to retire at about age 62½ and women at just under age 62. Under the new provisions, members are assumed to retire at age 65 if they have not retired earlier with actuarially reduced benefits (members retiring after age 65 will receive actuarially enhanced benefits that are broadly cost neutral to the Scheme).

8.12 Allowance has been included for future premature retirements and early retirements with actuarially reduced benefits (although both are cost neutral to the Scheme). The assumed rates of ill-health retirement are lower than at the 2001 valuation, for both men and women. DfES has asked me to assume that two thirds of ill-health retirements after 1 January 2007 will be eligible for the higher tier of benefits.

8.13 For both men and women, the assumed rates of death in service are a little lower then those adopted for the 2001 valuation.

8.14 The assumed withdrawal rates for men are higher than at the 2001 valuation. The assumed withdrawal rates for women are the same as at the 2001 valuation. For both men and women, I have assumed that higher withdrawal rates will apply in the first two years of service than apply to members of the same age with more than two years' service.

8.15 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 allows for re-entry in the period between withdrawal and normal pension age of members who withdraw from service more than 10 years before normal pension age. The benefits in respect of both periods of service are based on the salary at the final date of exit. I have assumed that other deferred members receive benefits at normal pension age.

8.16 In addition to the allowance for general increases in salary (see paragraph 7.4), the valuation also includes allowance for increases in salary arising from increments and promotion. As noted in my previous review, changes to the salary structure (such as the introduction of threshold payments) do not appear to have materially affected the salary scale. For both men and women, the assumed promotional scale is the same as that adopted for the 2001 valuation.

8.17 For the purpose of calculating the new entrant standard contribution rate, I have assumed that new entrants join the Scheme at a range of ages with an average of about age 30 for men and age 28 for women. It is assumed that about 70% of new entrants are female. These are the same assumptions as adopted at the previous valuation.

8.18 Under the new provisions and the new taxation regime, new entrants after 1 January 2007 (with a $1/60^{th}$ pension) will be allowed to commute up to 35% of the $1/60^{th}$ pension for additional lump sum, at a rate of 12:1. DfES has asked me to assume that new entrants will, on average, commute about 25% of the $1/60^{th}$ pension: this is equivalent to assuming commutation of a lump sum equal to $3/80^{th}$ plus one third of the additional allowable maximum above that $3/80^{th}$ lump sum.

8.19 Under the new provisions and the new taxation regime, existing members (with a $1/80^{th}$ pension and an $3/80^{th}$ lump sum) will be allowed to commute up to 20% of the $1/80^{th}$ pension for additional lump sum, at a rate of 12:1, with effect from 1 January 2007. DfES has asked me to assume that existing members will, on average, commute about 6½% of the $1/80^{th}$ pension: that is, about one third of the allowable maximum. This is consistent with the assumption adopted for new entrants.

8.20 Appendix F discusses the demographic experience over the three years ending 31 March 2004. Appendix G tabulates the assumptions at specimen ages.

9 Valuation result – Current provisions

9.1 This section sets out the results of the valuation assuming the current provisions remain in force (and no additional commutation under the new taxation regime), carried out under the Entry Age Method (as described in Section 5).

Standard contribution rate

9.2 The standard contribution rate as at 1 April 2004 is assessed to be 20.1% of salary, of which the employer's share is 14.1% (taking account of member contributions of 6%).

9.3 The standard contribution rate of 20.1% of salary is 0.6% higher than the corresponding rate of 19.5% at the 2001 valuation. The main factor underlying the increase is the allowance for greater future mortality improvement slightly offset by the net effect of other lesser changes to the demographic assumptions.

Valuation result

9.4 The standard contribution rate has been determined so as to meet the cost of benefits arising in respect of new entrants joining the Scheme (under the current provisions) after 1 April 2004. However, it has been assumed that the new standard contribution rate would not be payable until 1 January 2007.

9.5 Thus, the contributions payable after 1 April 2004, and taken into account for the valuation, are standard contributions of 19.5% of salaries until 31 December 2006, and 20.1% of salaries thereafter. The rate of any contribution adjustment (reduction or supplementary) from 1 January 2007 is to be determined by the results of this valuation.

9.6 Table 4 summarises the result of the valuation as at 31 March 2004 under the current provisions.

Table 4

Valuation statement as at 31 March 2004 (current provisions)

Present value of:	**£ million**
Liabilities	
Benefits in respect of:	
Pensions in payment	49,690
Deferred members (including after re-entry to service)	15,300
Benefits to active members:	
In respect of service before 31 March 2004	57,310
In respect of service after 1 April 2004	44,200
Total liabilities	166,500
Assets	
Standard contributions:	
Existing members	14,220
Employers	
in respect of existing active members	29,200
in respect of existing deferred members (after re-entry to service)	3,900
Added years contributions	140
Balance in SCAPE Account	115,780
Total assets	163,240
Balance of assets less liabilities	(3,260)

9.7 Table 4 shows that, under the current provisions, there is a deficiency of £3,260 million as at 31 March 2004.

Supplementary contribution rate

9.8 The Regulations require that a deficiency should be met by a supplementary contribution payable for 15 years. The deficiency of £3,260 million would be eliminated by a supplementary contribution of 1.35% payable for 15 years commencing 1 January 2007.

Total contribution rate

9.9 Taking into account the supplementary contribution rate, the total contribution rate under the current provisions is 21.45%, payable from 1 January 2007.

Trace of deficiency as at 31 March 2004

9.10 At the 2001 valuation, the Regulations required that the balance in the Account as at 1 April 2001 be set equal to the value of the total service liabilities less the value of future contributions (payable at the standard contribution rate) from members and employers as at that date, and so there was no surplus or deficiency. In addition, under the SCAPE methodology, no surplus or deficiency will have arisen as a result of interest credited to the Account (because interest is credited at the same rate as the assumed valuation rate of interest), or the effect of price increases (since the rate of interest is expressed in real terms).

9.11 Thus, the deficiency of £3,260 million (or, say, £3¼ billion) at the current valuation is the result of the demographic experience (including salary experience) over the period 1 April 2001 to 31 March 2004, and changes to the actuarial assumptions at the current valuation.

9.12 Table 5 summarises the main factors underlying the deficiency as at 31 March 2004.

Table 5

Trace of deficiency as at 31 March 2004

Factor		**£ billion**
Surplus (deficiency) as at 1 April 2001		0
(i)	Salary increases higher than expected	- 1¼
(ii)	Changes to mortality basis	- 1½
(iii)	Other changes to demographic basis	¼
(iv)	Reduction of ½% in gross rate, to 6½%	- 1
(v)	Other demographic experience and miscellaneous	¼
Surplus (deficiency) as at 31 March 2004		- 3¼

Sensitivity of results

9.13 Under SCAPE, the Superannuation Account is credited with interest at the same real rate of return as that assumed to value the liabilities and determine the standard contribution rate and so it is not necessary to consider the effect of the valuation rate of interest not being borne out in future. However, the valuation result is sensitive to the demographic assumptions, particularly those relating to mortality.

9.14 Paragraphs 8.4 and 8.5 describe the mortality assumptions adopted for the valuation. If active members retiring on age grounds were assumed to live one year longer (less), then this would increase (reduce) the standard contribution rate by about ¼% of salaries, and also increase (reduce) the supplementary contribution rate by about ¼% of salaries.

10 Valuation result – New provisions

10.1 This section sets out the results of the valuation under the new provisions (and allowing for additional commutation under the new taxation regime), coming into effect on 1 January 2007, including the increase in the members' contribution rate from 6% to 6.2%.

10.2 The valuation has been carried out as described in Section 6 – the Attained Age Method for existing members and the Entry Age Method for new entrants after 1 January 2007 – with the separate results used to produce a combined contribution rate payable in respect of all members from 1 January 2007 until 31 March 2010.

Standard contribution rate – existing members

10.3 The standard contribution rate for existing members under the new provisions (allowing for additional commutation) is assessed to be 20.95% from 1 January 2007.

10.4 This rate is higher than that under the current provisions of 20.1% (paragraph 9.2), mainly because of the change in the valuation methodology (from Entry Age (or EAM) to Attained Age (or AAM)). The change from EAM to AAM produces valuation surplus in respect of the existing members because, with the higher future standard contributions under the AAM, a smaller fund is required in respect of past service liabilities than under the EAM. Allowing for this surplus, the adjusted contribution rate (see paragraph 6.8) payable in respect of existing members under the new provisions falls from 20.95% to 19.80%.

Standard contribution rate – new entrants

10.5 The standard contribution rate for new entrants under the new provisions (allowing for additional commutation) is assessed to be 19.15% from 1 January 2007.

10.6 This is lower than the corresponding rate of 20.1% under the current provisions (paragraph 9.2). The increase in the Normal Pension Age from age 60 to 65 reduces the standard contribution rate by 1.95% but this is offset by the net effect of benefit changes and additional commutation amounting to 1%.

Valuation result

10.7 The valuation includes the liabilities in respect of the future service of existing active members (and of existing deferred members after re-entry to the Scheme). The assets include the corresponding future contributions payable in respect of existing members (including those payable after re-entry to the Scheme).

10.8 Thus, the contributions payable after 1 April 2004, and taken into account for the valuation, are standard contributions of 19.5% of salaries until 31 December 2006, and contribution rates of 19.80% (existing members as at 1 January 2007) and 19.15% (new entrants after 1 January 2007) thereafter. The rate of any contribution adjustment (reduction or supplementary) from 1 January 2007 is to be determined by the results of this valuation.

10.9 Table 6 summarises the result of the valuation as at 31 March 2004 under the new provisions.

Table 6

Valuation statement as at 31 March 2004 (new provisions)

Present value of:	**£ million**
Liabilities	
Benefits in respect of:	
Pensions in payment	49,690
Deferred members (including after re-entry to service)	15,020
Benefits to active members:	
In respect of service before 31 March 2004	56,180
In respect of service after 1 April 2004	43,600
Total liabilities	164,490
Assets	
Standard contributions:	
Existing members	14,580
Employers	
in respect of existing active members	28,390
in respect of existing deferred members (after re-entry to service)	3,760
Added years contributions	140
Balance in SCAPE Account	115,780
Total assets	162,650
Balance of assets less liabilities	(1,840)

10.10 Table 6 shows that, under the new provisions, there is a deficiency of £1,840 million as at 31 March 2004. This is some £1,420 million less than the deficiency under the current provisions (paragraph 9.6), mainly due to the allowance for additional commutation by existing members retiring after 1 January 2007.

Supplementary contribution rate

10.11 The Regulations require that a deficiency should be met by a supplementary contribution payable for 15 years. The deficiency of £1,840 million would be eliminated by a supplementary contribution of 0.75% payable in respect of all members for 15 years commencing 1 January 2007.

Total contribution rate

10.12 Taking into account the supplementary contribution rate, the total contribution rates under the new provisions are 20.55% for existing members as at 1 January 2007 and 19.90% for new entrants after 1 January 2007, payable from that date.

Combined contribution rate

10.13 As described earlier in this Section, with effect from 1 January 2007, the standard contribution rate in respect of existing members (as at that date) will differ from that in respect of new entrants. However, DfES has asked me to derive an appropriate combined standard contribution rate payable over the period 1 January 2007 to 31 March 2010 (the assumed implementation date of the 2008 valuation).

10.14 This combined contribution rate has been determined as the average of the separate contribution rates, weighted by the estimated proportion of the total salary roll payable to the two groups of members, allowing for the gradual growth of new entrants over the period.

10.15 Based on the adjusted contribution rate for existing members (of 19.80%) and the standard contribution rate for new entrants (of 19.15%), both payable from 1 January 2007, the combined standard contribution rate for the period 1 January 2007 to 31 March 2010 is assessed to be 19.75%.

10.16 Taking into account the supplementary contribution of 0.75% payable in respect of all members, the combined total contribution rate for the period 1 January 2007 to 31 March 2010 is assessed to be 20.50%.

Members' and employers' contribution rates

10.17 As noted in paragraph 3.5, as part of a wider agreement relating to long-term financial sustainability, the members' contribution rate payable from 1 January 2007 also takes into account the result of this valuation. DfES has informed me that the members' contribution rate payable from 1 January 2007 will be 6.4%, and so the employers' contribution rate payable from 1 January 2007 will be 14.1%.

Future cost sharing

10.18 At future valuations, a change in the total contribution rate arising from the demographic experience (except that arising from the growth of new entrants) will be shared equally between members and employers, subject to a ceiling of 14% on the employers' contribution rate with effect from the 2008 valuation. The 14% ceiling will be reviewed in the event of future changes to the total contribution rate arising from factors other than demographic experience, such as overriding legislative requirements or changes to the SCAPE financial assumptions.

Sensitivity of results

10.19 Paragraphs 9.13 and 9.14 comment on the sensitivity of the results under the current provisions shown in Section 9. The comments apply equally to the results under the new provisions, shown in this section. An additional assumption adopted for this section relates to the assumed proportion of pension commuted under the new taxation regime (as described in paragraphs 8.18 and 8.19).

10.20 If existing members were assumed to commute no additional pension, then this would increase the standard contribution rate by about ¼% of salaries, and also increase the supplementary contribution rate by about ½% of salaries. If existing members were assumed to commute two thirds of the allowable maximum, then this would reduce the standard contribution rate by about ¼% of salaries, and also reduce the supplementary contribution rate by about ½% of salaries.

11 Summary

New provisions

11.1 Under the new provisions that come into force on 1 January 2007, the combined standard contribution rate payable in respect of all members is 19.75%, payable from 1 January 2007. (This is based on the adjusted contribution rate for existing members (of 19.80%) and the standard contribution rate for new entrants (of 19.15%), both payable from 1 January 2007.)

11.2 There is a deficiency of £1,840 million as at 31 March 2004, which would be eliminated by a supplementary contribution of 0.75% of salary payable for 15 years from 1 January 2007. The total combined contribution rate payable from 1 January 2007 is 20.50% of salary.

Current provisions

11.3 If the Scheme had remained subject to the current provisions (and without allowance for additional commutation under the new taxation regime), then the standard contribution rate would have been 20.1%, an increase of 0.6% over the corresponding standard contribution rate recommended in the report on the 2001 valuation.

11.4 There would have been a deficiency of £3,260 million as at 31 March 2004, which would be eliminated by a supplementary contribution of 1.35% of salary payable for 15 years from 1 January 2007. The total contribution rate payable from 1 January 2007 would have been 21.45% of salary.

Members' and Employers' contribution rates from 1 January 2007

11.5 Under a UK-wide agreement, the member contribution rate has been set at 6.4% from 1 January 2007 until it is reviewed in light of the next actuarial valuation.

11.6 The total recommended rate of contribution payable by employers from 1 January 2007 is therefore 14.1% of salary.

C D Daykin CB FIA
10 November 2006
Government Actuary

Appendix A Summary of current provisions

Eligibility for membership

A1 All full-time and part-time teachers in state schools, accepted independent schools, further education colleges and the universities established in 1992 are eligible for membership of the Scheme.

Contributions

A2 Members contribute at the rate of 6% of pensionable salary (which includes some allowances but excludes payments in respect of overtime and extra duties).

Retirement age

A3 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

A4 Subject to a qualifying period of two years, the pension is 1/80th of final pensionable salary per year of service, where final pensionable salary is the best year's pensionable salary in the last three years of service. A lump sum of three times the pension is also payable.

Benefits on retirement due to ill-health

A5 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

A6 On death in service, a lump sum is payable of two times annual pensionable salary.

Benefits on withdrawal

A7 A member who leaves with less than two years' service may take a refund of contributions (those made by the member not the employer) 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.

A8 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.

Partners' and children's benefits

A9 When a member dies after retirement, a pension is payable to a surviving spouse or civil partner. The pension is 1/160th of pensionable salary per year of service. (For widows, the member's service after 31 March 1972 reckons towards the widow's pension. For widowers and civil partners, only service after 5 April 1988 is reckonable.) On death in service, a higher short term pension and then an enhanced pension are payable. On death after retirement, a higher short term pension is payable and a supplementary grant may also be payable. Children's pensions are payable in respect of dependent children.

Pension increases

A10 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 Summary of new provisions for existing members

Eligibility for membership

B1 All full-time and part-time teachers in state schools, accepted independent schools, further education colleges and the universities established in 1992 are eligible for membership of this section of the Scheme, provided that they join before 1 January 2007. This section of the Scheme will be closed to new entrants from 1 January 2007.

Contributions

B2 Members contribute at the rate of 6.4% of pensionable salary (which includes some allowances but excludes payments in respect of overtime and extra duties). As a result of the cost sharing arrangements, the member contribution rate may change to take into account the results of future valuations of the scheme.

Retirement age

B3 Pensions are normally payable from age 60 although many members continue to work after that age. Until 2010, pensions may be payable from age 50 (at the employer's expense) where employment has been terminated prematurely on redundancy or efficiency grounds; from 2010, the minimum age will be 55. Members may take an actuarially reduced pension from age 55.

Benefits on retirement at or after age 60

B4 Subject to a qualifying period of two years, the pension is 1/80th of final pensionable salary per year of service, where final pensionable salary is the better of the last year's pensionable salary and the average of the best three consecutive years' pensionable salary in the last ten years of service. A lump sum of three times the pension is also payable. Members may commute up to 20% of their pension at a rate of £12 cash for £1 pension to receive additional lump sum.

Benefits on retirement due to ill-health

B5 On retirement due to ill-health with more than two years' service, an immediate pension is payable. Members suffering total incapacity will receive an enhanced pension based on actual service increased by half of the prospective service to age 60. There is no enhancement to the service of members suffering partial incapacity but the pension is not reduced for early payment. Members may commute up to 20% of their pension at a rate of £12 cash for £1 pension to receive additional lump sum.

Lump sum on death in service

B6 On death in service, a lump sum is payable of three times annual pensionable salary.

Benefits on withdrawal

B7 A member who leaves with less than two years' service may take a refund of contributions (those made by the member not the employer) 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

B8 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. If the break in service is greater than five years then the service after re-entry would be in the new entrant scheme described in Appendix C. The benefits relating to the service in the current scheme will still be linked to final salary

Partners' and children's benefits

B9 When a member dies after retirement, a pension is payable to a surviving partner. The pension is 1/160th of pensionable salary per year of service. (For widows, the member's service after 31 March 1972 reckons towards the widow's pension. For widowers and civil partners, only service after 5 April 1988 is reckonable. For nominated unmarried partners, only service after 1 January 2007 is reckonable.) On death in service, a higher short term pension and then an enhanced pension are payable. On death after retirement, a higher short term pension is payable and a supplementary grant may also be payable. Children's pensions are payable in respect of dependent children.

Pension increases

B10 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 C Summary of new provisions for new entrants

Eligibility for membership

C1 All new entrant full-time and part-time teachers in state schools, accepted independent schools, further education colleges and the universities established in 1992 are eligible for membership of this section of the Scheme. New entrants are defined as those who first join the Scheme after 31 December 2006. Existing members who return to service after 31 December 2007 following a break of more than five years will also be subject to new provisions.

Contributions

C2 Members contribute at the rate of 6.4% of pensionable salary (which includes some allowances but excludes payments in respect of overtime and extra duties). As a result of the cost sharing arrangements, the member contribution rate may change to take into account the results of future valuations of the scheme.

Retirement age

C3 Pensions are normally payable from age 65 although members may continue to work after that age. Pensions may be payable from age 55 (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 65

C4 Subject to a qualifying period of two years, the pension is 1/60th of final pensionable salary per year of service, where final pensionable salary is the better of the last year's pensionable salary and the average of the best three consecutive years' pensionable salary in the last ten years of service. Members may commute up to 35% of their pension at a rate of £12 cash for £1 pension to receive a lump sum. Benefits taken after age 65 will be actuarially enhanced.

Benefits on retirement due to ill-health

C5 On retirement due to ill-health with more than two years' service, an immediate pension is payable. Members suffering total incapacity will receive an enhanced pension based on actual service increased by half of the prospective service to age 65. There is no enhancement to the service of members suffering partial incapacity but the pension is not reduced for early payment. Members may commute up to 35% of their pension at a rate of £12 cash for £1 pension to receive a lump sum.

Lump sum on death in service

C6 On death in service, a lump sum is payable of three times annual pensionable salary.

Benefits on withdrawal

C7 A member who leaves with less than two years' service may take a refund of contributions (those made by the member not the employer) with interest at any time before age 65. A member who leaves with greater than two years' service is entitled to a preserved pension payable from age 65. Members may commute up to 35% of their pension at a rate of £12 cash for £1 pension to receive a lump sum.

C8 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.

Partners' and children's benefits

C9 When a member dies, a pension is payable to a surviving partner. The pension is 1/160th of pensionable salary per year of service. On death in service, a higher short term pension and then an enhanced pension are payable. On death after retirement, a higher short term pension is payable and a supplementary grant may also be payable. Children's pensions are payable in respect of dependent children.

Pension increases

C10 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 D The Teachers' Pension Account 1 April 2001 to 31 March 2004

Table D1

Consolidated SCAPE Account, 1 April 2001 to 31 March 2004

	£ million
Balance at 1 April 2001	**102,010**
Income	
Member contributions	3,223
Employer contributions	5,089
Total contributions	8,312
Transfers, CEPs & miscellaneous	264
Return on SCAPE account	17,788
Total income	26,364
Outgo	
Benefits (including pension increases)	12,087
Refunds, transfers, CEPs	505
Total outgo	12,592
Balance at 31 March 2004	**115,782**

Table D2

Annual breakdown of income and outgo, 1 April 2001 to 31 March 2004

(£ million)

	Year ending 31 March		
	2002	**2003**	**2004**
Balance at start of year	102,010	105,694	109,636
Income			
Member contributions	1,014	1,072	1,137
Employer contributions	1,230	1,449	2,410
Total contributions	2,244	2,521	3,547
Transfers, CEPs & other income	88	91	85
Return on SCAPE account	5,310	5,536	6,942
Total income	7,642	8,148	10,574
Outgo			
Benefits (including pension increases)	3,820	4,021	4,246
Refunds, transfers, CEPs	138	185	182
Total outgo	3,958	4,206	4,428
Balance at end of year	105,694	109,636	115,782

Appendix E Membership data

Table E1

Active members, 2001 and 2004

	31 March 2001		31 March 2004	
	Number	Total salaries * £ million	Number	Total salaries † £ million
Men	190,479	5,782	199,825	6,854
Women	387,723	10,448	428,622	13,205
Total	578,202	16,230	628,447	20,059

* payable from 1 April 2001 † payable from 1 April 2004

Table E2

Changes in active membership, 2001 to 2004

	Men	Women	Total
Number at 31 March 2001	**190,479**	**387,723**	**578,202**
Plus			
New entrants	35,518	85,525	121,043
Re-entrants	17,021	55,420	72,441
Other entrants (including transfers in)	1,902	4,095	5,997
EFE entrants *	1,325	1,536	2,861
Less			
Deaths in service	580	664	1,244
Premature retirements	3,463	3,993	7,456
Actuarially Reduced Benefits	3,158	5,207	8,365
Ill-health retirements	3,356	4,612	7,968
Age retirements	5,817	9,423	15,240
Other exits (including transfers out)	30,046	81,778	111,824
Number at 31 March 2004	**199,825**	**428,622**	**628,447**

* Elected Further Employment

Table E3

Pensions in payment, 2001 and 2004

Retirement category	31 March 2001 Number	31 March 2001 Annual pensions * £ million	31 March 2004 Number	31 March 2004 Annual pensions † £ million
Age and premature				
Men	131,521	1,290	136,155	1,443
Women	184,953	1,259	198,748	1,439
Ill-health				
Men	28,895	286	30,663	336
Women	46,088	360	48,707	419
Spouses	31,664	92	40,438	124
Total (excl. children)	**423,121**	**3,287**	**454,711**	**3,761**

* including pension increases payable from April 2001 (note that the 2001 report shows the pension amounts excluding these increases.)

† including pension increases payable from April 2004

Table E4

Deferred members, 2001 and 2004

	31 March 2001 Number (thousands)	31 March 2001 Total deferred pensions * (£ million)	31 March 2004 Number (thousands)	31 March 2004 Total deferred pensions † (£ million)
Men	82	183	89	218
Women	202	336	217	398
Total	284	519	306	616

* including increases applying from April 2001

† including increases applying from April 2004

Appendix F Demographic experience and basis

F1 This Section considers the demographic experience over the period 1 April 2001 to 31 March 2004, and describes the demographic assumptions adopted for the current review.

Pensioner mortality after age and premature retirement

F2 Existing age retirement pensioners may have retired at age 60 (or over) or retired prematurely at age 50 (or over).

F3 At the 2001 valuation, the mortality assumptions adopted for this group were based on standard mortality tables published by the Faculty and Institute of Actuaries, known as PMA92 (men) and PFA92 (women), which also include allowance for future mortality improvement. The published tables were adjusted to take account of the Scheme's experience by a reduction of one year of age (which implied greater longevity than the unadjusted standard tables).

F4 The mortality experience over the period 2001-2004 was broadly in line with the mortality assumptions adopted for the previous review. Since the 2001 valuation, however, the actuarial profession and other bodies have continued to discuss and project future levels of mortality improvement. The broad consensus is that younger people will be subject to greater levels of future improvement than has previously been assumed, and than is incorporated in the standard PMA92 and PFA92 tables. At the current valuation, I have therefore included allowance for future mortality improvement broadly consistent with that included in the UK 2004-based population projections which, for future pensioners (ie existing (active and deferred) members and new entrants) produces greater allowance for future mortality improvement than the standard tables.

F5 At this valuation, the assumed mortality rates for existing pensioners are in accordance with the standard PMA92 and PFA92 tables with a reduction of one year of age. The assumed life expectancy at age 60 of existing pensioners is 25½ years for men and 28½ years for women.

F6 For existing active and deferred members, the mortality rates in the standard tables have been projected to the calendar year 2045 with a reduction of one and a half years of age. The assumed life expectancy at age 60 of existing active and deferred members is 27½ years for men and 30½ years for women. Table G1 of Appendix G shows assumed mortality rates for future age retirement pensioners at specimen ages.

F7 For future new entrants, the mortality rates in the standard tables have been projected to the calendar year 2045 with a reduction of two years of age. The assumed life expectancy at age 60 of future new entrants is 28 years for men and 31 years for women.

Pensioner mortality after ill-health retirement

F8 Existing ill-health pensioners retired before attaining age 60. Following the changes to the ill-health retirement criteria in 1997, the mortality experience of this group over the period 1996-2001 suggested that the mortality of members who retired on ill-health grounds before 1997 was lighter than that of members who retired after 1997. Consequently, at the 2001 valuation, the mortality for future ill-health retirements was assumed to be heavier than that for (then) existing ill-health pensioners.

F9 The mortality experience of ill-health pensioners over the period 2001-2004 was heavier than assumed for existing pensioners at the 2001 valuation, particularly at younger ages. This is not unexpected since, broadly speaking, older pensioners retired before 1997 whereas the younger pensioners are a mixed group of those who retired before and after the 1997 changes (and so would be expected to be subject to heavier mortality).

F10 At previous valuations, there has been clear evidence that ill-health retirement pensioners are subject to heavier mortality in the years immediately after retirement than those of the same age who have been retired for some time, and recent experience confirms this continues to the case.

F11 At this valuation, we would expect the mortality of future ill-health pensioners under the current provisions (until 1 January 2007) to be heavier than that of existing ill-health pensioners (because many of the existing pensioners retired before the ill-health retirement criteria were tightened in 1997) although this might be offset by general improvements in mortality over time.

F12 Under the new provisions (from 1 January 2007), there will be two tiers of ill-health retirement. We expect the mortality of the two groups of future ill-health pensioners to differ but the overall average level of mortality should be similar to that of future ill-health pensioners under the current provisions. At this valuation, I have assumed that the mortality of future ill-health pensioners under the new provisions will be the same as if the current ill-health provisions were to remain in force. Future valuations should provide evidence to assess the mortality differential between the two tiers of ill-health retirements.

F13 The assumed mortality rates for existing ill-health pensioners are based on the standard PMA92 and PFA92 tables with adjustments to reflect the recent experience. The assumed life expectancy at age 60 of existing ill-health pensioners is 20½ years for men and 24½ years for women.

F14 The assumed mortality rates for future pensioners are similar although the adjustments differ slightly and the rates include allowance for additional future mortality improvement. As at the 2001 valuation, it has also been assumed that, for men, mortality in the first year after retirement will be 50% greater than for those of the same age who have been retired more than one year. For women, it has been assumed that mortality in the first year after retirement will be 100% greater in the first year, and 50% greater in the second year, than for those of the same age who have been retired for two years or more. The assumed life expectancy of new entrants retiring on ill-health at age 55 is 25½ years for men and 29½ years for women.

F15 Table G1 of Appendix G shows assumed mortality rates for future ill-health pensioners at specimen ages.

Spouses' and partners' mortality

F16 At the 2001 valuation, the mortality assumptions adopted for (then) existing widows were based on standard mortality tables published by the Faculty and Institute of Actuaries, known as WA92, which also includes allowance for future mortality improvement. The published tables were adjusted to take account of the Scheme's experience by a reduction of two years of age (which implied greater longevity than the unadjusted standard tables). For widowers, the mortality assumptions adopted at the 2001 valuation were the same as for male pensioners after retirement (the standard table PMA92 adjusted by a reduction of one year of age).

F17 For widows, there was evidence that the recent mortality experience (2001-2004) was heavier than assumed at the 2001 valuation. For widowers, the volume of data allowed a limited analysis which indicated that the experience was somewhat heavier than that of male pensioners (which is consistent with findings in the wider population).

F18 At this valuation the assumed mortality rates for existing widows (and future widows of existing pensioners) are in accordance with the standard WA92 tables but with a reduction of one year of age. The assumed mortality rates for existing widowers (and future widowers of existing pensioners) are in accordance with the standard PMA92 table without adjustment.

F19 For future widows of existing active and deferred members, the mortality rates in the WA92 table have been projected to the calendar year 2045 with a reduction of one and a half years of age. For future widowers of existing members, the mortality rates in the PMA92 table have been projected to the calendar year 2045 with a reduction of one half of a year of age. Table G1 of Appendix G shows assumed mortality rates for future spouses of existing members at specimen ages. The assumed mortality of future spouses of new entrants includes allowance for additional improvement by means of a further reduction of one half of a year of age.

F20 It has been assumed that female partners' will be subject to the same mortality as widows and male partners the same mortality as widowers.

Proportions eligible for spouses' and partners' benefits

F21 There was some evidence from the Scheme's recent experience that proportions married (and therefore eligible for spouse's benefits) at younger ages were higher than assumed at the 2001 valuation although this is not consistent with trends in the wider population. In view of this, and the greater relevance of proportions partnered under the new provisions, the 2001 assumptions of proportions married were retained for this valuation.

F22 There is no available data on which to base the assumed proportions eligible for partners' benefits under the new provisions, and so this assumption has been set by reference to other sources relating to the wider population. Table G2 of Appendix G shows the assumed proportions married and proportions married or partnered at specimen ages.

Active members

F23 Paragraphs F24 to F37 discuss the demographic assumptions adopted in order to determine the standard contribution rate and to value the liabilities of active members.

In-service decrements

F24 Over the period 1996-2004, the experienced rates of retirement (on age grounds) at age 60 were broadly in line with the rates assumed at the 2001 valuation. Between ages 61 and 64 the experienced rates were higher than those assumed for the 2001 valuation, particularly for men. Since this feature of the Scheme experience has now been apparent for several years, the assumed rates of retirement at these ages (in respect of benefits subject to NPA of 60) have been increased at the current valuation. However, the assumed rates of retirement at age 60 have been reduced to reflect the introduction of voluntary early retirement with actuarially reduced benefits (and changes to premature retirement rules).

F25 Under the current provisions, the assumed rates of age retirement are lower at age 60, and higher between ages 61 and 64, than those adopted for the 2001 valuation. On average, men are assumed to retire at about age 62½ and women at just under age 62. Under the new provisions, members are assumed to retire at age 65 if they have not retired earlier with actuarially reduced benefits (members retiring after age 65 will receive actuarially enhanced benefits that are broadly cost neutral to the Scheme).

F26 Allowance has been included for future premature retirements and early retirements with actuarially reduced benefits (although both are cost neutral to the scheme).

F27 Table G3 of Appendix G shows the assumed rates of age and early retirement from active service for members with NPA 60 and NPA 65.

F28 Over the period 2001 to 2004, the number of ill-health retirements was significantly lower than expected under the assumptions adopted for the 2001 review. This may be partly attributable to the 1997 changes to the ill-health retirement criteria and premature retirement provisions. It may also be partly due to improved data recording. At this valuation, the assumed rates of ill-health retirement for men and women are lower than assumed at the 2001 valuation although they do not fully reflect the observed reduction until further evidence becomes available at future valuations. DfES has asked me to assume that two thirds of ill-health retirements after 1 January 2007 will be eligible for the higher tier of benefits. Tables G4 and G5 of Appendix G show the assumed rates of ill-health retirement at specimen ages for members with NPA 60 and NPA 65 respectively.

F29 Over the period 2001 to 2004, the number of deaths in service was lower than expected under the assumptions adopted for the 2001 review. This is mainly due to improved data recording (better separation of the active and deferred membership data). At this valuation, the assumed rates of death in service for men and women are slightly lower than assumed at the 2001 valuation. Tables G4 and G5 of Appendix G show the assumed rates of death in service at specimen ages for members with NPA 60 and NPA 65 respectively.

F30 The numbers of withdrawals from service over the period 2001 to 2004 were analysed by duration of service and the age of the member at withdrawal. The numbers were higher than expected on the 2001 basis, notably for men, and particularly at ages over 50. There is no apparent reason for the observed experience at the older ages but, in future, we would expect a reduction in withdrawals by members over age 55 due to increasing numbers taking actuarially reduced pensions.

F31 At this valuation, we have assumed higher withdrawal rates for men (below age 55) than at the 2001 valuation, although not to the extent indicated by the recent experience. For women (below age 55), we have retained the rates assumed at the 2001 review. For both men and women, the rates above age 55 have been reduced to allow for the introduction of explicit assumptions relating to early retirement.

F32 Withdrawal rates tend to be higher in the early years of service and to fall as service increases. It has been assumed that withdrawal rates in the first two years of service will be higher than the rate at the same age for members with at least two years' service. For men under age 55, the assumed withdrawal rates in the first two years of service have been increased broadly in line with the increase for members with at least two years' service. For women under age 55, the assumed withdrawal rates in the first two years of service are the same as at 2001 valuation. For men and women over age 55, no account was taken of the lower withdrawal rates over age 55 for those with at least two years' service (because members with less than two years' service will not qualify for actuarially reduced pensions).

F33 Tables G4 and G5 of Appendix G show the assumed withdrawal rates at specimen ages for members with more than two years' service and with NPA 60 and NPA 65 respectively. Table G6 of Appendix G shows withdrawal rates at specimen ages for members with less than two years' service.

F34 A member may re-enter the Scheme after previous withdrawal. On re-entry, a member may aggregate the earlier period of service with the service subsequent to re-entry (except that an existing member who re-enters service after a break of more than 5 years would be treated as a new entrant for future accrual). It is assumed that, of members who first withdraw from service more than 10 years before normal pension age, about two thirds of women and one third of men re-enter service, on average, about five years after withdrawal. After re-entry to service, the assumed rates of ill-health retirement and withdrawal are about three quarters of those applicable to members who have remained in continuous service. The benefits in respect of both periods of service are based on the salary at the final date of exit. I have assumed that other deferred members receive benefits at normal pension age.

Progression of average salary with age

F35 In addition to the allowance for general increases in salary (see paragraph 7.4), the valuation also includes allowance for increases in salary arising from increments and promotion. Salaries in payment as at 31 March 2004 were analysed by age and duration of service. The analysis indicated that salaries as at 31 March 2004 were broadly in line with the promotional scale adopted for the 2001 valuation. As noted in my previous review, changes to the salary structure (such as the introduction of threshold payments) do not appear to have materially affected the salary scale.

F36 For both men and women, the assumed promotional scale is the same as that adopted for the 2001 valuation. Table G7 of Appendix G shows the promotional salary scale at specimen ages. For members who have a break in service between the valuation date and the date that benefits come into payment, it is assumed that the final pensionable salary will be lower than if service had been continuous.

Entry age

F37 For the purpose of calculating the new entrant standard contribution rate (see Section 9), I have assumed that new entrants join the Scheme at a range of ages with an average of about age 30 for men and age 28 for women. It is assumed that about 70% of new entrants are female. These are the same assumptions as adopted at the previous valuation.

Appendix G Demographic assumptions

Table G1

Assumed rates of mortality after retirement

(of existing active and deferred members)

Age	Age (or premature) retirement		Ill-health retirement (more than two years)		Spouses and partners	
	Men	Women	Men	Women	Widows	Widowers
25			.0086	.0065	.0001	.0001
30			.0086	.0065	.0002	.0001
35			.0086	.0066	.0002	.0001
40			.0086	.0066	.0003	.0001
45			.0087	.0067	.0005	.0002
50			.0089	.0068	.0008	.0003
55	.0005	.0005	.0094	.0072	.0012	.0006
60	.0011	.0010	.0105	.0079	.0018	.0013
65	.0030	.0024	.0141	.0101	.0035	.0036
70	.0077	.0057	.0220	.0147	.0071	.0092
75	.0176	.0124	.0375	.0235	.0134	.0206
80	.0364	.0247	.0648	.0388	.0244	.0416
85	.0681	.0455	.1081	.0636	.0430	.0763
90	.1161	.0780	.1692	.1003	.0736	.1277
95	.1808	.1248	.2463	.1505	.1228	.1956
100	.2588	.1864	.3329	.2135	.1987	.2754

Table G2

Assumed proportions married and proportions married or partnered

Age	Accrual before 1/1/2007		Accrual after 1/1/2007	
	Proportion married		Proportion married or partnered	
	Men	Women	Men	Women
25	0.10	0.11	0.25	0.23
30	0.25	0.25	0.44	0.40
35	0.40	0.37	0.58	0.52
40	0.54	0.48	0.72	0.63
45	0.65	0.58	0.83	0.73
50	0.73	0.67	0.91	0.82
55	0.79	0.71	0.95	0.84
60	0.83	0.68	0.96	0.79
65	0.85	0.63	0.98	0.72
70	0.84	0.59	0.97	0.66
75	0.81	0.51	0.93	0.57
80	0.76	0.39	0.88	0.44
85	0.68	0.25	0.78	0.28
90	0.53	0.12	0.61	0.14
95	0.34	0.04	0.39	0.05
100	0.17	0.01	0.20	0.01

Table G3

Assumed rates of early retirement (with ARB) and age retirement

Age	NPA 60		NPA 65	
	Men	Women	Men	Women
55	0.06 *	0.06 *	-	-
56	0.07 *	0.07 *	-	-
57	0.08 *	0.08 *	-	-
58	0.09 *	0.09 *	-	-
59	0.10 *	0.10 *	-	-
60	0.25	0.37	0.06 *	0.06 *
61	0.24	0.32	0.07 *	0.07 *
62	0.20	0.25	0.08 *	0.08 *
63	0.20	0.25	0.09 *	0.09 *
64	0.45	0.48	0.10 *	0.10 *
65	0.78	0.76	1.00 †	1.00 †
66	0.60	0.56		
67	0.35	0.30		
68	0.33	0.30		
69	0.65	0.65		
70	1.00	1.00		

* early retirement with Actuarially Reduced Benefits (ARB)

† Benefits taken after age 65 will be subject to actuarial enhancement

Table G4

Assumed rates of death in service, withdrawal and ill-health retirement (NPA 60)

Age	Death in service		Withdrawal (at least 2 years' service)		Ill-health retirement	
	Men	Women	Men	Women	Men	Women
25	.0002	.0002	.0588	.0950	.0001	.0001
30	.0003	.0002	.0538	.0915	.0002	.0004
35	.0005	.0003	.0475	.0704	.0006	.0008
40	.0007	.0005	.0413	.0515	.0015	.0014
45	.0010	.0007	.0358	.0404	.0039	.0033
50	.0014	.0011	.0295	.0323	.0108	.0079
55	.0023	.0015	.0125	.0150	.0186	.0156
60	.0040	.0021	.0000	.0000	.0000	.0000

Table G5

Assumed rates of death in service, withdrawal and ill-health retirement (NPA 65)

Age	Death in service		Withdrawal (at least 2 years' service)		Ill-health retirement	
	Men	Women	Men	Women	Men	Women
25	.0002	.0002	.0588	.0950	.0001	.0001
30	.0003	.0002	.0538	.0915	.0002	.0004
35	.0005	.0003	.0475	.0704	.0006	.0008
40	.0007	.0005	.0413	.0515	.0015	.0014
45	.0010	.0007	.0358	.0404	.0039	.0033
50	.0014	.0011	.0295	.0323	.0108	.0079
55	.0023	.0015	.0250	.0300	.0190	.0156
60	.0040	.0021	.0125	.0150	.0274	.0240
65	.0061	.0029	.0000	.0000	.0000	.0000

Table G6

Assumed rates of withdrawal during first 2 years

Age	Rate of withdrawal in first year of service		Rate of withdrawal in second year of service	
	Men	Women	Men	Women
25	.09	.09	.08	.09
30	.10	.09	.10	.11
35	.11	.06	.09	.07
40	.12	.06	.09	.05
45	.13	.07	.10	.06
50	.13	.10	.11	.07
55	.15	.14	.12	.08

Table G7

Assumed salary scale for active members

Age	Salary scale	
	Men	Women
25	100	100
30	125	124
35	151	143
40	168	152
45	179	158
50	186	164
55	190	168
60	192	170
65	194	172